RESOLUTION OF THE
RESOURCES AND DEVELOPMENT COMMITTEE
23rd Navajo Nation Council --- Fourth Year, 2018

AN ACTION

RELATING TO RESOURCES AND DEVELOPMENT COMMITTEE; APPROVING THE NAVAJO FORESTLANDS INTEGRATED RESOURCE MANAGEMENT PLAN FOR THE NAVAJO NATION

BE IT ENACTED:

SECTION ONE. AUTHORITY

A. The Resources and Development Committee is established as a standing committee of the Navajo Nation Council and oversight committee of the Division of Natural Resources. 2 N.N.C. § 500(A); 2 N.N.C. § 501(C)(1).

B. The Resources and Development Committee shall exercise oversight authority over water, land, the environment and environmental protection. 2 N.N.C. § 500 (A).

C. The Resources and Development Committee has the authority to promulgate rules and regulations governing environmental protection and the development of Navajo Nation lands. 2 N.N.C. § 501(B)(1).

SECTION TWO. FINDINGS

A. The Navajo Nation Division of Natural Resources has submitted the Forestlands Integrated Resource Management Plan for the Navajo Nation which is attached as **Exhibit A.**

B. The Navajo Forestlands Integrated Resources Management Plan (IRMP), "is a strategic plan for the comprehensive management of the land based resources for the following five forestland areas: 1. Chuska Mountains 2. Defiance Plateau 3. Carrizo Mountain 4. Mount Powell 5. Navajo Mountain. These five areas were selected based on the need for future management planning, availability of resource data and the opportunity to benefit from multi-resource management planning. The IRMP document creates a unified approach for managing the forestlands areas from a holistic, multi-resource benefit perspective by addressing opportunities for increased collaboration. The Vision, Goals and Recommendations

developed as part of the IRMP process and the Preferred Integrated Resource Management Option provide direction for land managers and the community before future planning and projects are conducted in the forestland areas". **Exhibit A,** page 7.

C. The Navajo Forestlands Integrated Resources Management Plan has been reviewed through the Executive Official Review system, Document 011482, including the Department of Justice and has been found to be "sufficient". *See* **Exhibit B.**

SECTION THREE. APPROVING THE NAVAJO FORESTLANDS INTEGRATED RESOURCE MANAGEMENT PLAN

The Navajo Nation hereby approves the Navajo Forestlands Integrated Resources Management Plan for the Navajo Nation which is attached as **Exhibit A.**

CERTIFICATION

I, hereby, certify that the following resolution was duly considered by the Resources and Development Committee of the 23rd Navajo Nation Council at a duly called meeting at the Navajo Division of Transportation, Tse Bonito, Navajo Nation (New Mexio), at which a quorum was present and that same was passed by a vote of 2 in favor, and 1 opposed, on this 31st day of December 2018.

Alton Joe Shepherd, Chairperson
Resources and Development Committee
of the 23rd Navajo Nation Council

Motion: Honorable Walter Phelps
Second: Honorable Davis Filfred

Chairperson Alton Joe Shepherd not voting.

EXHIBIT
A

NAVAJO FORESTLANDS IRMP

Managing Our Land
Resources Collectively for the Diné

NAVAJO NATION

INTEGRATED RESOURCES MANAGEMENT PLAN

July 2018

DRAFT

NAVAJO FORESTLANDS IRMP

Managing Our Land
Resources Collectively for the Diné

NAVAJO NATION

INTEGRATED RESOURCES MANAGEMENT PLAN

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NAVAJO
FORESTLANDS IRMP

Managing Our Land
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INTEGRATED RESOURCE MANAGEMENT PLAN

July 2018

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ACKNOWLEDGMENTS

The Navajo Forestlands IRMP is the result of a collaborative, future oriented planning effort between Navajo Nation staff, coordinating agencies and the public. This document represents the ongoing commitment from the members of the IRMP's Interdisciplinary Planning Team (ID Team) to engage in constructive conversations about how to manage and protect the array of natural, cultural, community and economic resources issues considered as part of the five Navajo Forestland areas. This IRMP contains the vision, goals and recommendations the Navajo people developed for the Forestland Areas that should be implemented to ensure the sustainability of these resources for the future and for the advancement of the Navajo Nation as a whole. The following individuals played a key role in development of the IRMP through their participation in the interdisciplinary planning team and by providing their time, expertise and insight:

Bidtah N. Becker, Executive Director, Navajo Nation Division of Natural Resources

Alexious Becenti, Department Manager, Navajo Forestry Department

Frankie Thompson, Program Manager, Navajo Forestry Department

Robert Billie, Senior Forester, Navajo Forestry Department

AK Arbab, Senior Forester, Navajo Forestry Department

Ed Sam, Forester, Navajo Forestry Department

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Harrilene Yazzie, Regional Environmental Coordinator, Bureau of Indian Affairs, Navajo Regional Office

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Calvert Curley, Natural Resources Division Director, Bureau of Indian Affairs, Navajo Regional Office

Dale J. Glenmore, Regional Fire Management. Officer, Bureau of Indian Affairs, Navajo Regional Office

Jordan Pina, Forester, Bureau of Indian Affairs, Navajo Regional Office

Joanne Manygoats Navajo Interpreter, Translation Consultant

We would also like to extend a special thanks to the Chapters that hosted IRMP Community meetings, by providing event space, equipment and assistance in setting up and packing up facilities.

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EXECUTIVE SUMMARY

The Draft Navajo Forestlands Integrated Resources Management Plan (IRMP) is a strategic plan for the comprehensive management of the land based resources for the following five forestland areas: 1.Chuska Mountains 2. Defiance Plateau 3. Carrizo Mountain 4. Mount Powell 5. Navajo Mountain. These five areas were selected based on the need for future management planning, availability of resource data and the opportunity to benefit from multi-resource management planning. The IRMP document creates a unified approach for managing the forestland areas from a holistic, multi-resource benefit perspective by addressing opportunities for increased collaboration. The Vision, Goals and Recommendations developed as part of the IRMP process and the Preferred Integrated Resource Management Option provide direction for land managers and the community before future planning and projects are conducted in the forestland areas.

The Draft Navajo Forestlands IRMP is the result of thirteen months of collective participation from Navajo Nation Division of Natural Resources Departments, the Bureau of Indian Affairs, Navajo Region, the public at large, and from community members representing the 27 local chapters bordering the IRMP project area. Their participation resulted in over several hundred comments received for development of the Vision, Goals and the Preferred Integrated Resource Management Option that will guide implementation of this IRMP over the next 15-20 years. Participants engaged in this process through various engagement opportunities and methods including:

- Participation in the Interdisciplinary Planning Team
- Chapter and Farm Board Meeting Attendance
- Regional Community Meeting Attendance
- Completion of the Community Survey
- Participation on the project's website and Facebook, Twitter and Instagram accounts

IRMP FORESTLANDS PROJECT VISION & GOALS

The Vision for the Navajo Forestlands IRMP is provided below. The goals for the IRMP are below:

> "The Navajo Nation manages, protects, conserves, and enhances forestlands for the people, using an interdisciplinary and integrated approach for all resources."

Navajo Forestlands IRMP Goals

1. Strengthen the preservation and incorporation of Navajo culture, traditional ways and values
2. Increase active forest management for the benefit of multiple natural resources
3. Enhance the resiliency of the forestlands to disturbances, changing environmental conditions and climate change
4. Create economic development opportunities
5. Provide education and outreach to the community
6. Improve compliance with current laws and regulations regarding permits
7. Improve enforcement with current laws and regulations
8. Increase rangeland management to ensure adequate grazing for wildlife and livestock
9. Conservation and protection of wildlife and their habitat
10. Provide an adequate, safe water supply for people, livestock and wildlife to ensure water security for the future
11. Improve communication and coordination between NN Departments and BIA/Federal Government
12. Identification and maintenance of key forestlands access roads
13. Balanced recreation development with sound management of areas

PREFERRED INTEGRATED RESOURCE MANAGEMENT OPTION

The Preferred Integrated Resource Management Option represents the management approach and philosophy, goals and recommendations developed through the community engagement process and ID team review. It provides the strategic guidance for the IRMP and prioritizes specific goals and recommendations that should be carried out for future integrated management in the forestland areas. The Preferred Integrated Resource Management Approach is entitled: Active Land Stewardship By and For the Diné.

The Preferred Integrated Resource Management Option reflects the deep cultural relationship of the Navajo people with the forestlands and the resources within them. It recognizes the role the forestlands play in the Navajo Peoples' economic livelihood, their traditions and in helping to meet local community needs. It emphasizes land stewardship and wise use of resources to ensure they can remain resilient to changing conditions and be available for families and future generations. It provides guidance to the Navajo Division of Resources Departments to address needs for more active management of natural resources and increased enforcement of existing regulations to restore and rehabilitate degraded forestland areas, and to maintain future revenue generation potential of key resources.

PREFERRED INTEGRATED RESOURCE MANAGEMENT OPTION PRIORITIZED GOALS & RECOMMENDATIONS

There are nine goals that have been prioritized as part of implementation of the Preferred Integrated Resource Management Option. These nine goals will be advanced through the 75 recommendations identified in the Preferred Integrated Resource Management Option section of this document.

1. Strengthen the preservation and incorporation of Navajo culture, traditional ways and values
2. Increase active forest management for the benefit of multiple natural resources
3. Conservation and protection of wildlife and their habitat
4. Create economic development opportunities
5. Strengthen the ability of the forestlands to recover from disturbances, changing environmental conditions and climate changes
6. Improve rangeland management to ensure adequate grazing for wildlife and livestock
7. Provide an adequate, safe water supply for people, livestock and wildlife to ensure water security for the future
8. Provide education and outreach to Navajo Communities
9. Improve enforcement of current laws and regulation

Overarching recommendations are also included as part of this document to provide guidance to more complex, systemic issues that need to be addressed across the Navajo Nation Government; across natural resource departments and within local communities.

Development of the Vision, Goals and the Preferred Integrated Resource Management Option reflects knowledge obtained from a detailed resource assessment of the five forestland areas (Chuska Mountains, the Defiance Plateau, Carrizo Mountain, Mount Powell and Navajo Mountain) that provides a comprehensive overview of the existing natural, cultural, community and economic resources. The Resource Assessment provides important context related to resource conditions, management planning and community issues, data availability, trends and opportunities for future collaboration.

Review of Chapter Land Use Plans (20 plans available from the 27 chapters) provided the project team with supplementary information on the goals, objectives and priorities identified by the communities for future community, economic and infrastructure development and resource considerations adjacent to the Forestland Areas.

The Navajo Forestlands IRMP document, through its Community Vision, Goal and Preferred Integrated Resource Management Option provides the Navajo Nation with a strategic roadmap for future integrated management that begins with presenting the process and document for consideration and approval by the Navajo Nation Council Resources and Development Committee. Following approval, advancement of the Vision, Goals and Recommendations developed as part of this document should occur by undertaking the specific actions identified in the implementation section of this report.

The IRMP documents in detail, the process, methods and formats used for development of the IRMP. Example materials used for outreach and at community meetings are included as appendices to this document. Additional project development materials will remain on the project web site after this project closes out. The Navajo Forestlands IRMP process presents an opportunity to serve as a template for future management planning and for the design of varied methods for communicating and engaging community members in decisions that affect their values and their livelihood.

HOW THIS DOCUMENT IS ORGANIZED

This document is designed to provide information on the process and results associated with development of the Navajo Forestlands Integrated Resource Management Plan. It is organized in different sections to provide context, to document the process and lay out the foundation for future use and authority to implement the document. Specific appendices are included in this document to serve as technical resources for understanding conditions, issues and the regulatory framework for future management planning, collaboration and decision making.

Introduction:
This section provides an overview of the decision to create the IRMP, information on IRMP planning, laws pertaining to the IRMP and its future application. It provides an overview of the Navajo Nation, and introduces the five forestland areas and the scope of the planning effort.

IRMP Development Process:
This section of the document describes the project development process, the primary issues and concerns with management of the forestlands, the community engagement process & resulting themes. It identifies the Vision and Goals associated with management of the Forestland Areas for the future.

Development of Integrated Resource Management Options:
This section of the document introduces the Community First Methodology used to work with Resource Managers and the Community to develop potential future management options for the Navajo Forestlands and details the process for selection and development of the Preferred Integrated Resource Management Option.

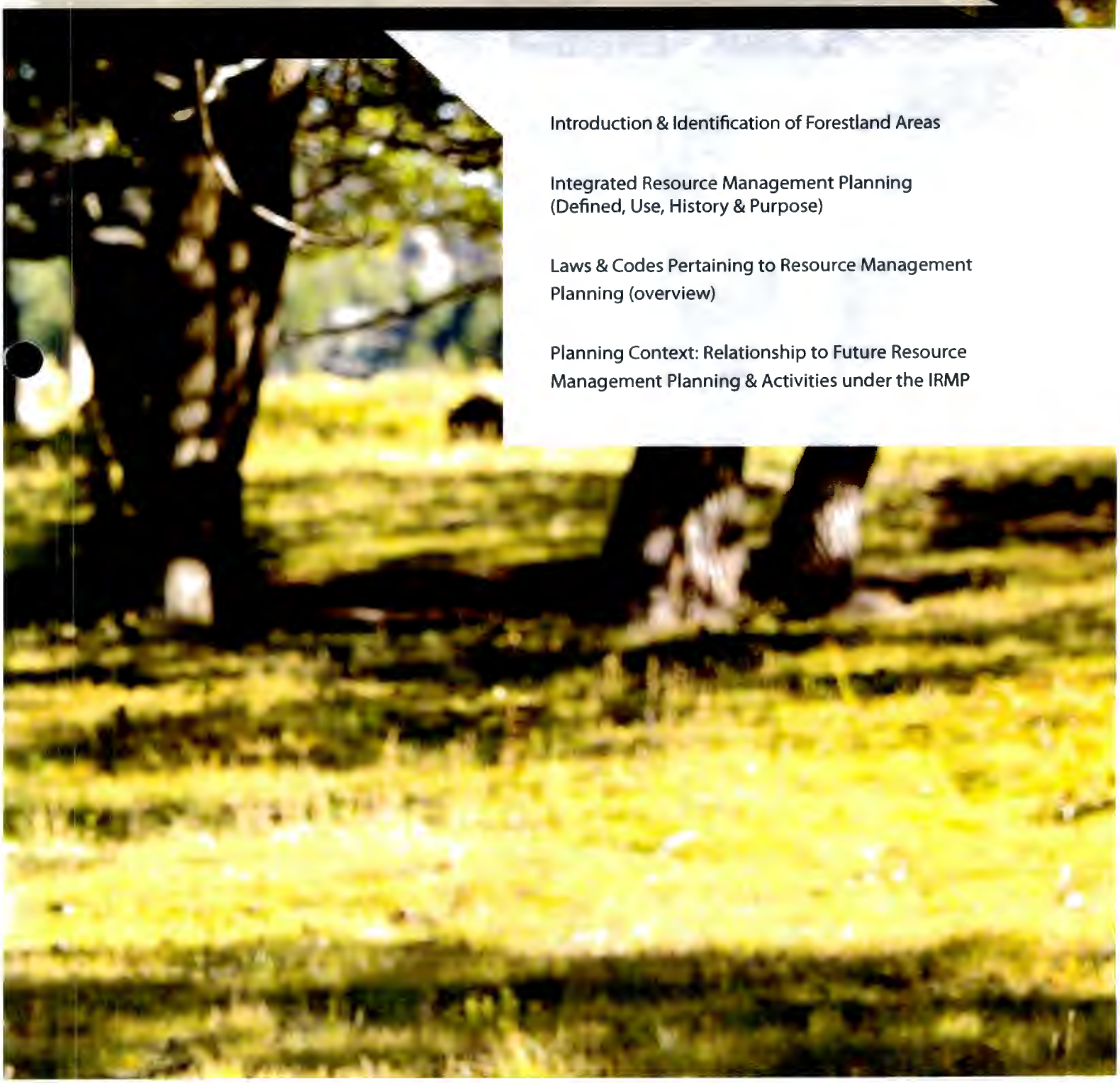
Preferred Integrated Resource Management Option:
This section presents the IRMP Preferred Integrated Resource Management Option in full, detailing the management philosophy, goals and recommendations to be applied for future management of all the resources within the Navajo Forestlands Project area. The Preferred Integrated Resource Management Option is a product of the community and resource department participation in this process and provides the strategic guidance for future implementation of this IRMP.

Implementation:
This section of the document summarizes the results of the IRMP Project development process and outlines next steps for advancing approval and use of the document. It identifies key activities to enhance the overall collaborating relationships that have been built through this process and highlights larger multi-disciplinary planning efforts that should be undertaken individually, or as a part of future resource management planning activities.

Technical Appendices:
The appendices associated with the Draft IRMP provide detailed technical analysis and documentation of methodology and materials that support the processes and outcomes associated with development of the IRMP document. The Resource Assessment is one such accompanying appendix that provides in-depth detail and maps about resource use, existing conditions, extent and issues associated with each resource in each of the five forestland areas. It identifies current management organization, planning efforts and opportunities to integrate best practice management methods.

SECTION 1

INTEGRATED RESOURCES MANAGEMENT PLAN



Introduction & Identification of Forestland Areas

Integrated Resource Management Planning (Defined, Use, History & Purpose)

Laws & Codes Pertaining to Resource Management Planning (overview)

Planning Context: Relationship to Future Resource Management Planning & Activities under the IRMP

INTRODUCTION & IDENTIFICATION OF FORESTLAND AREAS

The primary objective for development of the Navajo Forestlands IRMP was to bring together resource managers across the Division of Natural Resources (DNR) and with BIA coordinating resource departments to develop an integrated management approach for the five Navajo Forestlands areas that are supported and developed through consultation with the Navajo communities. Ultimately the goal of the Navajo Forestlands IRMP is to create a balance within natural resource management actions that reflects the social, cultural, economic, and natural resource values of the Dine' people.

The Navajo Forestlands Integrated Resource Management Plan (IRMP) is a strategic plan for the comprehensive management of the land-based resources of the five forestland areas identified by this document. The process undertaken to develop the IRMP provides a method for the Navajo Nation to collectively evaluate the relationships among the various components of the natural resources and their various uses, economic impacts and trends, cultural needs, and social forces and should serve a model for future management planning & implementation of projects.

Quite typically, resource management and other tribal departments focus on their individual goals, priorities and actions and carry out their work through sporadic coordination with other departments. Too often, this results in conflicts between departments, divisions and the communities. It also creates project inefficiencies and lost opportunities to create greater impact through collaboration and sharing of goals.

The IRMP development process recognizes that the lands that comprise the Navajo Nation are whole, living systems with multiple interdependencies that require collaboration to ensure protection and use of natural and cultural resources, and to satisfy community, economic development and sustenance needs.

The IRMP document creates a unified approach to managing the forestland areas that serves as a tool for future land management activities and reduces potential conflicts. The Vision, Goals and Recommendations developed as part of the IRMP process and the Preferred Integrated Resource Management Option serve as the touchstone to provide guidance for land managers and the community before future planning and projects are conducted.

- It provides the Navajo Nation with a long-range vision for how its Nation's resources should be managed for the next 15-20 years
- It provides specific goals and recommendations to set the Vision into action
- It identifies opportunities to enhance organizational and cross-departmental communication
- It provides a framework for future implementation
- It serves as a common communication tool between local Chapters and Resource Managers
- The Navajo Forestlands IRMP also serves as a leadership tool for Resource Managers and the Division of Natural Resources as a whole.

NAVAJO NATION SETTING

The Navajo reservation was established in 1868 and has expanded through a series of executive orders becoming the largest Indian reservation in the United States. On April 15, 1969, the tribe changed its official name to the Navajo Nation, which is also displayed on the seal. It is larger than the State of West Virginia and six other states. The Navajo Nation encompasses more than 27,000 square miles including portions of Arizona, New Mexico and Utah (see Figure 1.1). (see Figure 1.2).

DEMOGRAPHICS

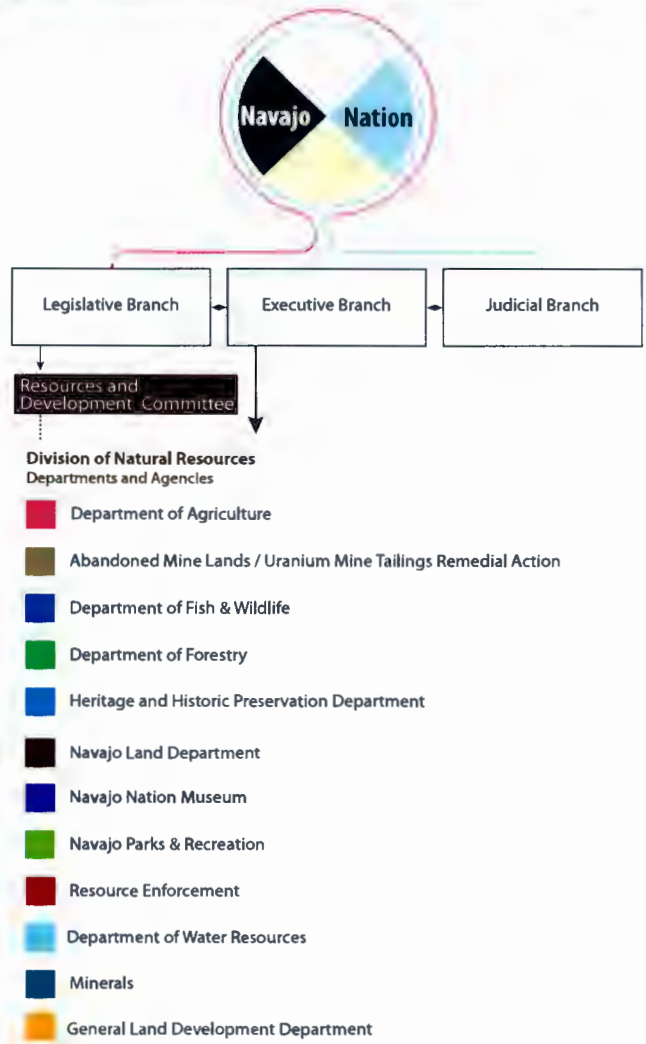
According to the U.S. Census Bureau, the population on the Navajo Nation in 2010 was 173,667. Of these people, 43,694 (25%) resided in the 27 Forestlands Area Chapters. The median age for the Navajo Nation is 28.5; while in the Forestlands Area Chapters, the median age by chapter ranges from 20.9 to 49.1. In addition, the American Community Survey (2012-2016) of the U.S. Census Bureau has calculated that of the Navajo Nation people Age 16+, 44.1% are in the labor force; of those, 20.4% are unemployed. A more detailed discussion of the demographics for the forestlands area is included in the socioeconomic section of the Resource Assessment.

GOVERNANCE

Federal Law and Navajo Nation Law govern the protection, use and management of natural resources for each Department. Navajo Nation government consists of a three-branch system that includes the executive, legislative and judicial branch. The Division of Natural Resources falls within the Executive Branch of the Navajo Nation Government. Approval of resource planning documents, such as the Navajo Forestlands IRMP are considered through the Resources and Development Committee. The Resource Assessment section of this document (see Appendix A), provides detail on the framework and decision-making authority of regulating agencies.

In addition, the Navajo Nation is divided into 110 chapters, which are units of local government that under Title 26 of the Navajo Nation code, delegates to Chapters governmental authority with respect to local matters consistent with Navajo law, including custom and tradition. As part of the Local Governance Act, local chapters are able to acquire, develop and manage land within their chapter boundary through coordination with appropriate departments, committees and the Council.

Figure 1-1. The Navajo Nation Divisions of Natural Resources



TERRAIN

The Navajo reservation is semi-arid tableland, with an average elevation of approximately 6,000 feet, from the lowlands of about 4,500 feet to over 10,000 feet in the two mountain belts which intersect the reservation. There is a wide variety of terrain: arroyos, deep canyons, rocky and sandy plains, buttes, mesas, and sheer cliffs. Vegetation includes: pine, aspen, oak, and fir in the higher altitudes; sagebrush, greasewood, pinon, and juniper in the plateaus; and desert flora in the lower altitudes. Flowing streams and natural reservoirs are rare. Seasons are extreme: temperature fall to minus 35 degrees in the winters and exceed 110 degrees in the summers. Annual rainfall ranges from less than 6 inches in the Little Colorado Valley to near 30 inches in the Chuska Mountains; the average annual precipitation for the Nation is between 10 to 12 inches.[1]

[1] *"Water Organizations in a Changing West" Teresa M. Showa, Department of Water Resources Management, Navajo Nation, Natural Resources Law Center University of Colorado School of Law Boulder, Colorado June 14-16, 1993*

IDENTIFICATION OF THE FORESTLAND AREAS

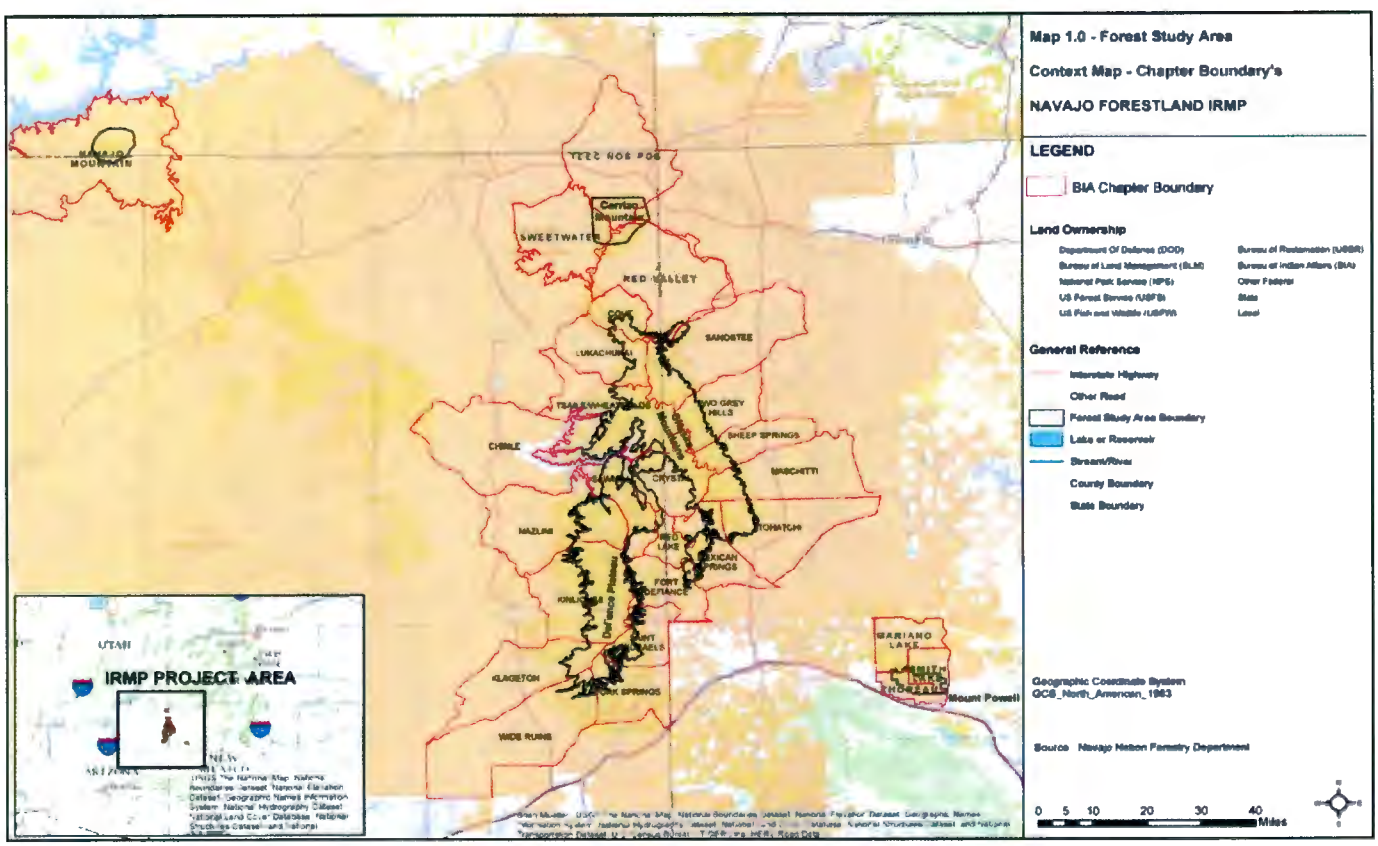
The IRMP Project includes 705,878 acres of Navajo Forestlands within the following five areas:

Commercial Forest: 607,404 AC
Defiance Plateau: 270,467.6 AC
Chuska Mountains: 336,940.5 AC

Satellite Forest:
Navajo Mountain: 25,960 AC
Mount Powell: 22,136 AC
Carrizo Mountain: 50,378 AC

Figure 1-2. The Navajo Forestlands IRMP Project Areas

Source: Esri Delorme NAVTEQ USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (hong Kong), Esri (Thailand), Tom Tom, 2013



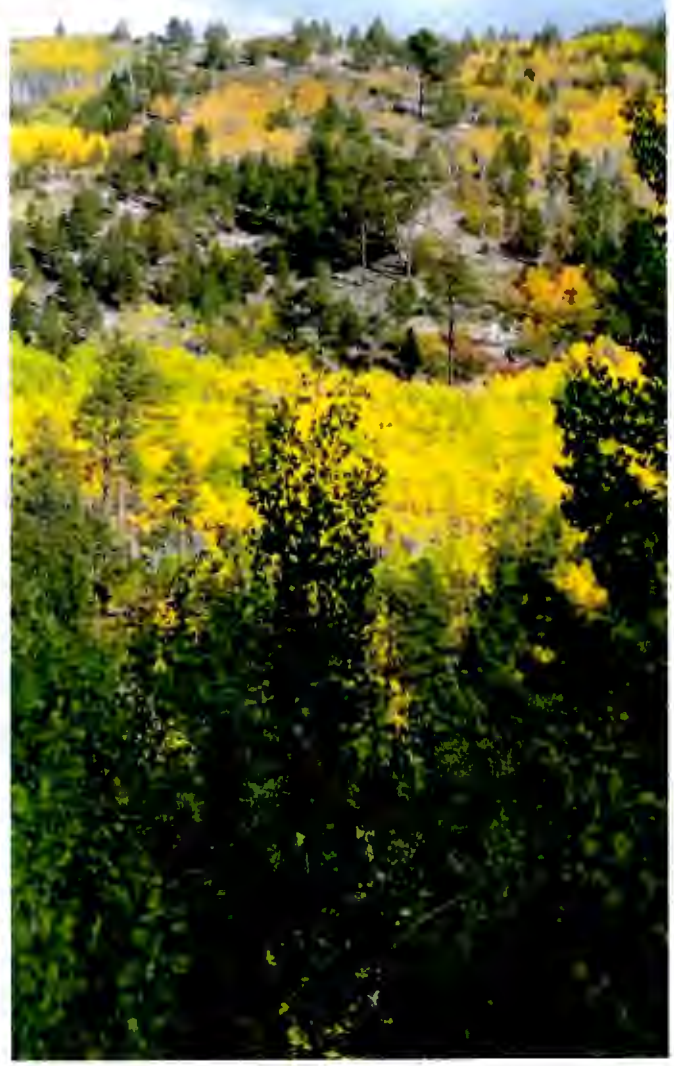
The above five forestland areas were selected based on need for future management planning, availability of resource data and the opportunity to benefit from multi-resource management planning.

The following section provides an overview of each of the five forestland areas that are contained within the scope of this planning effort.

Development of the Navajo Forestlands IRMP includes a high-level assessment and evaluation of the following resources and activities:

- Soils & Geology
- Mining and Minerals
- Fish & Wildlife
- Water Resources
- Air Quality
- Cultural Resources & Sacred Sites
- Land Users
- Infrastructure
- Recreation
- Homesites
- Agriculture & Rangeland Management
- Forests
- Vegetation
- Community Development Activities

The information obtained from the Resource Assessment provides a clear picture of the current state of the Navajo Nation Forestland areas within the Chuska Mountains, Mount Powell, Carrizo Mountain, the Defiance Plateau and Navajo Mountain. Existing planning documents, maps and corresponding data were collected from Resource managers and other Department personnel to produce the Resource Assessment section of this document. Information obtained from the Resource Assessments was shared with the community to help identify issues & concerns and evaluate preferred management options for the future. Detail on the specific resources within the five forestland areas is provided in the Resource Assessment section of this document (see Appendix A).



FORESTLAND AREA SETTING

This IRMP considers five distinct forestland areas under management. These include Defiance Plateau, Chuska Mountains, Navajo Mountain, Mount Powell, and Carrizo Mountains. Each forestland area has distinct ecological characteristics, natural and cultural resources, and communities.

The following chapters are within both the Defiance Plateau and Chuska Mountains forestland boundaries; Chinle, Fort Defiance, Red Lake, Sawmill, and Crystal. Red Valley Chapter is within both the Chuska and Carrizo Mountains forestland boundaries.

DEFIANCE PLATEAU

Defiance Plateau is a north-trending plateau in Apache County, Arizona. "The Defiance Plateau is a broad, flat-topped ridge that extends about 40 mi long by 10 mi wide. The plateau is highest in its average elevation at the rim of Canyon De Chelly, around 7,400 feet, the highest point is Fluted Rock (south of the canyon), with an elevation of almost 8,000 feet and thēn drops to around 7,000' at its southern terminus near Houck, AZ.[2]" The plateau borders the Painted Desert, the Puerco River, the Black Mesa, the Chinle Valley and Chinle Creek, and has three canyons, the most notable being Canyon de Chelly National Monument.

Defiance Plateau is in the upper Sonoran zone. This area belongs primarily to the Lower Colorado River watershed. The highland, forested areas of the plateau contribute a significant amount of surface flow to this watershed. Water scarcity in this area impacts Navajo traditions, culture and livelihoods. The plateau contains some of the most productive forestry areas within the Navajo Reservation comprised majoritively of ponderosa pine forest. "For centuries, the Navajo people have valued the forest as being the provider for the necessities of life. The forest provides food, wood products for homes, other dwellings, corrals, fence posts, ceremonial need, firewood, and habitat for deer and other wildlife.[3]"

This forestland wholly or partially contains the following chapters: Wide Ruins, Klagetoh, Nazlini, Kin Dah Lichii, Chinle, Oak Springs, Saint Michaels, Fort Defiance, Red Lake, Sawmill and Crystal.

Important economic, cultural and historic locations within this forestland include Canyon de Chelly National Monument and the Navajo Capital, Window Rock. Canyon de Chelly National Monument is a cultural and historic monument operated by the United States National Park Service in tandem with the Navajo Nation. The canyon lands are a hybrid of protected Ancestral Puebloan archaeological sites and active domestic use, agricultural practices and rangelands. Most areas within the park require a ranger or an authorized Navajo guide. Canyon de Chelly was a home for the Navajo people for centuries. It was first invaded by colonial forces in 1805 and then again in 1863 by Kit Carson resulting in the surrender of the Navajo and their forced relocation to Bosque Redondo, NM. This forestland is also close to the Navajo Capital, Window Rock, Arizona. Window Rock serves as the location for the Navajo Central Government and many cultural and community centers.

[2] *Mikesic, D. (2000). The Navajo Nation Management Plan for the Mexican Spotted Owl (Strix Occidentalis lucida). [ebook], Window Rock, Arizona 86515: Navajo Nation Department of Fish and Wildlife, p.18. Available at: https://www.nndfw.org/nnhp/docs_reps/nn_mso_man_plan.pdf [Accessed 10 Nov. 2017].*

[3] *Yazzie, V.R. The values and uses of the Navajo forest (1987) http://www.nal.usda.gov/*

CHUSKA MOUNTAINS

The Chuska Mountains forestland is situated on the eastern portion of the Navajo Nation and on the Arizona-New Mexico border. The forestland is characterized by the Chuska Mountains, a range of steep sandstone and volcanic peaks reaching up to 10,000 feet and canyons containing broad, shallow lakes and ephemeral streams. The mountains are bordered by the San Juan Basin to the east and Red Rock Valley to the north. The Chuska Mountains are considered to represent the male deity of the Diné religion. "It is traditional belief that the earth is sacred. The Chuskas are believed to signify the body of a reclining man. According to the medicine men informants, various spiritual and physical ailments are diagnosed to require either "male" or "female" treatment for their patients. These treatments may require either "male" or "female" medicines and/or ceremonies. Therefore, sources for "male" medicine herbs are restricted to the "male mountain", the Chuskas.[4]"

The Chuska Mountains are in the upper Sonoran biome. "The climate of the Chuska Mountains is continental and semi-arid. Precipitation is dominated by summer convective storms associated with the North American monsoon, with highly variable winter precipitation.[5]" The Chuska Mountains contain some of the few native headwaters on the Navajo Nation and feed the San Juan watershed. Water scarcity in this area impacts Navajo traditions, culture and livelihoods.
The Chuska Mountains make up a majority of commercial forestland on the Navajo Nation. While there are some homesites already established with leases in the forestlands, from when families brought their livestock to the summer range, they are now prohibited in highly sensitive areas such as the Area 1 forestland (see homesite lease regulations (17.05)).

Lower elevations are comprised of pinon-juniper woodlands; mid elevations are dominated by ponderosa pine forests with inclusions of wet mixed conifer or spruce-fir on north-facing aspects. As early as 974 AD trees from this area were logged and transported to build important historic cultural centers such as Chaco Canyon.

This forestland wholly or partially contains the following chapters: Chinle, Tsaile/Wheatfields, Fort Defiance, Red Lake, Sawmill, Crystal, Sanostee, Red Valley, Lukachukai, Cove, Two Grey Hills, Sheep Springs, Tohatchi, Twin Lakes and Mexican Springs. These chapters are within the Fort Defiance, Shiprock.

Important economic, cultural and historic locations within this forestland include the trading posts at Crystal and Two Grey Hills, and New Mexico Highway 134 and Narbona Pass. The trading posts are associated with unique Navajo rug patterns. Narbona pass is the location of a historic battle where Navajo warriors defeated a Mexican slaving expedition.

[4] *Yazzie, V.R. The values and uses of the Navajo forest (1987) http://www.nal.usda.gov/*

[5] *Guiterman, Christopher H. Climatic Sensitivities of Navajo Forestlands: Use-Inspired Research to Guide Tribal Forest Management. School of Natural Resources and the Environment Laboratory of Tree-Ring Research, University of Arizona. Climate Assessment of the Southwest Climate & Society Fellowship Final Report, 2015. http://www.climas.arizona.edu/sites/default/files/pdfclimas-fellow-finalreport2014guiterman.pdf*

NAVAJO MOUNTAIN

The forestland is characterized by the Rainbow Plateau and Navajo Mountain and is in one of the most remote parts of the Navajo Nation. The Navajo Mountain Chapter covers about 389,000 acres and is home to about 1300 residents. The chapter is situated in Coconino and Navajo Counties in northern Arizona and San Juan County in southern Utah. This unique situation has caused some conflict within the chapter because of a lack of balance of funding between the states and counties.

Navajo Mountain is a laccolith, a dome-shaped igneous rock that intruded into the sedimentary layers and lifted up the overlying layer. It is the highest point in the Navajo Nation at 10,388 feet. The Diné call this place the Head of the Earth Woman - the head of the female/pollen deity. Navajo Mountain figures prominently as the first settlement area in western Navajo origin stories. Ascent of the mountain is prohibited. The forestland is near Lake Powell and Glen Canyon National Recreation Area, the confluence of the San Juan and Colorado Rivers and Rainbow Bridge National Monument. "Prior to the construction of the dam, Navajo chanters would make pilgrimages to Rainbow Bridge [Tsé naní'áhí] and the nearby confluence of the San Juan [Tooh] and Colorado [Tóníts'ósíkooh] rivers, perform ceremonies to bring rain and leave offerings to the Holy People [diyin diné].[6]"

Navajo Mountain Chapter contains an upper montane of mixed conifer forest on Navajo Mountain. The Navajo Mountain beardtongue (Penstemon navajoa) is a rare plant limited mainly to the upper elevation slopes of Navajo Mountain[7]. The only stand of limber pine (Pinus flexilis) located in Navajo country is found on Navajo Mountain.

This forestland wholly or partially contains the Navajo Mountain Chapter. This chapter is within the Tuba Agency.

Important economic, cultural and historic locations within this forestland include Ancestral Puebloan archaeological sites, historically and culturally significant landmarks, adjacency to Lake Powell and Rainbow Bridge National Monument and potential tourist economies, and great natural beauty.

Economic and public health challenges in this area include poor road conditions which pose a major hindrance to economic growth and infrastructure, and water scarcity which impacts Navajo traditions, culture and livelihoods.

[6] *http://navajomountain.navajochapters.org/*

[7] *The Nature Conservancy - http://explorer.natureserve.org/servlet/NatureServe?searchName=Penstemon+navajoa*

MOUNT POWELL

Mount Powell forestland is located in McKinley County, New Mexico in the Southeast Colorado Plateau and within the Zuni Mountains, near New Mexico HWY 40 and Route 371. The Colorado Plateau in New Mexico includes the San Juan Basin, a major source of oil, gas, coal and uranium for New Mexico. The northwest-trending Zuni Mountains form the southwestern margin of the San Juan Basin. Mount Powell bisects the continental divide and is situated on top of a prominent mesa. The forestland is characterized by deeply steep walled mesas, deeply cut drainages and grassy bottomlands. The forest consists of open-woodlands composed of drought-adapted conifers on the high rims, with extensive areas of shrub steppe on the lower interior regions. Mount Powell is located in a semi-arid climate zone characterized by periods of drought and irregular precipitation, relatively warm to hot growing seasons, and long winters with sustained periods of freezing temperatures. The biome is Colorado Plateau shrub – steppe.

This forestland wholly or partially contains the following chapters: Mariano Lake, Thoreau, and Smith Lake. These chapters are within the Eastern Navajo Agency. Mariano Lake has the highest average elevation of any chapter on the reservation.

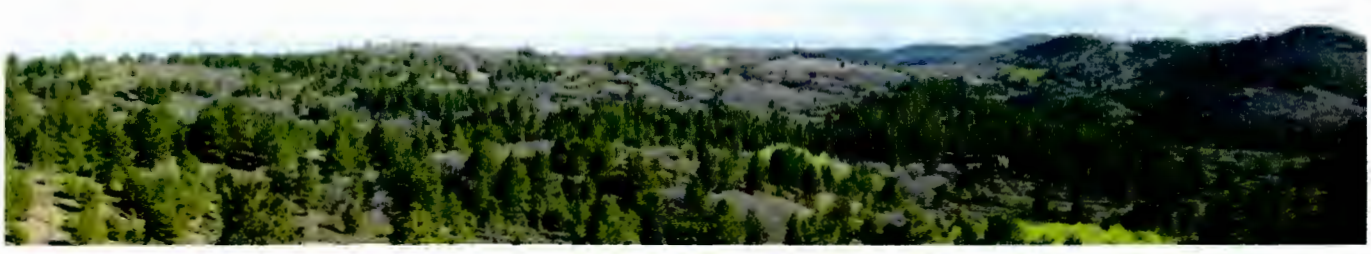
Important economic, cultural and historic locations within this forestland include nearby Hosta Butte, a significant history of mineral extraction and abandoned mines. The mining boom started in Baca/Prewitt.

CARRIZO MOUNTAIN

The forestland is characterized by the Carrizo Mountain, a semi-circular range of mountains north of the Chuska Mountain Range in Arizona and New Mexico. The biome is Great Basin desert scrub.

This forestland wholly or partially contains the following chapters: Sweetwater (Tolikaan), Teec Nos Pos, Beclabito, and Red Valley. These chapters are within the Shiprock Agency.

Important economic, cultural and historic locations within this forestland include a significant history of mineral extraction and abandoned mines. "East, north, and northwest of the Carrizo Mountain, the surface has low relief and is easily accessible, with only a few scattered buttes and mesas; whereas southwest and south of the mountains the surface is rugged and much dissected by canyons with intervening steep-walled mesas. Patches of dune sand are common on the less dissected parts of the area. The climate is semiarid. Stream channels, most of which are dry during a large part of the year, radiate from the mountains and ultimately join the San Juan River north of the area.[8]" "The area lies in the San Juan Basin of the Colorado Plateau and is characterized by mountain slopes, deeply cut drainages and grassy ridges. The transition from the ponderosa pine woodlands of the Carrizo Mountain to the desert scrub of the San Juan Basin floor is rapid and sharply defined. Alluvial fans formed because of stream deposition off the steep northern slopes of the mountains tilt northeast into the San Juan River. The alluvium material is dissected with washes and dry streambeds, offering topographical diversity and relief at lower elevations.[9]"



[8] *Stokes, W. L. Carnotite Deposits in the Carrizo Mountains Area, Navajo Indian Reservation, Apache County, Arizona, and San Juan County, New Mexico. United States Department of the Interior, Washington DC. May 1951*

[9] *TWerito 1988 - As quoted in Beclabito Chapter Community-Based Land Use Plan. Beclabito Chapter, Shiprock,NM and JJ Clacs and Company Fort Wingate, NM. December, 2011 (Page 33)*

INTEGRATED RESOURCE MANAGEMENT PLANNING

DEFINED

An Integrated Resource Management Plan (IRMP) is a high level planning document that provides strategic guidance for comprehensive management of its land-based resources. It does not prescribe specific resource management actions, rather it directs what should be implemented in the future and how and why. The process of developing the IRMP requires an evaluation of the relationships among various natural resources and their uses, and considers how the community, cultural and economic components are impacted. The ultimate goal of an IRMP is to create a balance within natural resource management actions which reflect the social, cultural, economic, and natural resource values of reservation residents.

To this end, an IRMP goes beyond the natural world and incorporates social, cultural, environmental, and economic aspects of the Navajo Nation into the selected management option. It encourages active participation by those with a vested interest in the management of the Nation's resources. The goal of integrated resource management planning is to tie all decisions which affect a tract of land together so that each decision's impact can be weighed against all others. It identifies conflicting and complimentary management actions.[10]

Integrated Resource Management

An approach to reservation resource management which takes a whole system approach, viewing all resources—natural, social, cultural, and economic—as being interrelated in such a manner that management actions directed at one resource also affect others.

Furthermore, the IRMP is a representative statement of Navajo sovereignty that describes through its vision, goals and policy recommendations (the Preferred Integrated Resource Management Option) how the forestlands areas should be managed for the future.

USE

The Forestlands IRMP operates through the lens of achieving balance among often competing uses to achieve the greatest benefit for management of the land now and for the future. The use of the IRMP transcends many traditional land management domains by considering the following:

- It is based on issues, concerns & solutions identified by the Community & Resource Department representatives
- It lists the goals for the future, and develops recommendations to better manage resources for the benefit of the Navajo people as a whole
- It provides guidance for future development of resource plans & activities
- It provides a mechanism for prioritizing projects by examining the relationship between elements and identifying the most balanced approach

[10] *BIA Guidelines for Integrated Resource Management Planning in Indian Country.*

HISTORY

The Dine' people have been practicing holistic resource management for centuries. Part of their traditional lifeways includes the recognition and belief that land management is comprised of multiple, complete living systems that thrive or deteriorate based upon the individual activities that occur on the land. This is recognized by the Navajo through their exercise of the Diné Fundamental Laws, and more specifically, the Dine Natural Law.

For decades resource managers have recognized the interrelationships among individual resources and have collaborated when appropriate to achieve shared objectives. In 1988, the Bureau of Indian Affairs undertook an initiative to recommend development of IRMP's for tribal land management. By the early 1990's passage of the Indian Forestry and Agriculture acts directed that forest and agricultural plans comply with tribal IRMPs. By 1993 and again in 2003 an Indian Forestry Management Assessment Team, under direction of Intertribal Timber Council, identified integrated resource management plans as a high priority for management of Indian resources. In recent years, development of IRMP's in Indian country has been identified as a high priority for the BIA (in coordination with each tribe) to ensure coordinated and integrated resource management. As BIA funding has become available, the BIA has provided grants or matching funding support for development of IRMPs.

PURPOSE

The Navajo Division of Natural Resources & Department of Forestry undertook this planning effort because they were looking for a cross-departmental, multi-resource management perspective for how the Nation's forestland areas should be managed for the future. The intent was to develop the Forestlands IRMP through coordination with the community and local chapters. Their objective was to maintain an open and transparent process whereby, community concerns and ideas for future management were integrated into development of the IRMP. Their methods and approach to achieving this objective is further defined in the community engagement section of this document. Funding to undertake development of the Forestlands IRMP was made available through a grant with BIA.

Figure 1-3. Purpose & Anticipated Benefits of Coordinated Planning

LAWS & CODES PERTAINING TO RESOURCE MANAGEMENT PLANNING

The Navajo Forestlands IRMP Project is directed through The National Indian Forest Resources Management Act (P.L 101-630) and its implementing regulations, 25 CFR Section 163, which require the BIA and/or tribal governments to properly manage Indian forest lands. 25 CFR, Section 163.11 (b) which states that forest management planning for Indian forestland shall be carried out through participation in the development and implementation of integrated resource management plans which provide coordination for the comprehensive management of all natural resources on Indian lands.

Title 2 of the Navajo Nation Codes, Section 501 (b) (7), authorizes the Resources and Development.

Committee of the Navajo Nation Council to report studies of natural resources for the protection and efficient, utilization, management, administration, and enhancement of the Nation's Resources. The Resources and Development Committee is the approval body for the IRMP.

This law specifies that an integrated approach to resource management is necessary. Numerous other federal laws and Navajo Nation laws apply to the development and implementation of the IRMP. Federal regulatory requirements are imposed on resource managers which direct management actions and standards associated with implementation of the IRMP.

This IRMP does not change any federal or Navajo Nation regulations, but can be used to meet stipulations included within them as they relate to strategic planning.

Laws and/or regulations that exclusively or specifically pertain to a particular resource category are discussed in the appropriate resource assessment section of this document.

All work carried out as a result of development of the Navajo Forestlands IRMP shall be consistent with the following policies and guidelines, in addition to all laws and regulations:

- Indian Self-determination and Education Assistance Act (PL 93-638), as amended
- National Environmental Policy Act of 1969, [U.S.C.A. Sec. 4321 et. seq.] as amended and the implementing regulations issued by Council on Environmental Quality (40 CFR Parts 1500-1508)
- 53 Indian Affairs Manual (53 IAM) and supplements thereto
- American Indian Religious Freedom Act, P.L. 95-341, Stat. 469 [1978]
- National Indian Forest Resources Management Act, P.L. 101-630, [25 CFR Section 163]
- American Indian Agricultural Resource Management Act, P.L. 103- 177
- Clean Air Act 42 USC 7401
- Comprehensive Environmental Response 42 USC 9601 Hazardous substances (Superfund)
- Compensation and Liability Act (CERCLA)
- Emergency Planning and Community Right 42 USC 11001 Endangered Species Act 16 USC 1531
- Federal Insecticide, Fungicide, and 7 USC 136 Pesticide use and control Rodenticide Act (FIFRA)
- Federal Water Pollution Control Act (Clean 33 USC 1251 Restoration &Maintenance Water Act)
- Resource Conservation and Recovery Act (RCRA) 42 USC 6901
- Safe Drinking Water Act (SDWA) 42 USC 300
- 2008 Farm Bill – Food, Conservation, and Energy Act of 2008 (PL 107-110-246; 7USC 1926)
- Toxic Substance Control Act (TSCA) 7 USC 136 Control of toxic substances 15 USC 2601
- National Historic Preservation Act 16 USC 470
- Navajo Nation Cultural Resources Protection Act [19 NNC § 1001 et. seq.]
- Native American Graves Protection and Repatriation Act of 1990 (P.L. 101-601; 25 USC 3001.)
- Navajo Nation Policy to Protect Traditional Cultural Properties [2010]
- All Applicable Navajo Laws and Regulations

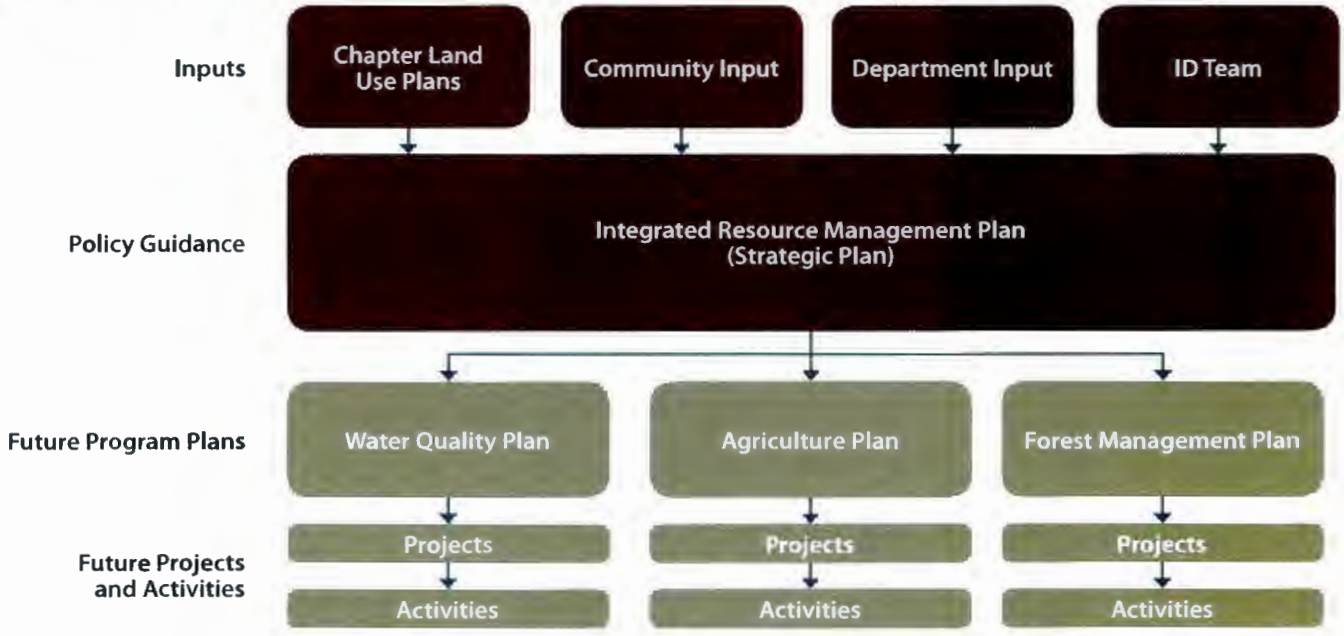
PLANNING CONTEXT: RELATIONSHIP TO FUTURE RESOURCE MANAGEMENT PLANNING & ACTIVITIES UNDER THE IRMP

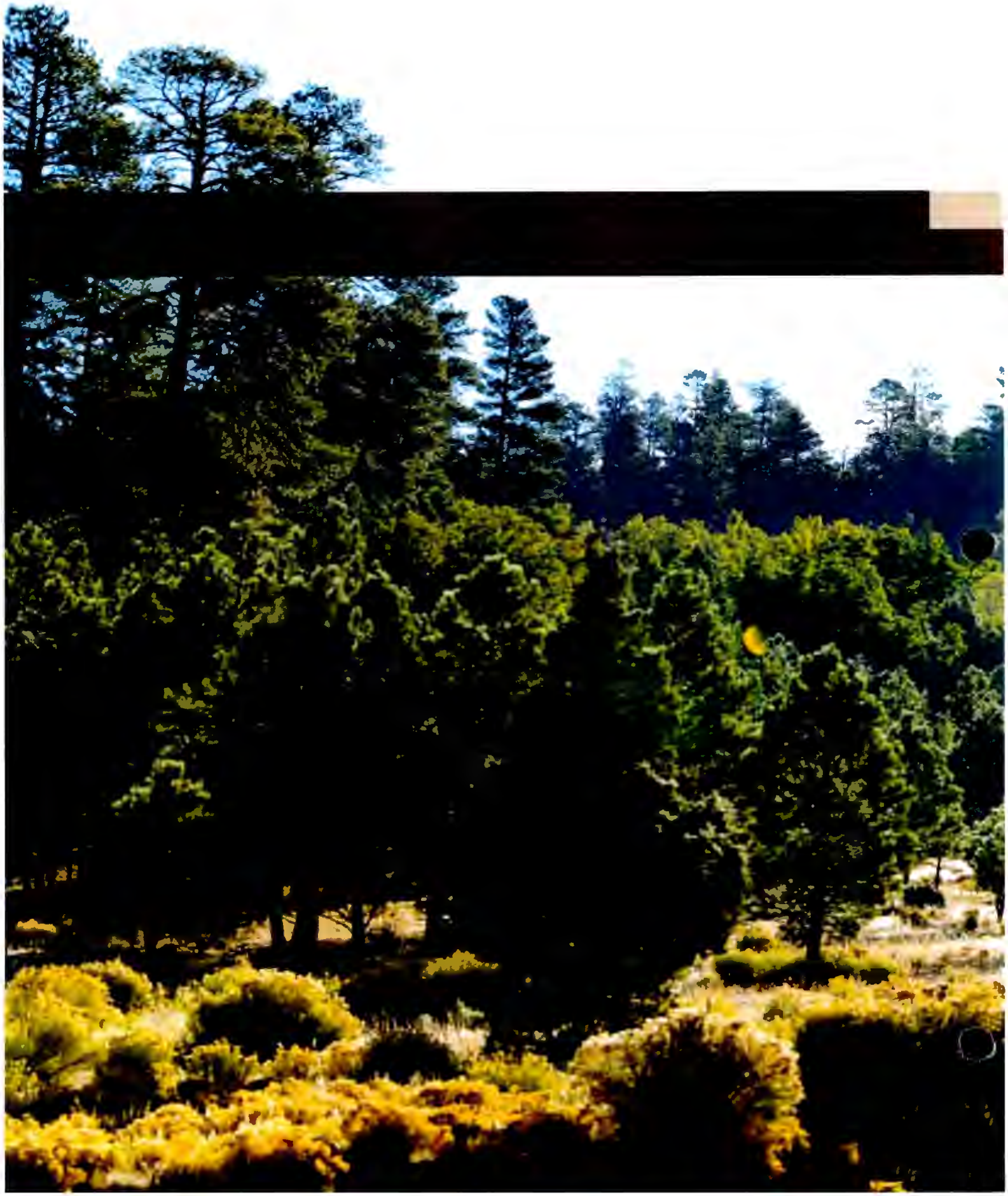
The Navajo Forestlands Integrated Resource Management Plan provides the Navajo Nation Division of Natural Resources with a Long Term Strategic Plan for the five forestland areas (Chuska Mountains, the Defiance Plateau, Mount Powell, Carrizo Mountain, and Navajo Mountain). It provides specific guidance and a desired future management approach pertaining to the development, use and protection of Navajo Nation Forestland Resources. Development of future resource management plans, projects and activities should consult with the Navajo Forestlands IRMP Vision, Goals and Policy Recommendations identified through the Preferred Integrated Resource Management Option to ensure alignment between the IRMP and future resource management. Coordinating federal and state agencies, local chapter efforts & other Navajo Nation Departments shall consult with the Navajo Forestlands IRMP before undertaking resource planning and implementation projects within or adjacent to the five forestland areas.

The IRMP does not supersede existing laws, regulations or management plans. The IRMP provides recommendations through the Preferred Integrated Resource Management Option that directs resource management activities to work with a more holistic management mindset to consider the impacts, benefits and tradeoffs associated with resource management activities. The IRMP summarizes the existing conditions and primary issues and concerns identified by the community and by the divisions and departments responsible for managing the Nation's natural and cultural resources.

The Resource Assessment section of the IRMP document documents the condition of the natural, cultural, social and economic resources of the Forestland Areas and the adjacent communities and additionally offers best practices that should be integrated into future resource management planning and implementation of projects.

Figure 1-4. IRMP Development & Future Application



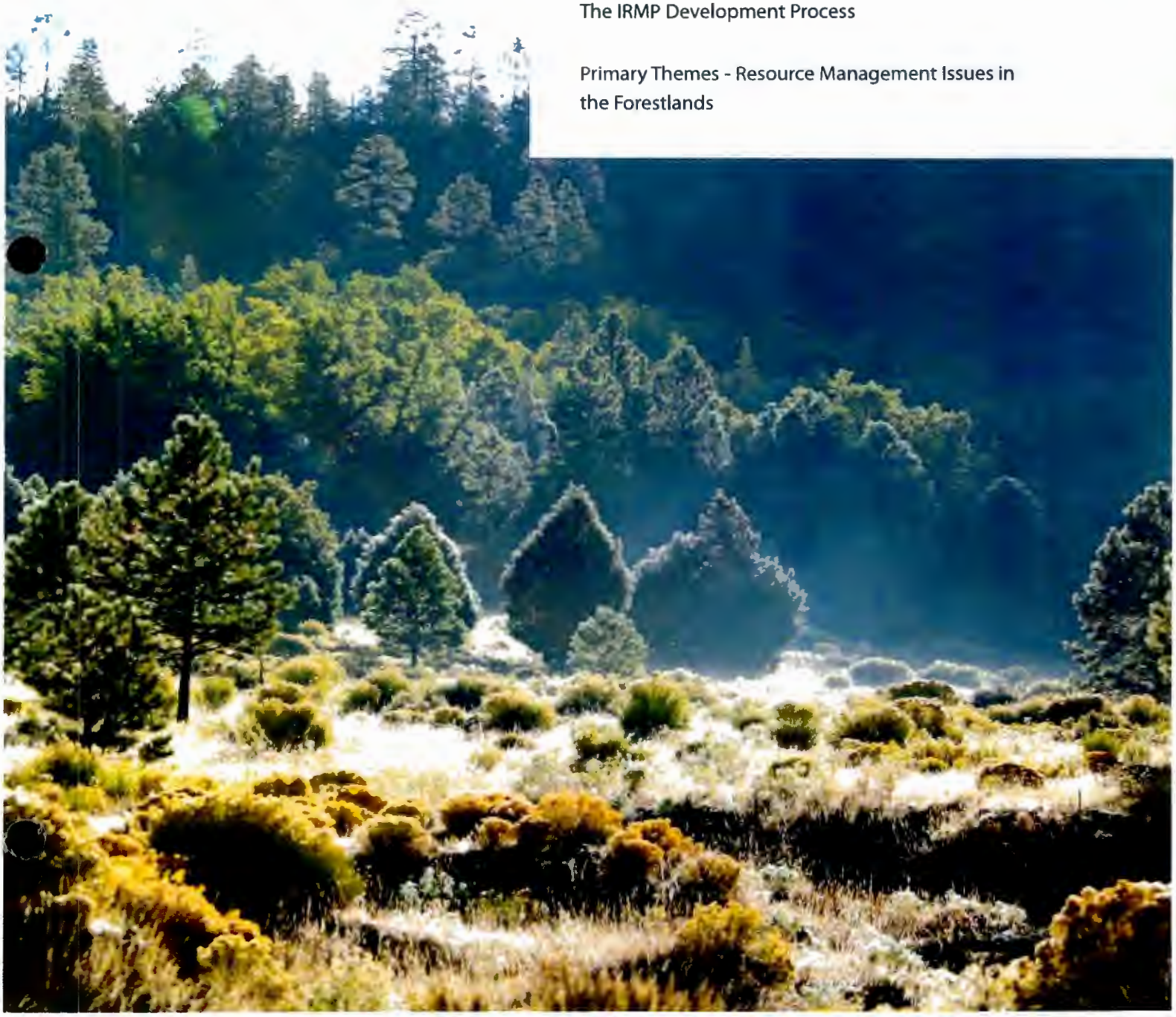


SECTION 2

INTEGRATED RESOURCES MANAGEMENT PLAN

The IRMP Development Process

Primary Themes - Resource Management Issues in the Forestlands



THE IRMP DEVELOPMENT PROCESS

Development of the Navajo Forestlands IRMP involved design of an integrated plan development process that includes establishment and use of an interdisciplinary planning team and extensive community engagement to identify the issues, concerns, goals and objectives for future management of the five Navajo Forestland Areas. The following section details the project phasing, use of the interdisciplinary planning team, community engagement format, materials, timing and how those results were used to develop the IRMP project vision, goals and the Preferred Integrated Resource Management Option for future management of the IRMP Forestland Areas.

PROJECT DEVELOPMENT PROCESS

Development of the Navajo Nation Forestlands Integrated Resource Management Plan occurred over a period of thirteen months beginning in June of 2017. Project Development was split into four distinct phases, integrating key intervals for community participation into the development of the document.

Figure 2-1. Project Development Process

INTERDISCIPLINARY PLANNING TEAM

At the onset of the project, it was decided that an interdisciplinary planning team (ID Team) would be created to work with the community, across the Navajo Nation divisions and departments responsible for managing the Nation's natural and cultural resources and with the consultants for development of the IRMP. The objective was to begin to model the value and benefits of cross-departmental collaboration and sharing of resource knowledge. The role of the individual ID team member was to provide technical resource management expertise, offer insight into specific project components and to serve as the representative decision-making body for their resource department. ID team members were also tasked with serving as an IRMP project ambassador by sharing information with the public and in their communities.

ID team members were selected through coordination with the Director of the Division of Natural Resources and the Director of the Navajo Forestry Department. The Interdisciplinary Planning team was comprised of 29 members representing the departments listed to the right. In addition, the ID Team included a community/organization representative. Representatives from the Bureau of Indian Affairs were also part of the process to offer resource management expertise and feedback on project development.

The Interdisciplinary Planning Team was comprised of one or members from the following departments, agencies and the community:

- Navajo Division of Natural Resources
- Forestry
- Fish & Wildlife
- Heritage & Historic Preservation
- Agriculture
- Water Resources
- Lands
- Resource Enforcement
- Minerals
- Parks & Recreation

US Department of the Interior Bureau of Indian Affairs

- Forestry
- Agriculture
- Mining

Community Representative

The ID team shared regular, bi-weekly conference calls over the course of the 13-month project, and four on-site, in-depth planning sessions to provide insight, materials review and direction for development of the IRMP. Meetings with specific resource department staff were conducted throughout the project to collect resource data, documents and management information.

On-Site ID Team Workshops were conducted to complete the following:

1. Project Kick off & Resource Interviews
2. Identify Issues & Prioritize Goals & Objectives
3. Develop Management Options
4. Develop the Preferred Management Option

ID team members attended Chapter and Farm Board meetings and attended each of the regional community meetings. They also served as project ambassadors at regional community meetings to answer questions, discuss development of the IRMP project and provide technical resource information to the public.

ID Team Wor op: Wor ng Ac oss epartments to Develop Manage ıent Option.

COMMUNITY PARTICIPATION PROCESS & SUMMARY

Beginning with the decision to develop the Navajo Forestlands IRMP, it was decided that the Forestlands IRMP project needed to be built by listening to the voices of the Navajo people that use and reside in the community near and/or adjacent to the five forestland areas or that had a significant interest in how these collective resources should be managed for the future. The forestland boundaries spans over 700,000 acres and is adjacent to/near 27 local chapters, so participation in plan development by these communities was highly desired.

Community engagement efforts were first targeted towards the 27 Chapters within or touching the forestlands as identified by the Navajo Nation Forestry Department. As it was understood that forestland management impacts all Navajo, input from all Navajo people was encouraged and welcomed.

A key early deliverable for the planning effort was the Community Engagement Plan which outlined the format, various audiences and methods for outreach. Early efforts included commitment from the Navajo Nation Division of Natural Resources and coordinating departments to the planning process and for development of the ID Team.

Subsequent efforts included a series of activities aimed at project framing, building a communication infrastructure, branding and developing materials and methods for the dissemination of information throughout the project. Some of those methods and materials are described below.

PROJECT MARKETING

Logo development

The purpose of developing a project logo was to create a recognizable brand for the planning effort that distinguished the project from other agency logos and/or planning efforts. The project logo was a symbol that represented the project's purpose. The logo was created by Duran Washburn, a Navajo Graphic Artist and was refined with input and feedback from the ID Team. It represents the forestland areas and is bordered by the four sacred mountains. A slogan accompanies the logo which defines the overarching intent of the Navajo Forestlands IRMP: "Managing Our Land Resources Collectively for the Dine'." The project team used the logo and slogan on all presentation and outreach material during the project. It remains available for use for future project work and IRMP implementation.

Collateral

A project brochure was created for distribution at community meetings and other public events. The brochure contained the vision of the project, a brief project description, the geographical and resource areas to be covered and opportunities for community participation. Contact information, social media links and the project website address were provided as part of the brochure.

A Navajo/English Project Fact Sheet was created to provide an overview of the project and community participation opportunities. The information was listed first in Navajo, then English.

Project postcards were created and distributed to provide quick links to addresses of the website and social media links. The collateral is included in Appendix B.

Social Media

Social Media outlets were used to keep community members informed of project development activities. Notice of upcoming community meetings, meeting minutes and other project development materials were posted on the project website, with alerts being sent to followers on Facebook, Twitter and Instagram accounts. The social media addresses for the IRMP project are as follows:

Website: https://navajoirmp.wixsite.com/irmp

Facebook: @navajoforestlandsirmp

Twitter: @NNForestIRMP

Instagram: Navajoforestlandsirmp

Figure 2-2. Navajo Forestlands IRMP Logo & Slogan

IRMP PROJECT VIDEO

A professional project video describing the IRMP Project was produced and shown at regional community meetings and posted on the project website throughout the project. The video was produced in Navajo language with English subtitles. It remains available for viewing on the project website.

NAVAJO INTERPRETATION SERVICES

Oral Interpretation

It was identified early in the project that Navajo interpretation was a critical component for community engagement, and for reaching as many Navajos as possible. Joanna Manygoats provided Navajo interpretation services throughout the project. Ms. Manygoats was present at the meetings held at the chapter houses, the community regional meetings and open houses. She presented project materials, led discussions and responded to questions and comments from the audience in Navajo and English. She also transcribed meeting notes and comments from Navajo to English. Translated materials were made available at meetings, on request and on the project website.

Printed Material Interpretation

Other printed materials concerning the IRMP project were produced in both English and Navajo. These included a project fact sheet that was distributed at community meetings. An interpretation of comments made in Navajo were included in the meeting minutes to the project team for inclusion on the project website and for use in developing the IRMP.

COMMUNITY SURVEY

Design

The Navajo Forestlands IRMP project launched an anonymous, detailed community survey on August 25, 2017 to obtain feedback from the Navajo Nation community members on their current use of the forestlands, issues and concerns, and future goals and objectives. The survey included 51 questions covering a broad range of questions related to the use and management of forestland resources and how things might need to shift in the future. A comment section was provided for respondents wanting to share specific thoughts and ideas. The survey was reviewed and revised by the ID Team before distribution.

To increase survey participation, the project team offered an incentive for completing the survey. Survey respondents were able to enter into a raffle for a $100 Wal-Mart gift card. The winner of the gift card was Cecelia Yazzie.

Distribution

The survey was available online through the Survey Monkey website via a link from the project website. In addition, paper copies were distributed and collected at Chapter and Regional Meetings, the Navajo Nation Fair, the Division of Natural Resources (DNR) Summit and other events. The survey closed to responses on December 31, 2017. Complete survey question results can be found in Appendix C.

Summary of Survey Results

During the four months that the survey was open for responses, approximately 128 surveys were completed. The demographics associated with the survey respondents include:

Table 2-1. Survey Responses

Gender	Age
Male: 46%	18 – 24: 3%
Female: 52%	25 – 44: 25%
Prefer Not To Answer: 2%	45 – 64: 45%
	65+: 25%
	Prefer Not To Answer: 2%

Survey responses came mostly from the older age groups with 70% of respondents being age 45 and older. In comparison, the median age of residents of the Navajo Nation is 30.5 years (U.S. Census 2011-2016 American Community Survey)

Table 2-2. Survey Responses

Employed	Enrolled Members
Yes: 54%	Yes: 97%
No: 52%	No: 3%
Prefer Not To Answer: 7%	
Residence	
Yes On Navajo Nation: 84%	
No: 14%	
Prefer Not To Answer: 2%	

Table 2-3. Survey Responses

Chapter Representation
118 of 128 surveys designated a Chapter of residence
83 responses came from project targeted Chapters (70% of those who designated a Chapter) • 20 of the 27 project targeted Chapters have a response
Toadlena/Two Grey Hills: 16 surveys
Tohatchi: 11 surveys

Table 2-4. Survey Responses

Forestry Department/Division of Natural Resources Employment
Yes: 25%
No: 75%

Table 2-5. Survey Responses

Which of the 5 Forestlands Areas is closest to residence
Chuska Mountains closest for 56% of respondents
All 5 areas have at least 5 survey responses

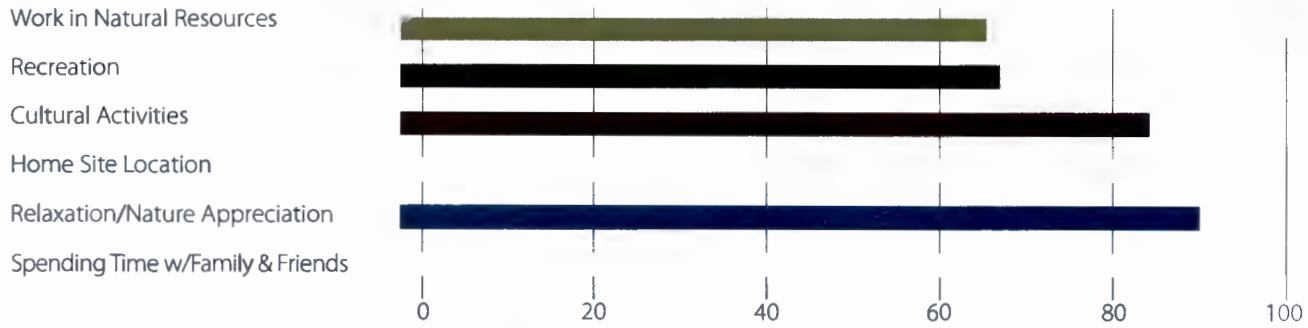
The survey inquired about specific activities conducted in the forestlands. More than one response was allowed. The activities in order of participation are:

Table 2-6. Specific Activities Conducted in the Forestlands

Rank	Activity	% Participating
1	Collecting Firewood	80.5%
2	Recreation (hiking, running)	68.8%
3	Nature Viewing & Education	65.6%
4	Cultural Activities	58.6%
5	Ranching / Grazing	55.5%
6	Water Access	46.9%
7	Medicinal Plant Gathering	46.1%
8	Fishing	40.6%
9	Hunting	24.2%
10	Other (homesite, camping, etc.)	14.8%

Below are various key points from the survey responses:
The primary reasons survey respondents go to the forestlands are to spend time with family and friends and to relax and appreciate nature. Following closely are homesite location and for cultural activities.

Figure 2-3. The Primary Reasons Survey Respondents go to the Forestlands
(% Answering Extremely Important/Important)

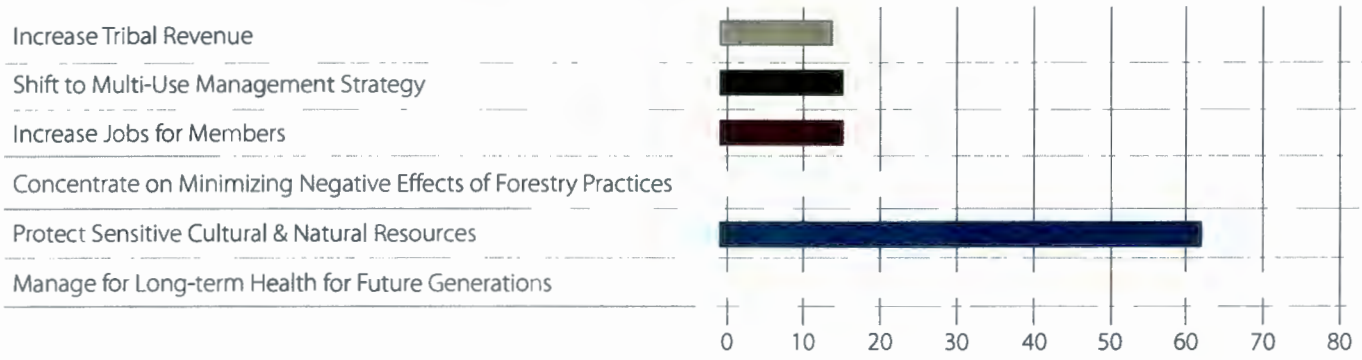


Goals for the future management of the forestlands were ranked by importance. The results show the two overarching goals:

Table 2-7. Survey Responses

Which of the 5 Forestlands Areas is closest to residence
1. Manage for long-term health for future generations (74.6% responding this goal was Extremely Important or Important).
2. Protect sensitive cultural and natural resources (62.5%). Other goals listed each received less than 30% responding Extremely Important or Important

Figure 2-4. Survey Response - Top Forestland Goals



Other points taken from the analysis of the survey responses and added into the IRMP development include:

- Respondents want the forests managed through timber sales and prescribed burns.
- Many people (81%) collect firewood with 44% collecting five cords or more per year.
- Climate Change has been felt on the Navajo Nation; respondents feel that summer is hotter, temperatures higher throughout the year and there is less precipitation.

"The Mountains are Sacred"

-Comment from the Community Survey

- Water security is a critical concern on the Navajo Nation:
  - 60% report having sufficient potable water; though
  - 45% have seen decreases in the amount of water available.
  - Water quality has become an issue with many comments reporting water contamination from various sources.
  - As many on the Navajo Nation remain without access to water at their homesite, thus having to haul water from wells, respondents would like to have water delivery infrastructure development.
- Fishing is not currently a source of food but many would like fishing areas developed and lakes stocked. To accomplish this, respondents see the need for little increase in fishing regulations, but emphasize more enforcement of current regulations. There has been an observed decrease in the fish population.
- Hunting is a source of food for half of the survey respondents; hunting is mainly for big game such as deer and elk. Half of the respondents would like to see hunting developed, but with this development would want hunting regulations and enforcement of the regulations increased.
- Most respondents felt that the forestlands are not currently supporting or are unsure if the forestlands are able to support wildlife species. However, 88% say it's Important/Extremely Important to monitor wildlife populations and their habitats. Respondents have observed decreased wildlife populations over the years or have no opinion on population levels.
- Just over half (53%) feel that homesite expansion should be restricted to certain areas within the forestlands.
- The survey also asked about recreation opportunities and development:
  - While 68.8% go to the forestlands for recreation, 44% felt that the Navajo Nation should maintain the current level of recreation available, with another 38% wanting expansion.
  - However, survey-takers responded "No" to business development of recreation (44% "No" to 36% "Yes").
- Current roads allow people to access where they want to go, but most would not want the Navajo Nation to open roads for recreational activities.
- One-third of the survey takers currently graze cattle in forestlands. Many see the need for increased regulations concerning grazing as well as increased enforcement of the grazing regulations.
- It is extremely important for the Navajo Nation to protect cultural areas within the forestlands as 86% responded Extremely Important or Important.
- Questions concerning whether to allow the development of gravel pits or mining were answered with mostly "No" responses.
- Other issues that respondents would like addressed are:
  - Waste / trash dumping
  - Soil erosion
  - Weeds
  - Active restoration

"I wish all Navajos would learn to plan for our future generations."

-Comment from the Community Survey

REGIONAL COMMUNITY MEETINGS, CHAPTER MEETINGS & OPEN HOUSE

Community engagement was designed to visit communities at three distinct points for development of the IRMP Document:

1. To identify issues and concerns, and hopes for the future
2. Present a series of potential future management approaches for the forestlands that addressed community issues, concerns and hopes for the future
3. To present a preferred management option for the forestlands based on the feedback received from the community & the Navajo Nation divisions and departments responsible for managing the Nation's natural and cultural resources

FORMAT FOR COMMUNITY MEETINGS

In order to manage the magnitude of the geographic area, community engagement was organized by grouping individual chapters into regions. Separate special meetings were advertised for regional community meetings that encompassed a series of chapter areas. Meeting locations were selected based on proximity to larger population area, meeting space, size and equipment availability and flexibility to schedule day/evening meetings.

The Navajo Forestry Department also made itself available to visit and present information to individual chapters and farm boards on an "as requested" basis throughout the project development period.

Regional Community Meetings were organized in the following format: A formal PowerPoint presentation was delivered that walked through the project development process including what we had heard from the community to date, and objectives for the present meeting. Community meetings then transitioned into a public hearing format where participants were asked to sign up to speak to share their thoughts, concerns and ideas about the project and the information presented. The project team and ID team members responded to community questions and concerns based on their project understanding and specific resource knowledge.

Community Participation at IRMP Regional Community Meetings

The project web site has copies of the PowerPoint presentations used for community meetings. Meetings also included informational boards and printed materials. Informational boards documented information collected on the project, resource issues, community feedback, and management options, among many other issues. Appendix D includes copies of all the poster boards presented at the Regional Community Meetings.

Lastly, community meetings used electronic voting to provide meeting participants the opportunity to voice their preferences for different management options discussed at the meetings. This interactive tool provided participants the opportunity anonymously weigh in on the development of the project without others being aware of their individual vote.

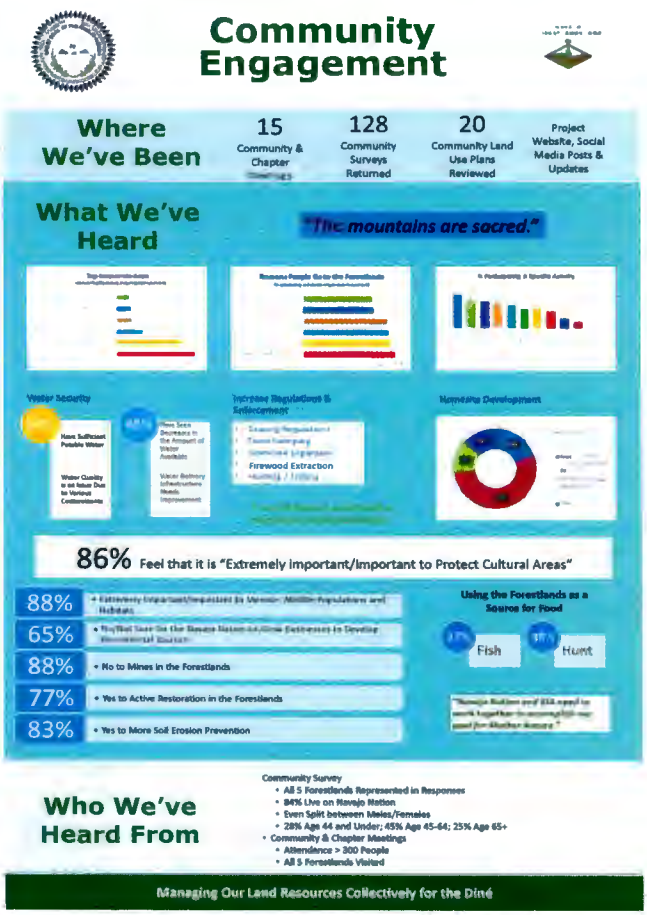
SUMMARY OF PUBLIC ANNOUNCEMENTS

Meeting announcements were advertised in the local newspapers, "The Navajo Times" and the "Farmington Daily Times". Local radio stations across the Navajo Nation delivered public service announcements containing information on upcoming meetings, location and timing. Flyers providing meeting details were sent to the Chapter houses and/or local meeting hosts with the request to post in public locations and to make announcements at regular Chapter meetings and Planning meetings. Meeting announcements were both emailed and faxed to each of the 27 Chapters.

Samples of community meeting flyers and press releases are included in Appendix B.

Community Participation at IRMP Regional Commun ty Me etings

Figure 2-5. Sample of Community Meeting Boards



DATES, LOCATIONS, APPROXIMATE ATTENDANCE

The following is a summary of the meeting locations, dates and approximate attendance for the chapter and regional community meetings conducted throughout the development of the project. ID team and internal planning team members were in attendance to present the project and to discuss various aspects of the IRMP and to solicit community input:

Table 2-8. Meeting Locations, Dates and Approximate Attendance

Date	Location	Type of Meeting	Approximate Attendance
August 28, 2017	Naschitti Chapter House	Invitation to Chapter meeting	30 - 40
August 31, 2017	Two Grey Hills Chapter House	Invitation to Chapter meeting	25 - 30
September 14, 2017	Wide Ruins Chapter House	Invitation to Grazing Meeting	10-15
September 18, 2017	Tohatchi Chapter House	Invitation to present	10-15
October 3, 2017	Thoreau Community Center	NN IRMP Regional Meeting	2
October 4, 2017	Fort Defiance Chapter House	NN IRMP Regional Meeting	6 - 8
October 5, 2017	Wheatfields Chapter House	NN IRMP Regional Meeting	15 - 20
October 9, 2017	Shiprock Chapter House	NN IRMP Regional Meeting	8 - 12
October 10, 2017	Tohatchi High School	NN IRMP Regional Meeting	12 - 15
October 11, 2017	Navajo Mountain High School	NN IRMP Regional Meeting	3
November 13, 2017	Cove Chapter House	Invitation to present	10-15
November 15, 2017	Twin Arrows Navajo Casino Resort	DNR Summit presentation	20-25
November 20, 2017	Smith Lake Chapter House	Invitation to present	10-15
February 13, 2018	Navajo Nation Museum, Window Rock	Invitation to present at the Reservation-Wide Elected Officials Meeting sponsored by the NN Dept. of Ag.	20-25
March 16, 2018	Navajoland Inn and Suites (St. Michaels, AZ)	Invitation to present at the CLUP Meeting	4
April 3, 2018	Navajo Nation Museum, Window Rock	NN IRMP Regional Meeting	15 - 20
April 4, 2018	Navajo Technical University, Crownpoint	NN IRMP Regional Meeting	3
April 5, 2018	Diné College, Shiprock	NN IRMP Regional Meeting	20 - 25
April 10, 2018	Tohatchi Chapter House	Invitation to present at the Permittee Meeting	6
April 26, 2018	Sanostee Chapter House	Invitation to present and attend a community forum	12
June 6, 2018	St. Michaels Chapter House	Open House	10 - 12
June 7, 2018	Shiprock Chapter House	Open House	12 – 15

MEETING RESULTS

Various resource issues and concerns were expressed and discussed at the community meetings.

Some frequently heard issues include:

- Overpopulation and control of feral horses, grazing animals
- Firewood collection for personal and commercial use
- Need for restoration of burned areas
- Protection of cultural sites/traditional practices
- Policies for homesite locations, repairs and access
- Traditional and medicinal plant use threatened
- Misuse of forestlands for trash dumping, illegal activities

Resource Department Staff/ID Team Members Discussing Resource Management Issues

CHAPTER LAND USE PLAN REVIEW

During the early 2000's, individual Navajo Nation chapters undertook the creation of Community Land Use Plans (CLUPs) to detail future land and economic needs for their residents. The plans included needs for housing, economic activity, community facilities and resources, access, etc., as well as information about the future direction each chapter sought for their residents. The IRMP project team reviewed and incorporated the information contained in the CLUPs to further understand and identify the issues, needs and desires of each chapter into development of the IRMP document.

TABLE OF CLUPs REVIEWED

Chapter Land Use Plans were reviewed for 20 of the 27 chapters. CLUPs were obtained from the Navajo Nation website, the Land Department or the chapter office. Requests for missing CLUPs were made to the individual chapters via phone and email from the project team. The following plans were reviewed as part of the project:

The following chapters did not have CLUPs available for review:

- Klagetoh
- Naschitti
- Nazlini
- Oak Springs
- Round Rock
- Sweetwater (no CLUP, received land use map)
- TeecNosPos

SUMMARY OF CLUP REVIEW

The Community Land Use Plans were designed to encompass many topics including residential and commercial development, infrastructure, population growth, education, and the health, public safety and welfare of the residents. Review of the CLUPs included capturing the primary goals, objectives and resource use information. Some of the primary themes captured from the CLUP review included:

- Access to water, sewer and electricity
- Preservation of the natural resources within and adjacent to their chapters
- Preservation of the Navajo language and traditions
- Opportunities and locations for economic development
- Need for housing
- Improve areas for community interaction including schools, parks, community centers
- Enforcement of laws to remediate issues resulting from trash dumping, animal control
- Plan for future growth

Information collected from the CLUP document review was integrated into the development of the IRMP project goals and later into the development of the Management Options for the IRMP.

Table 2-9. CLUPs Reviewed

Cove	Lukachukai	Red Lake	Sheep Springs	Tohatchi
Crystal	Mariano Lake	Red Valley	Smith Lake	Tsaile/Wheatfields
Fort Defiance	Mexican Springs	Sanostee	St Michaels	Twin Lakes
Kinlichee	Navajo Mountain	Sawmill	Thoreau	Two Grey Hills

PRIMARY THEMES
RESOURCE MANAGEMENT ISSUES IN THE FORESTLANDS

Throughout the IRMP development process, team members engaged NN Resource Department members and community members living in or near the forestlands. From those meetings, discussions and surveys, comments were collected and common themes regarding resource management issues emerged that were used for development of the IRMP. The following is a list of the primary themes related to resource management that emerged as a result. These themes were brought before the IRMP ID Team for validation, refinement and approval. The methodology used to compile and develop themes from the various inputs is described in the following section.

1. Improvement in grazing permit administration, management and enforcement to reduce overgrazing
2. Identification, protection and education about cultural sites, practices and traditions
3. Conservation and protection of wildlife and their habitat
4. Implement forest management and restoration for forest health
5. Increase forest product permitting, management and enforcement to reduce cutting of green trees
6. Balanced recreation development with sound management of areas
7. Identification and maintenance of key access roads
8. Weed and invasive species management needed along with active restoration of native species
9. Water infrastructure improvements and construction needed to support communities, agriculture and farming
10. Watershed protection to support water quality, supply and environment
11. Need more enforcement, stricter penalties for violations associated with trash and illegal dumping

THEME DEVELOPMENT METHODOLOGY

The following summary describes the methods and analysis undertaken to combine the various community and resource department inputs together to produce a comprehensive and representative picture of the issues, concerns, and hopes for the future to identify specific preferences for management of the forestland areas.

1. **Community Comments**

   - Community comments from Chapter and Regional Meetings were collected through meetings minutes and comment cards.

   - Additional sources of comments included the project website and social media (Facebook, Twitter and Instagram).

   - Individual comments were then entered into an "Issues and Concerns" Excel database organized by resource area and comment source.

2. **Community Survey**

   - Individual comments from the IRMP Community Survey were also input into the "Issues and Concerns" database by resource area.

   - Survey question results were tabulated using a web based software program called Survey Monkey.

3. **Combination of Comments**

   - Combined comments from the community and the survey were reviewed and coded by topic/issue/concern for grouping. Grouping is an iterative process as themes emerged from the analysis of comment content.

   - Excel pivot tables were then created on the coded data to calculate frequency.

   - Using the issues/concerns with the highest frequencies as the baseline, the comments were reviewed once more for theme development.

4. **Integration with Community Land Use Plans and DNR Feedback**

   - These themes from the community meetings and survey were integrated with information and feedback from Community Land Use Plans (CLUPs) and the Navajo Nation divisions and departments responsible for managing the Nation's natural and cultural resources to identify primary themes.

   - From the CLUPs, a summarization of the top goals and objectives from each Chapter was extracted as well as pertinent resource management issues and opportunities.

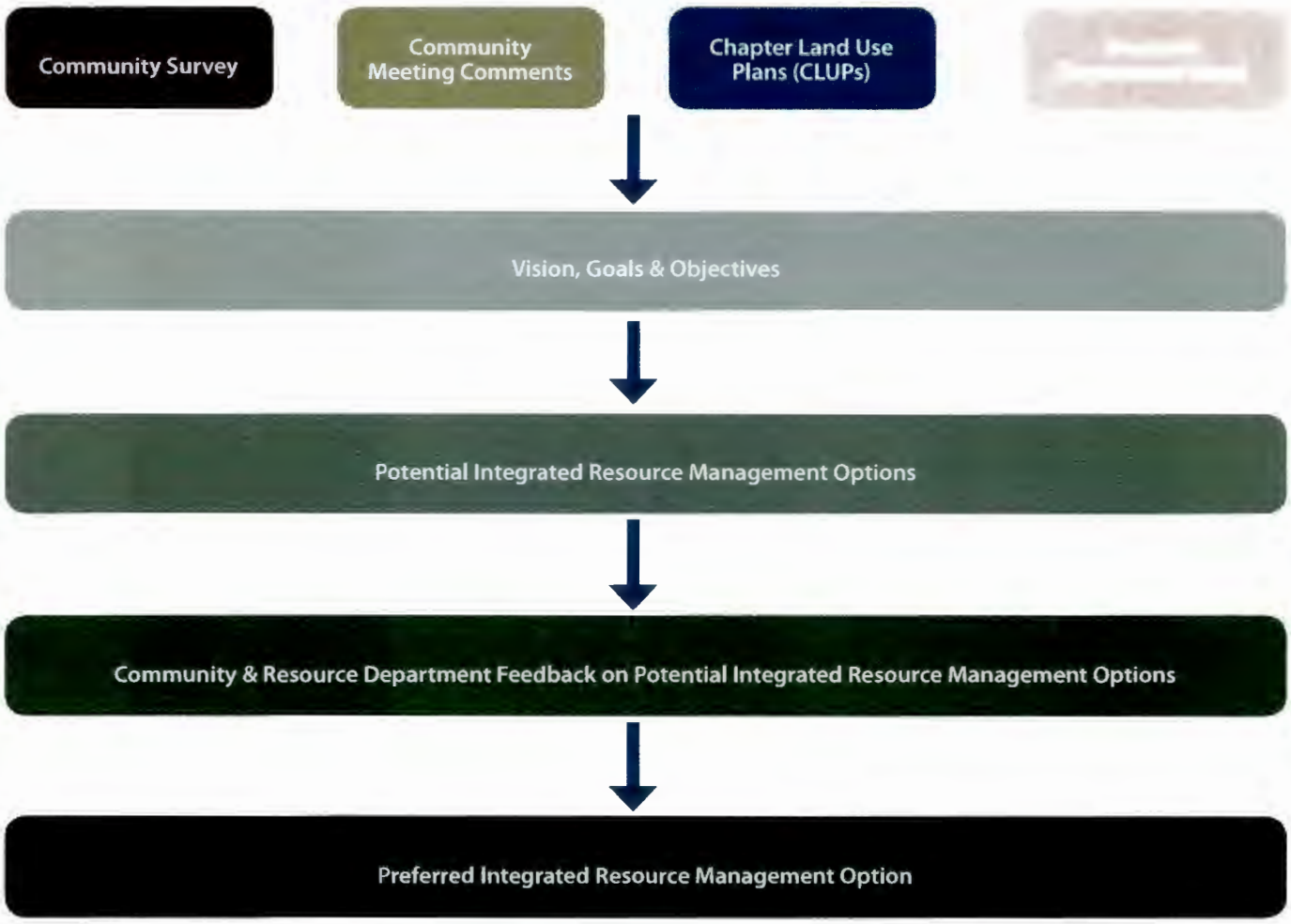
   - The question responses from the community survey were analyzed and used to validate comments and themes.

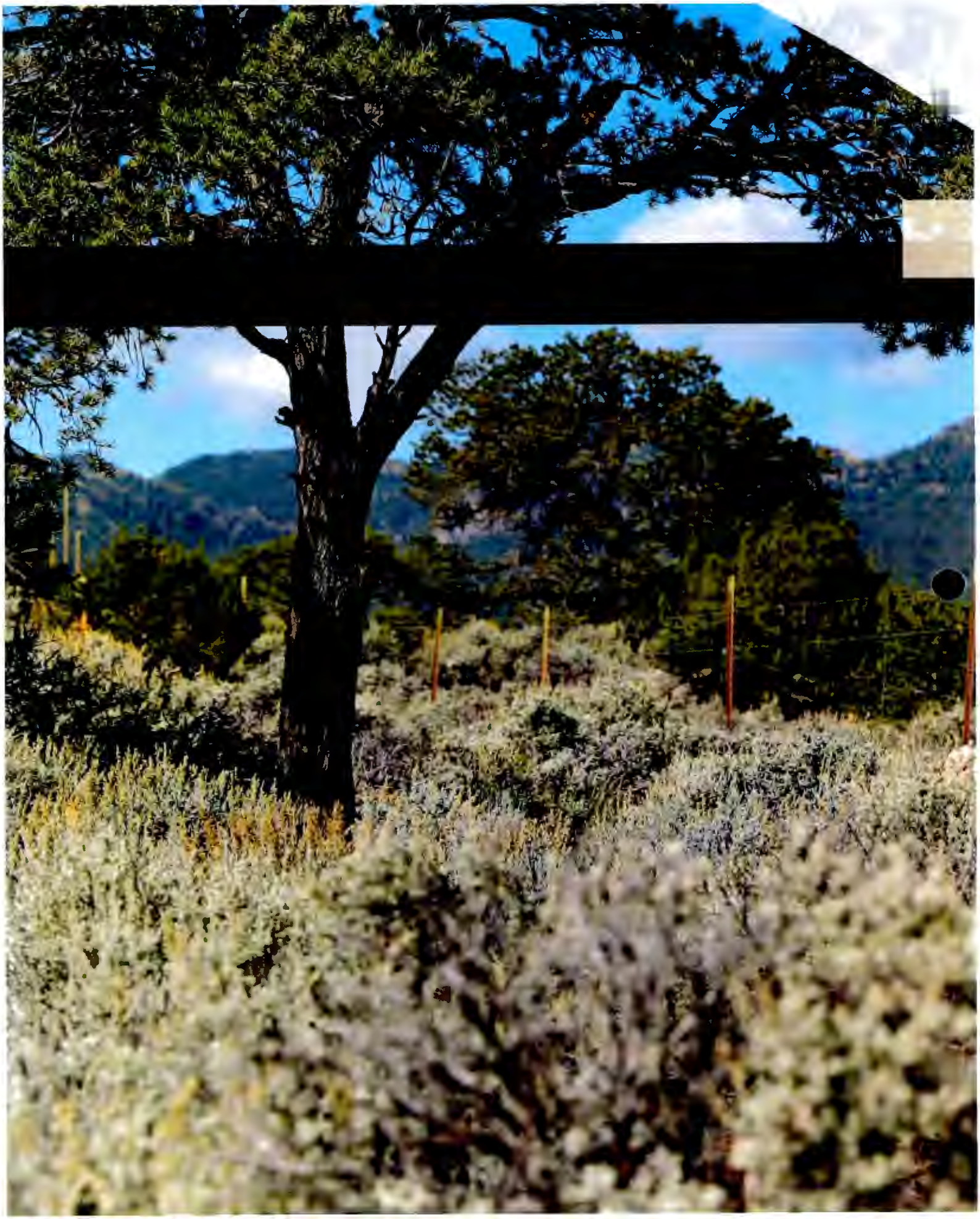
   - Secondary themes have also emerged from the analysis and are incorporated into the Draft IRMP.

COMMUNITY ENGAGEMENT RESULTS

The results of the community engagement for the IRMP combined with inputs from the ID Team and DNR department inputs, produced a set of key themes that guided development of the IRMP. The results associated with listening to the community provides the framework for development of the Vision, Goals and Potential Integrated Management Options.

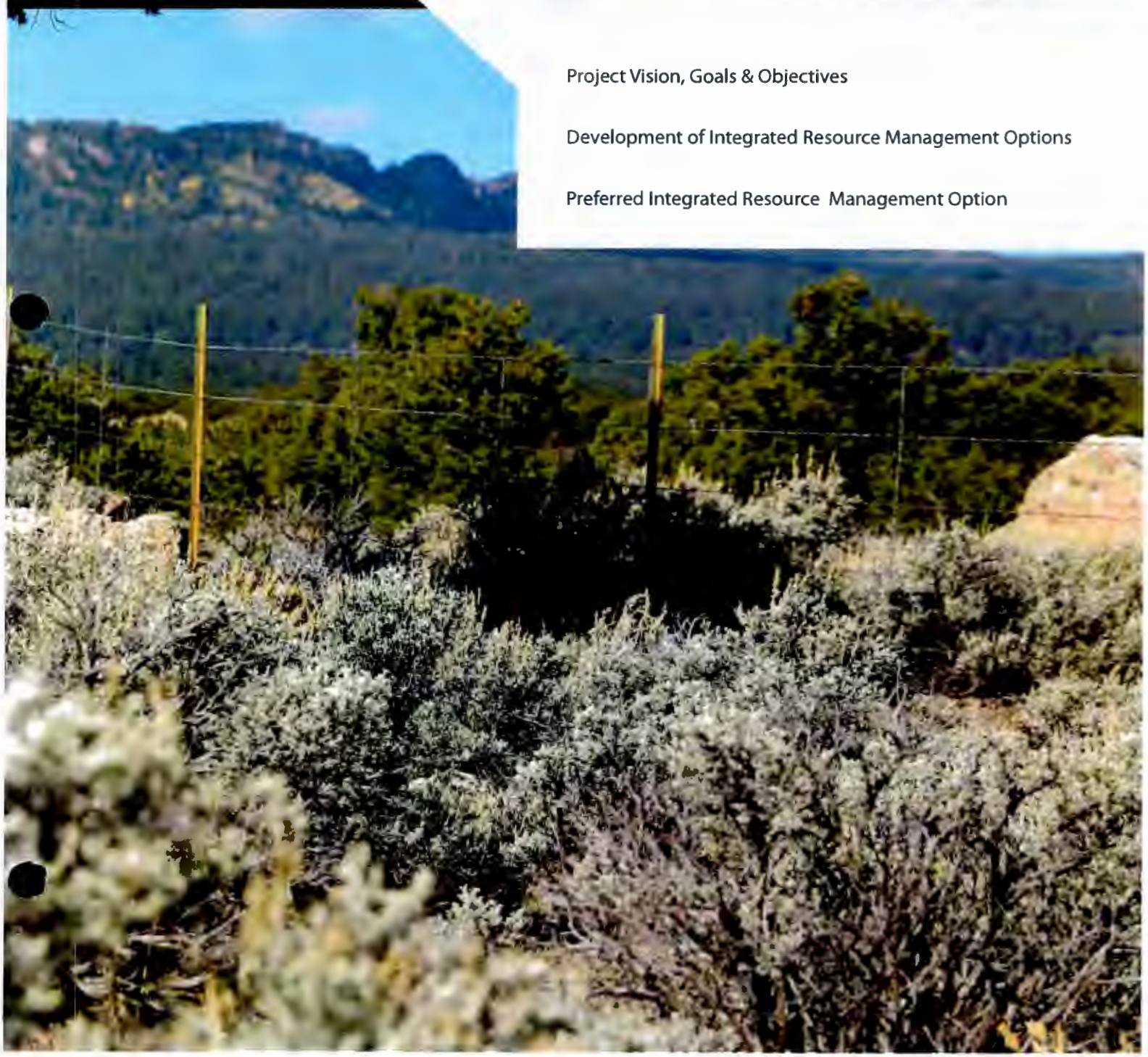
Figure 2-6. Process Overview for Integration of Community Input into Development of IRMP





SECTION 3

INTEGRATED RESOURCES MANAGEMENT PLAN



Project Vision, Goals & Objectives

Development of Integrated Resource Management Options

Preferred Integrated Resource Management Option

PROJECT VISION, GOALS & OBJECTIVES

A vision is sometimes described as an ideal picture of the future. However, it is much more than this – it is a community's aspiration, and its inspiration. It is a description of what the Navajo would like to achieve or accomplish, and serves as the framework for detailed goals, objectives and recommendations.

The vision answers the question, "Where do we want to go?"

A vision is not just an answer; it is also a process. In the case of development of the Navajo Forestlands IRMP, it involved an extensive, collaborative process in which community members directly participated and contributed ideas, dreams and hopes for the future, all of which shaped development of Navajo Forestlands IRMP Vision. The Navajo Forestlands IRMP Vision is represented by the thirteen goals expressed by the community. These values represent the qualities and char¬acteristics that Navajo community members aspire to protect, maintain, improve, change, or achieve in the future.

In many respects, the Navajo Forestlands IRMP Vision reflects the values of the community that are under threat—that is, there is some sense that the par¬ticular value must be protected or needs to be adjusted to meet the desires of the community. In some instances, the Navajo Forestlands IRMP Vision reconciles competing desires. The Navajo Forestlands IRMP Vision seeks to find the common ground between competing values, which are further articulated with the project goals, and are carried out through the Preferred Integrated Resource Management Option's recommendations.

IRMP PROJECT VISION

The Vision for the Navajo Forestlands IRMP represents the primary issues, concerns and hopes for the future identified by community members and resource department staff. The IRMP Project vision is listed below.

GOALS

There are thirteen goals that identify priorities and focus for future resource management. The goals were developed by compiling the issues, concerns and hopes for the future heard from community members and resource department staff. The IRMP project goals were reviewed and approved by the ID Team.

"The Navajo Nation manages, protects, conserves, and enhances forest lands for the people, using an interdisciplinary and integrated approach for all resources."

Navajo Forestlands IRMP Goals

1. Strengthen the preservation and incorporation of Navajo culture, traditional ways and values
2. Increase active forest management for the benefit of multiple natural resources
3. Enhance the resiliency of the forestlands to disturbances, changing environmental conditions and climate change
4. Create economic development opportunities
5. Provide education and outreach to the community
6. Improve compliance with current laws and regulations regarding permits
7. Improve enforcement with current laws and regulations
8. Increase rangeland management to ensure adequate grazing for wildlife and livestock
9. Conservation and protection of wildlife and their habitat
10. Provide an adequate, safe water supply for people, livestock and wildlife to ensure water security for the future
11. Improve communication and coordination between NN Departments and BIA/Federal Government
12. Identification and maintenance of key forestlands access roads
13. Balanced recreation development with sound management of areas

DEVELOPMENT OF INTEGRATED RESOURCE MANAGEMENT OPTIONS

The management options developed for the IRMP were based on "Community First," a proprietary, community-centered approach for plan development designed specifically for work with Indian Country. "Community First" enables potential management options to be analyzed against community goals and is grounded in the places, culture, environment, health, spirituality and other community values. This approach helps communities identify potential preferences for moving forward and determines which strategies are appropriate to help achieve project goals and to make wise investments. It is a model that evaluates both the quantitative and qualitative aspects of project/policy options.

Figure 3-1. Community First Planning Approach: Integration of Community Values into Project Development

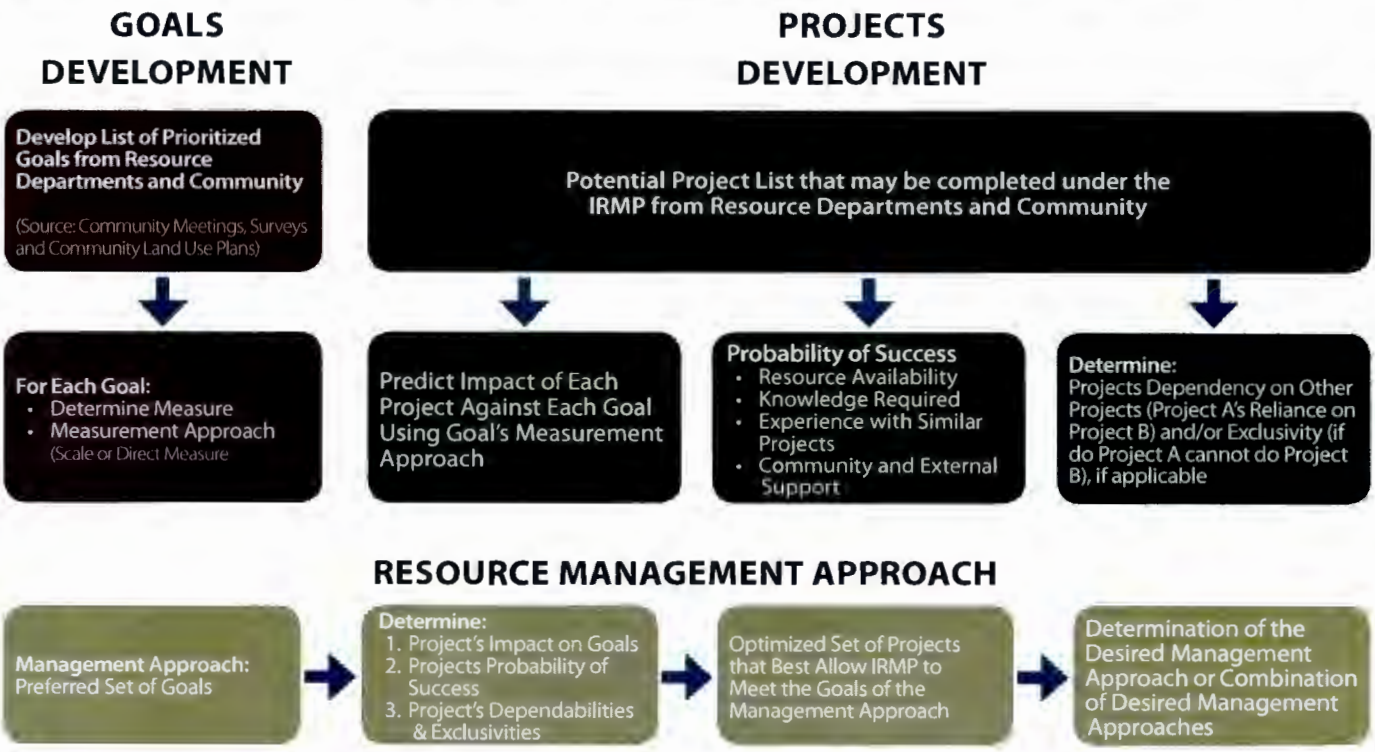
COMMUNITY FIRST PROCESS METHODOLOGY

The Community First Planning Model uses algorithms to analyze many potential resource management options to determine the right mix of strategies, projects, programs and activities to meet community and management goals. The Forestlands IRMP utilized the Community First approach for development of the potential integrated resource management options and worked with the ID team evaluate community goals against potential options in a series of workshops. Each Navajo Nation Natural Resource Department was tasked with identifying current and potential projects that help address individual and shared resource management issues. Additional chapter level projects were designed to address community concerns and integrated into the analysis. Project information included funding amounts required, the department's needed capacity, and scored on feasibility to implement.

Each project was scored against each goal to quantify the measure of impact the project would have on the goal. Different options were then created by prioritizing goals. The Community First model analyzed these projects in many different combinations and scored projects on how well they met the goals for the IRMP.

The ID Team worked together to prioritize different project goals and develop different model options for analysis. The model results illustrated different types of programs, policies and projects that would best enable the project to meet its prioritized goals. The resulting outputs produced a series of management approaches that when implemented through additional planning, programs and projects would enable the Navajo Nation divisions and departments responsible for managing the Nation's natural and cultural resources to best meet the IRMP identified project goals.

Figure 3-2. Methodology for Community First Process & Management Option Development



POTENTIAL INTEGRATED RESOURCE MANAGEMENT OPTIONS

Using the results of the Community First Model, the project team developed three Potential Integrated Resource Management Options that could be used to guide coordinated management of the forestlands in the future. Each management option represented a distinct management philosophy, prioritized different goals and provided varied recommendations. The management options were presented to the ID team for review and modification before being brought to the community for their review and feedback. Table 1 represents the three different potential management options developed with the ID team and presented to community members.

Table 3-1. Initial Integrated Management Options

Management Option A: Increase Resiliency Through Conservation/Restoration	Management Option B: Active Management & Enforcement	Management Option C: Culture, People & Partnerships
Description: Management Option A is focused on land stewardship and involves a longer term focus on improving forest health. Mimics nature's processes to promote long term health of the forestlands and their native ecosystems.	**Description:** Management Option B identifies changes to better regulate the use and protection of Navajo Nation Natural Resources. Focuses on implementation of active resource management projects and enforcement of existing regulations to improve the use, conditions and state of Navajo Nation Forestlands.	**Description:** Management Option C places the Navajo people's needs for infrastructure, employment, information and community development as the priority for its management approach. Emphasizes protection of its cultural resources, heritage and history. Emphasizes strategic partnerships and coordination opportunities across government agencies.
Goals Supported: • Provide an adequate, safe water supply for people, livestock and wildlife to ensure water security for the future • Increase rangeland management to ensure adequate grazing for wildlife and livestock • Enhance the resiliency of the forestlands to disturbances, changing environmental conditions and climate change • Conservation and protection of wildlife and their habitat • Increase active forest management for the benefit of multiple natural resources	**Goals Supported:** • Provide an adequate, safe water supply for people, livestock and wildlife to ensure water security for the future • Increase rangeland management to ensure adequate grazing for wildlife and livestock • Improve enforcement with current laws and regulations • Improve compliance with current laws and regulations regarding permits • Increase active forest management for the benefit of multiple natural resources • Identification and maintenance of key forestlands access roads	**Goals Supported:** • Provide an adequate, safe water supply for people, livestock and wildlife to ensure water security for the future • Increase rangeland management to ensure adequate grazing for wildlife and livestock • Strengthen the preservation and incorporation of Navajo culture, traditional ways and values • Create economic development opportunities • Balanced recreation development with sound management of areas • Improve communication and coordination between NN Departments and BIA/Federal Government • Provide education and outreach to Community

Management Option A: Increase Resiliency Through Conservation/Restoration	Management Option B: Active Management & Enforcement	Management Option C: Culture, People & Partnerships
Recommendations: • Utilize information from existing conditions reporting and resource assessments to identify opportunities for restoration activities (along streambanks, in burned areas, near roadsides, and in sensitive wildlife and vegetation areas) • Conduct forest thinning activities within the forestlands to provide room for tree growth and to help diversify vegetation base for wildlife species • Conduct controlled burns in areas overtaken by invasive species and pests • Develop a drought management plan • Develop, refine and implement land management designation system for forestland areas • Prohibit or severely restrict grazing within the forestland areas and in wetland areas and riparian corridors • Determine schedules for conducting wildlife population counts • Monitor and manage sensitive wildlife species to improve habitat conservation efforts • Secure funding to conduct resource inventories and close data gaps across different resource areas	**Recommendations:** • Improve management of forest product permitting system to ensure that permits cannot be sold or transferred. Increase enforcement of forest product permit violations to prevent re-sell of wood and cutting of green trees • Evaluate enforcement mechanisms for violations against trash dumping, firewood collection, and grazing permit regulations • Re-evaluate grazing management system to streamline regulatory, management and enforcement authority for different levels of government (federal, Nation and local chapters) • Update and adopt the Forest Management Plan • Develop a watershed based management approach to forestland management, supported by a Watershed Management Plan • Conduct timber harvests in select management units to promote forest health and generate resource revenue • Evaluate methods of controlling/ relocating the feral horse population including fertility-control methods	**Recommendations:** • Improve infrastructure for water storage for use by people, plants and animals • Introduce land use zoning and permitted uses within different zones – apply to all local government chapters • Road maintenance to support infrastructure needs-critical infrastructure projects to support communities – water security, food security, jobs, food desert • Conduct monthly meetings and communication protocols between BIA departments and Navajo DNR departments to coordinate resource planning and project implementation • Create funding opportunities/grants to facilitate development of local infrastructure improvements at the chapter level • Develop educational curriculum to increase understanding of resource use impacts and conservation measures • Create a centralized GIS data sharing system with reporting and open data requirements for DNR and BIA departments. Utilize foundation developed through the Navajo Nation Land Department • Provide ongoing skills and safety training for resource personnel to increase ability to respond to changing conditions, industry trends and to manage extreme events such as natural hazards and climate change • Water infrastructure and water quality improvements to provide stable water supply

Management Option A: Increase Resiliency Through Conservation/Restoration	Management Option B: Active Management & Enforcement	Management Option C: Culture, People & Partnerships
Recommendations *(continued)*: • Develop and Implement an Adaptive Planning Process to increase capability to respond to Climate Change events • Develop a watershed based management approach to forestland management, supported by a Watershed Management Plan	**Recommendations** *(continued)*: • Re-evaluate grazing management system to establish appropriate counts and variety of stock supported. Establish rotation grazing to allow for the recovery of grazing areas • Identify key forest access and homesite access roads within the forestlands for regular maintenance and repair activities	**Recommendations** *(continued)*: • Inventory cultural resource sites and medicinal plants. Develop method for sharing and educating communities about protection of places, traditions and sensitive areas • Improve lake conditions to reintroduce trout populations for fishing opportunities • Conduct dry farming education classes in communities to encourage personal and local food production. Revise farm permit system to accommodate new farmers • Establish localized hunting permit quotas to allow for variations in wildlife populations • Provide communities with contact information of authorities to improve communication between chapters/local officials and NN Departments. Improve relationships with local chapters through ongoing communication of policies and upcoming activities • Establish educational programs for the teaching of cultural/traditional ways to younger generations for the protection of cultural and natural resources • Establish and maintain areas for recreation opportunities including picnicking, hiking and camping • Understand local chapter desires for future community and economic development for possible mutual benefits

COMMUNITY FEEDBACK AND POTENTIAL INTEGRATED RESOURCE MANAGEMENT OPTIONS

The IRMP Project Team engaged community members during the Phase 2 Community Regional Meetings in April, 2018 to provide the opportunity for the community to identify their preferences for different Potential Integrated Resource Management Options.

In order to collect specific feedback and comments on each management option, the project team provided a detailed presentation on each management option and used anonymous electronic voting to identify preferences related to the management philosophy, the goals and recommendations and any other detailed comments community members wanted to share. Detailed results of the community voting for the management options is included as part of Appendix E. The feedback we received from both the ID Team and the Phase 2 community meetings was integrated into development of a Preferred Integrated Resource Management Option. The Preferred Integrated Resource Management Option represents a blend of all three management options, with a large acknowledgment of the need for conservation, restoration and active management and enforcement to ensure that the Navajo forestland resources are available for all Navajo in the future.

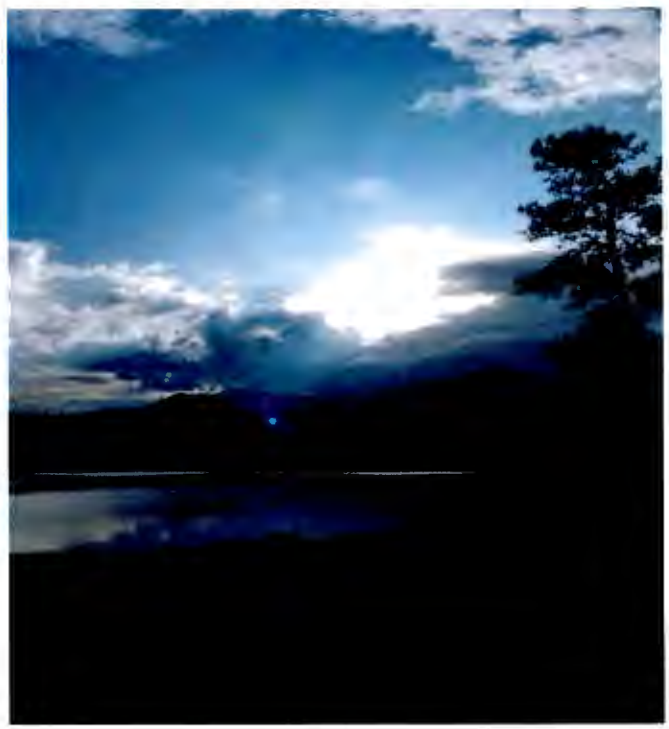


Figure 3-3. i-Clicker Voting was used at Community Meetings to Identify Preferences for Management Options

Indicate Support for Management Option A Recommendations: Pathway to Goal Achievement

What do you like about the ***recommendations*** for Option A?

A. Focus on conserving resources for the future: do not use resources

B. Emphasis on Land Stewardship: use resources with future in mind

C. Restoring our natural landscapes: restore resources to past conditions

D. All the above

E. None of these recommendations are good to me

PREFERRED INTEGRATED RESOURCE MANAGEMENT OPTION

The Preferred Integrated Resource Management Option provides the overarching strategic guidance for future management of the five forestland Areas (Chuska Mountains, Mount Powell, Carrizo Mountain, the Defiance Plateau and Navajo Mountain). This option is the culmination of the diligent work by the project team, the ID team, resource managers and commitment from the community to share their issues and concerns and voice their preferences for how they want to see the Navajo forestland areas managed in the future.

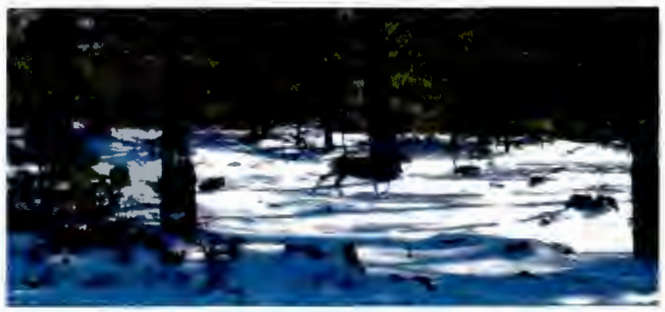
The Preferred Integrated Resource Management Option was developed with recognition that each resource department operates under its own specific work program and budget, but emphasizes that by utilizing the Preferred Integrated Resource Management option to guide their planning and project efforts they each increase their impact and achieve multi-resource benefits.

The Preferred Integrated Resource Management Option is organized by discussing the management approach, identifying the supporting goals and listing the accompanying recommendations that provide the charge to plan for future resource management.

FUTURE IRMP MANAGEMENT APPROACH: ACTIVE LAND STEWARDSHIP BY AND FOR THE DINÉ

The IRMP Management Option Approach communicates the philosophical management approach to be taken when planning and implementing work within the Navajo Nation forestlands. It represents the community and management values identified through this IRMP process, and the values that should drive all management activities for the future. It recognizes and acknowledges the interrelationship between forestland resources and the Navajo culture.

The Preferred Integrated Resource Management Option reflects the deep cultural relationship of the Navajo people with the forestlands and the resources within them. It recognizes the role the forestlands play in the Navajo Peoples' economic livelihood, their traditions and in helping to meet local community needs. The Preferred Integrated Resource Management Option emphasizes an ethic of land stewardship and wise use of resources to ensure they can remain resilient to changing conditions and to be available for families and future generations. It provides guidance to the Navajo Nation departments and divisions responsible for managing the Nation's natural and cultural resources to address active management needs of natural resources and increased enforcement of existing regulations to restore and rehabilitate degraded forestland areas; and to maintain future revenue generation potential of key resources.



GOALS & RECOMMENDATIONS

The Preferred Integrated Resource Management Option focuses the work of the Navajo Forestlands IRMP on nine primary goals. While the Preferred Integrated Resource Management Option lists these nine goals and a series of supporting recommendations, it does not mean to infer that other management goals cannot also be advanced simultaneously, or that other best practices recommendations should not also be implemented. The Preferred Integrated Resource Management Option is focused on providing strategic guidance to set the Navajo Nation departments and divisions responsible for managing the Nation's natural and cultural resources on a prioritized path towards achieving the community vision for future management of the forestlands.

The goals associated with the Preferred Integrated Resource Management Option will be advanced utilizing the management philosophy described above. Each goal is supported by a series of recommendations that describe overall activities each resource management department should address and integrate into the development of future management plans, projects and actions. The recommendations include short and longer-term changes that are needed across the Navajo Nation, within the Division of Natural Resources, as well as, within a particular resource department. Recommendations reflect changes that may be needed to modernize methods, practices and protocols for collecting and sharing information, for communication and for integrating best practice resource management techniques. Finally, recommendations reflect opportunities to build linkages between resource management professionals and community resource users through education, outreach and demonstration projects.

GOALS

1. Strengthen the preservation and incorporation of Navajo culture, traditional ways and values
2. Increase active forest management for the benefit of multiple natural resources
3. Conservation and protection of wildlife and their habitat
4. Create economic development opportunities
5. Strengthen the ability of the forestlands to recover from disturbances, changing environmental conditions and climate changes
6. Improve rangeland management to ensure adequate grazing for wildlife and livestock
7. Provide an adequate, safe water supply for people, livestock and wildlife to ensure water security for the future
8. Provide education and outreach to Navajo Communities
9. Improve enforcement of current laws and regulation

RECOMMENDATIONS (ORGANIZED BY GOAL)

(1) GOAL: STRENGTHEN THE PRESERVATION AND INCORPORATION OF NAVAJO CULTURE, TRADITIONAL WAYS AND VALUES

Recommendations:

- Update the Division of Natural Resources on current legislation pertaining to NEPA & ensure compliance
  - Conduct Heritage & Historic Preservation Outreach
  - NEPA protocol/manual for DNR departments including videos, DVDs
- Understand AARPA Bulletin 38, for evaluating and documenting Traditional Cultural Properties and Cultural Landscapes and provide information and education to the public
  - Encourage ethnographic surveys before and after projects
  - Apply guidance to mountains, high places, and elevated places
- Conduct an inventory of cultural resource sites & medicinal plants. Develop methods for sharing and educating local communities about protection of places, traditions and sensitive areas
- Track and monitor burial sites to determine the extent of the problem with burials in unauthorized places
  - Ensure compliance with land office regulations regarding burial sites: acknowledge, educate and apply regulations
- Ensure better access to cultural resources spatial (GIS) information between DNR departments
- Identify and protect traditional plants used in ceremonies and gathering thereof; harvest seeds, replant, and establish native seed banks for restoration. Note: Fish & Wildlife has started a seed bank that could be replicated
- Undertake recruitment & training of Navajo speakers who can interpret the "technical" aspects of natural resource management and communicate with the public
- Establish educational programs to teach cultural/ traditional ways to younger generations for the protection of cultural and natural resources
- Demonstrate and deliver messages to the Navajo People that traditionally it is not good to overgraze forestlands or any other lands

(2)GOAL: INCREASE ACTIVE FOREST MANAGEMENT FOR THE BENEFIT OF MULTIPLE NATURAL RESOURCES

Recommendations:

- Update and adopt the Forest Management Plan
- Identify future commercial harvests based on demand and forest health
  - Determine forest needs to ensure sustainability for wood collection, watershed protection, range management needs, wildlife and recreation
  - Assess markets and identify and recruit buyers for 1.) wood waste product and 2). Timber products
  - Investigate niche, international markets; Markets open to Native producers
- Implement select forest treatments to maintain forest health
- Conduct timber harvests in select management units to promote forest health and generate resource revenue
- Conduct forest thinning activities within the forestlands to provide room for tree growth, to help diversify vegetation base for wildlife species and reduce risk of catastrophic wildland fire
- Improve management of forest product permitting system to ensure that permits cannot be sold or transferred. Increase enforcement of forest product permit violations to prevent resale of wood and cutting of green trees
- Stay abreast of Best Management Practices and training and apply to forest management activities
- Conduct before/after studies of forest road access impacts, maintenance requirements and methods to implement forest restoration projects on unnecessary roads
- Reach out to EPA Region 9 to ensure forest impacts from mining remediation work is considered

(3) GOAL: CONSERVATION AND PROTECTION OF WILDLIFE AND THEIR HABITAT

Recommendations:

- Maintain inventories of Threatened and Endangered species, big game and fisheries
  - Distributions, habitat needs, and major threats
- Broadly: maintain diversity and heterogeneity of wildlife habitat
  - Horizontal diversity of landscape
  - Vertical diversity of individual forest stands
- Maintain inventories of Threatened and Endangered species, big game and fisheries
  - Distributions, habitat needs, and major threats
- Establish collaborative relationships with wildlife agencies and universities to acquire funding for Master and PhD students to conduct field-based, scientific studies on Threatened and Endangered species and big game species, and to share findings, reports and publications with the Fish & Wildlife Department for future use in forest and wildlife management plans
- Create Big Game Management Plans for the following species with distributions that overlap Navajo Forestland areas: Mule deer, Rocky Mountain elk, pronghorn antelope, Desert bighorn sheep, black bear and mountain lion
- Continue current monitoring efforts for sensitive wildlife and big game species, and conduct habitat improvement projects to provide quality habitat where it has deteriorated
- Improve lake conditions to reintroduce trout populations for fishing opportunities
- Reduce feral horse population to protect wildlife and habitat
- Reduce feral cows in forestlands

(4) GOAL: CREATE ECONOMIC DEVELOPMENT OPPORTUNITIES

Recommendations:

- Explore an interdepartmental forestry entrepreneurial program to help Navajo business to harvest wood
  - Investigate opportunities for public/private partnership
- Explore how to diversify funding/dedicated funding with Navajo Nation entrepreneurs
- Evaluate firewood and timber markets and operations to identify future use of wood products
- Partner with the chapters to designate specific areas to harvest wood

(5) GOAL: STRENGTHEN THE ABILITY OF THE FORESTLANDS TO RECOVER FROM DISTURBANCES, CHANGING ENVIRONMENTAL CONDITIONS AND CLIMATE CHANGES

Recommendations:

- Provide ongoing skills & safety training to resource department personnel to increase ability to respond to changing conditions, industry trends and management of extreme events associated with natural hazards and climate change
- Inventory land to target priority areas that have denuded vegetation and loss and need restoration
- Protect and manage watersheds and streams; watershed restoration
- Partner with chapters to create conservation projects
  - Build awareness and education
  - Pilot demonstrations; expand successful pilots to other areas
- Employ targeted, temporary fencing of conservation/ restoration areas to allow areas to regenerate. Support efforts through education and outreach to communities
- Create reseeding projects where needed
- Partner with schools to develop a conservation project
- Partner with area university to study the forest and create high school/university internships
- Avoid fragmentation and maintain forest connectivity
- Maintain stand densities (appropriate for area) that optimizes and promotes tree growth, forage and forest production
- Use public service announcements on water conservation, wildlife protection, livestock, etc.; to share information on how to maintain healthy forestlands
  - Talk about the benefit of thinning, prove it through thinning

(6) GOAL: IMPROVE RANGELAND MANAGEMENT TO ENSURE ADEQUATE GRAZING FOR WILDLIFE AND LIVESTOCK

Recommendations:

- Educate the Navajo Nation that living within permit conditions is necessary & beneficial (more sustainable)
  - Communicate the urgent need to change the grazing management mindset
- Adjust grazing permits to support current range conditions and carrying capacity
  - Incorporate wildlife support conditions (20% utilization) into grazing carrying capacity
  - Include wildlife in grazing management policies
- Inventory all grazing permits then manage for the health of the land, including enforcement
- Enforce animals in trespass through animal removal
  - Clarify the roles and responsibilities of enforcement
- Develop education/training plan to help people manage livestock and land
- Recruit and train Navajo speakers for education, training, conveying technical information
- Remove feral horses and reduce overpopulation
- Use of pilot/demonstration Holistic Resource Management projects as a BMP, tool, model to help advance responsible resource management
- Enforce compliance with use of land with Land Department
  - Include overall land management: homesites, burials etc.
- Explore policy options to grandfather or develop a permit issuance process for people with animals and no permit / out of compliance
- Out of respect for land, need to let land rest

(7) GOAL: PROVIDE AN ADEQUATE, SAFE WATER SUPPLY FOR PEOPLE, LIVESTOCK AND WILDLIFE TO ENSURE WATER SECURITY FOR THE FUTURE

Recommendations:

- Inventory, conserve, restore and protect wetlands and natural springs
- Require each DNR department project include surface water management as part of the project planning and implementation to slow and impede the flow of surface water runoff
- Provide public outreach and education on surface water management
- Provide adequate buffers along all Navajo Nation bodies of water (consult with Forest Management Plan) and maintain the buffer zone to enhance and preserve water quality
- Watershed restoration to keep water on the land and prevent erosion
- Repair, maintain and develop earthen dams and water catchment systems for livestock, wildlife and agriculture
- Inventory, repair and maintain windmills
- Provide public outreach and education on water harvesting
- Work with NNEPA, USEPA-Region 6 and/or 9 to provide training to identify wetland delineation procedures
- Research and describe the surface and groundwater resources to identify potential water sources and use potential
  - Conduct hydrologic study
  - Ensure meets NNEPA/USEPA standards for quality and contaminants
- Develop criteria to utilize lakes and reservoirs to supply water for domestic and municipal water systems
- Develop a Recreation Management Plan for selected lakes

(8) GOAL: PROVIDE EDUCATION AND OUTREACH TO NAVAJO COMMUNITIES

Recommendations:

- Conduct an annual area youth conference on natural resource protection/enhancement
- Conduct public targeted education/training on natural resource protection/enhancement
- Establish Earth Day activities at area schools
- Educate/train the public on existing Navajo Nation laws & regulations for Natural Resources
- Create and fund a DNR team to do continuous training
- Create an education program and provide resources to incorporate rain water harvesting at community level
- Conduct public presentations summarizing current research and monitoring efforts for wildlife, specifically for communities within wildlife study areas and communities that may be affected by wildlife-conflict

(9) GOAL: IMPROVE ENFORCEMENT OF CURRENT LAWS AND REGULATIONS

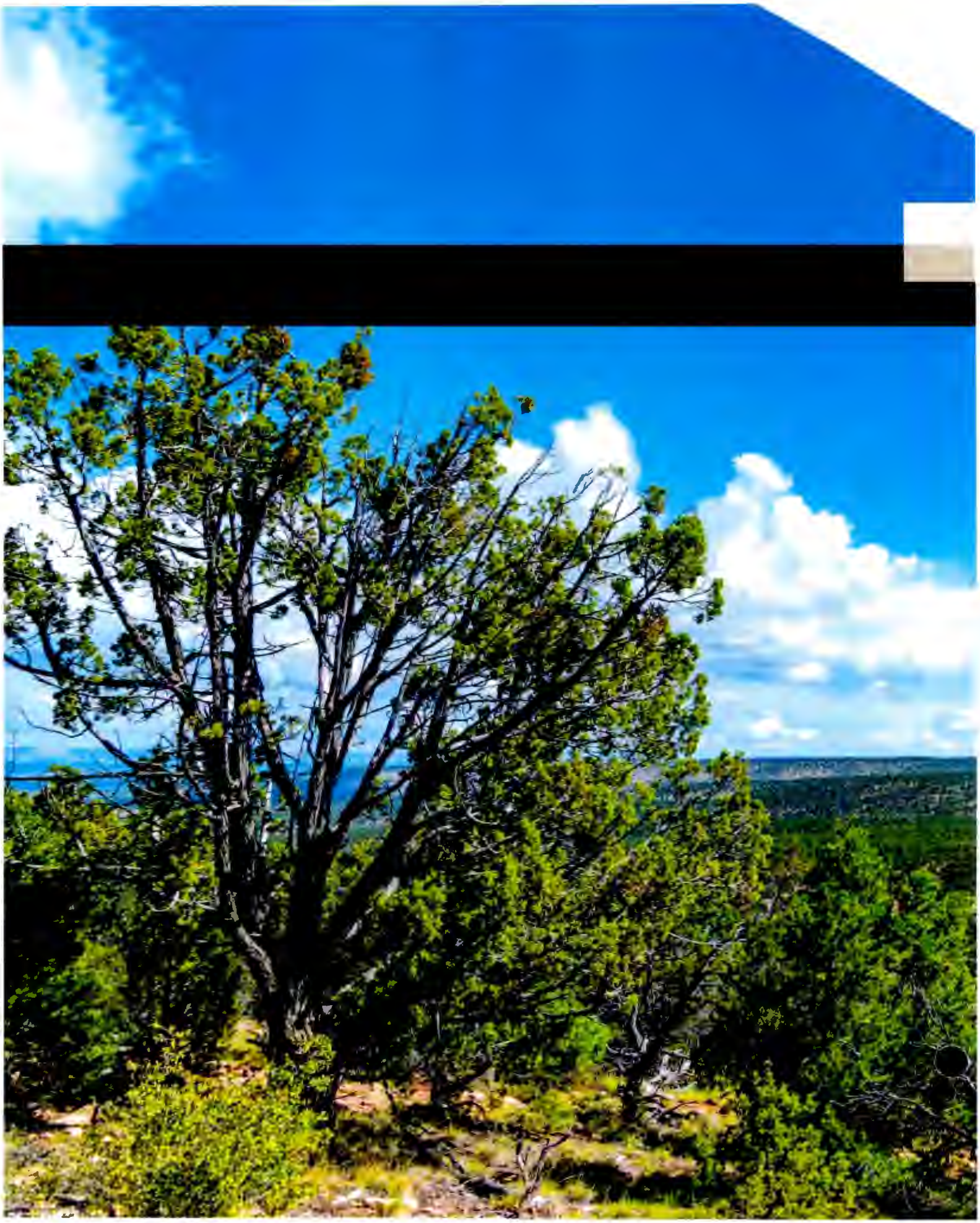
Recommendations:

- Make the Navajo Nation law stronger to allow enforcement officers to remove livestock in trespass
  - Fish & Wildlife: use of federal law to prosecute in federal court
- Hire more enforcement officers; establish funding and set aside for more officers Example: tax or grazing fee
- Explore areas for consolidation of enforcement agencies so individuals aren't spread so thin
- Establish grace period to come into compliance before enforcement
- Improve enforcement to control illegal trash dumping and punishment for violations
- Develop a policy for the capture and removal of feral horse. Communicate to all Navajo the schedule for removal by region
  - Example: program at Navajo Mountain
- Provide education/training on Navajo Nation laws, rules, regulations, policies, etc. for hunting, fishing, trash, grazing, burials, poaching, wood cutting, etc. for enforcement officers, Navajo Nation staff, public, prosecutors

OVERARCHING RECOMMENDATIONS

Overarching recommendations provide guidance to more complex, systemic issues that need to be addressed across the Navajo Nation Government, across the Navajo Nation divisions and departments responsible for managing natural and cultural resources and within local communities

- Foster and promote the traditional Navajo land stewardship ethic across all generations in our communities with a focus on building resilience and restoring the land
- Create a centralized GIS data sharing system with reporting and open data requirements for DNR & BIA departments. Utilize foundation developed through the Navajo Nation Land Department
- Develop & implement an Adaptive Planning Process to increase capability to respond to climate change, extreme weather events and natural hazards
  - Wildfire management
  - Invasive Species
  - Water security/Drought management
- Secure funding to conduct resource inventories and close data gaps across different resource areas
- Provide ongoing skills & safety training to resource department personnel to increase ability to respond to changing conditions, industry trends and management of extreme events associated with natural hazards and climate change
- Schedule and maintain regular monthly meetings between BIA departments & Navajo DNR departments to coordinate resource management planning and project implementation
- Develop and agree upon communication protocols across DNR & BIA and other relevant agencies for project coordination and to meet multiple resource management objectives
- Develop, refine and implement a land management designation system for forestland areas to delineate areas for harvest, restoration, wildlife conservation, etc. and to support other management objectives
- Support and enforce limitations on homesite development within the forestlands, consistent with adopted Navajo Nation regulations
- Review & modify as needed, local chapter land use zoning regulations and permitted uses adjacent to forestland areas to ensure compliance with Integrated Resource Management Plan goals
- Undertake recruitment and training of Navajo speakers to interpret "technical management language" into easy, understandable language for the Navajo speaking public



SECTION 4

INTEGRATED RESOURCES MANAGEMENT PLAN

Implementation - Moving Forward

Conclusion

IMPLEMENTATION – MOVING FORWARD

The Navajo Forestlands IRMP reflects the knowledge, experience and desire of the Dine´ people for how they believe these collective resources should be managed for the benefit of all—to provide for the sustainability and resiliency of its Nation's resources. The IRMP provides a template for comprehensive management planning that can be applied to future efforts, one that is integrative of multiple resources, social and economic conditions, cultural traditions and community and nationwide development needs.

A critical outcome of this Navajo Forestlands IRMP Planning effort is that it provides a framework for managing the five Navajo Forestland Areas. The framework developed through this process should be seen as something that resource managers and the Navajo Nation use to develop a long-term work program. Implementation of this document and the Preferred Integrated Resource Management Option should occur on a variety of levels:

- By working with the Resources Development Committee to present the process for development of the Forestlands IRMP and the Vision, Goals & Preferred Integrated Resource Management Option; and to present the Draft IRMP document for their consideration and approval

- At the Nationwide level to address fundamental legal, financial, organizational, institutional and process improvement needs identified through this process

- Across government entities and jurisdictions to improve education, communication and information flow

- To assess the appropriate balance in how the natural, cultural, economic and community resource decisions are made based on traditional Navajo lifeways and in areas where more structured, best practice management techniques may have utility and produce better collective outcomes

- To utilize the Preferred Integrated Resource Management Option as the blueprint for next step activities for the Division of Natural Resources, supporting NN Departments, local chapters, the BIA and other coordinating agencies

The following paragraphs provide a series of high-level actions that will help to set the IRMP into motion:

- **Utilize the ID Team Planning Model for future coordination on resource management projects**

  - Conduct a visioning / team building and training program on interdepartmental coordination

  - Through the visioning / team building session, identify specific strategies for ongoing interdepartmental communication and project coordination

- **Develop a cross-discipline (interdepartmental) project & plan development process**
  - Identify interdepartmental planning teams for overarching resource management issues and/or specific planning efforts
  - Create a process chart to illustrate work flow, coordination points throughout the process, decision makers and development milestones
- **Continue enhancement of centralized information collection, storage and sharing to advance more holistic management approaches**
  - Prioritize completion of key resource inventories
  - Develop information and data sharing protocols to enhance capability of Lands Department to provide current, comprehensive and integrated data and GIS mapping
- **Promote integrated land management planning models**
  - Base resource decision-making on the appropriate spatial scale, such as watersheds and ecosystems
- **Develop comprehensive land use zoning.**
  - Utilize GIS mapping to document and monitor land uses, aid decision making, and as a communication tool among departments, stakeholders and public
  - Promote a cross-discipline land use decision making process. Encourage all departments to geographically locate areas of opportunity and concern, to drive awareness across staff and stakeholders
- **Integrate Resource Management Opportunities**
  - Use collected information to develop management plans that integrate multiple resources
  - Apply Best Management Practices & Opportunities identified for specific resources from the Resource Assessment document

At the heart of these integrated resource management approach components is improved communication. Therefore, a first step should be to identify an IRMP action committee, comprised of representatives from each resource management department (or an extension of the existing ID Team). This committee will advance the IRMP actions by first organizing a team-building IRMP workshop among all the divisions and departments responsible for managing the natural and cultural resources. Workshop deliverables will include the following:

1. A 'social contract' that formally states the intent to incorporate the IRMP and the Preferred Integrated Resource Management Option, and pursue a shared approach and improvements to interdepartmental communication
2. Action plan for developing improvements to information storage and sharing (GIS capabilities, for instance)
3. A proposed agenda and date for a separate session to develop a cross-departmental planning methodology and work flow

Initiation of these next steps requires a commitment among all DNR departments to share information, participate in workshops, and generally work cooperatively to advance the shared vision. The IRMP action committee will need to ensure ongoing coordination and project evaluation between resource managers and departments. A project evaluation protocol can be developed that would log and document interdepartmental review and include recommendations to the primary resource manager. As discussed previously, monitoring and evaluation of results is the key to long-term success and collective learning.

Successful implementation of the IRMP will involve a cultural shift within the organization that starts with buy-in to this IRMP and a commitment to shared information and routine communication and collaboration between departments.

CONCLUSION

The implementation of the IRMP for the Navajo Forestlands supports the cultural identity and promotes the sustainable development of the Navajo Nation by encouraging sound integrated resource management decision making that looks generations ahead. A new, collaborative approach and planning methodology among resource managers, coordinating agencies and local chapters will drive awareness of cross-discipline opportunities and issues. While there are many examples of successful cooperation between resource managers, departments and the public, there are still many cases of resources being managed in a fairly reactionary way to ongoing pressures and demands from various constituents. The incorporation of holistic, integrated resource management will allow for a more proactive approach that considers long-term resource needs from a more integrated perspective.

APPENDICES

INTEGRATED RESOURCES MANAGEMENT PLAN

Appendix A: Resource Assessments

Appendix B: Community Engagement Information: Brochure, Fact Sheet, Meeting Flyers & Press Releases

Appendix C: Community Survey Responses

Appendix D: Community Meeting Poster Boards

Appendix E: Potential Integrated Resource Management Options Voting Results

APPENDIX A

RESOURCE ASSESSSMENTS

RESOURCE ASSESSMENTS

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SECTION ORGANIZATION

The focus of the information and analysis which follows is to make clear the types of resources within the Navajo Nation forestlands, the agencies involved with the management of each resource and to create a tool that facilitates communication across agencies and leads to better resource management outcomes. This section begins with organization charts for the larger agencies that dictate rules, regulation, enforcement and policies of the Navajo Nation Resource Departments. The section then outlines the basic constraints, opportunities and factors that influence and effect resource managers and decision makers across 14 different resource categories. The outline identifies areas of mutual concern and management with the intention of guiding decision makers and resource managers towards a more collaborative and effective resource use and preservation path through shared knowledge and understanding. The 14 resource categories are broken down into sections of information and analysis[1]:

1. Resource Description - Each resource is described and defined. The resource category is quantitatively and qualitatively described across the Navajo nation as a whole and by each forestland. Narrative descriptions include the ecologic setting (resource types, classifications, inventory). Along with this inventory there are lists of datasets that facilitate planners and resource decision makers when creating long range management plans. Some of these datasets have been created and are available, others are absent and recommended.

2. Resource Context - Resource applications, uses and conditions are described as they pertain to human interaction. Past, current, economic and cultural value is discussed. Key challenges and issues of primary concern in regards to resources are identified.

3. Policies, Programs and Regulatory Framework – This section details laws, regulations and programs that dictate how a resource is used, planned for and managed.

4. Overview of Managing Agencies - This section details the agencies involved in planning, decision making and protection of each resource category. Included in this description are the agencies wider objectives and missions and their internal organization.

5. Current Management Plans and Priorities - This section includes plans written by various agencies and the identified current opportunities, constraints, and future needs assessments. This IRMP section outlines the stated goals and objectives and provides a summary of the "Plan of Action," such as an operation plan or long term management plan where available.

6. Summary of Community Concerns - Community concerns are summarized from Community Land Use Reports and community meetings conducted by Revolution Advisers. In some cases, news articles or studies have been used to supplement information where appropriate. The concerns are organized as broad summaries and then by forestland.

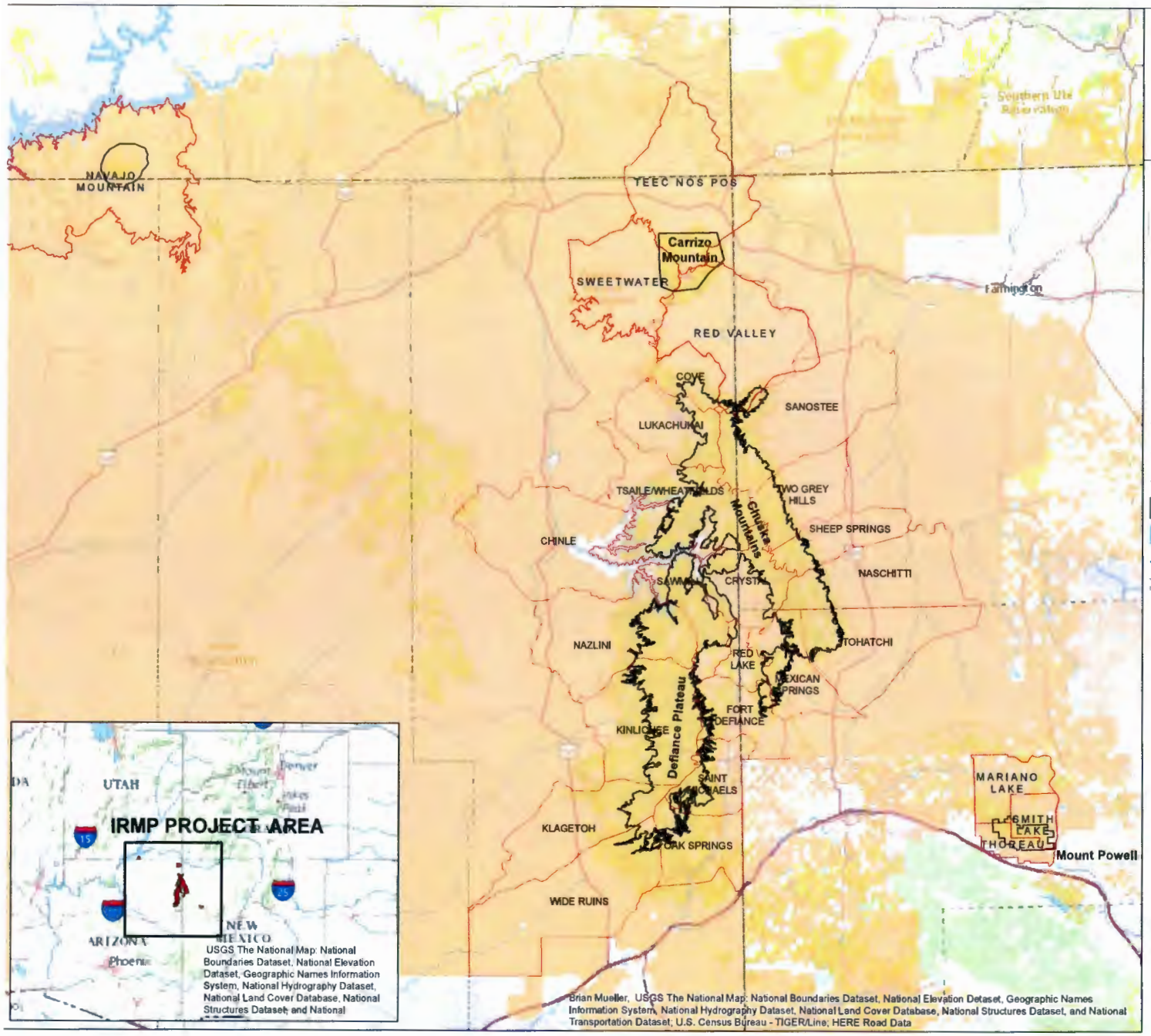
7. Summary of External Resource Department Concerns and Objectives - Resource Categories are cross referenced to show where potentials for integrated management exist between management and regulatory agencies.

8. Collaboration Charts for Natural Resource Management - These charts offer an ecological management perspective for each resource category. The charts outline the major resource concerns identified through analysis and offer high level best management practices and environmental policy and projects based in ecological resource assessment. The charts indicated the departments within the Division

[1] Depending on available data each resource analysis section differs in content slightly. However, the overall organization structure holds true.

of Natural Resources which should work together to more collaborative manage primary resource concerns.

9. **Maps** - are included at the end of each applicable section showing detailed geographic information of resource types, quantities and locations.



Map 1.0 - Forest Study Area

Context Map - Chapter Boundary's

NAVAJO FORESTLAND IRMP

LEGEND

BIA Chapter Boundary

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

- Interstate Highway
- Other Road
- Forest Study Area Boundary
- Lake or Reservoir
- Stream/River
- County Boundary
- State Boundary

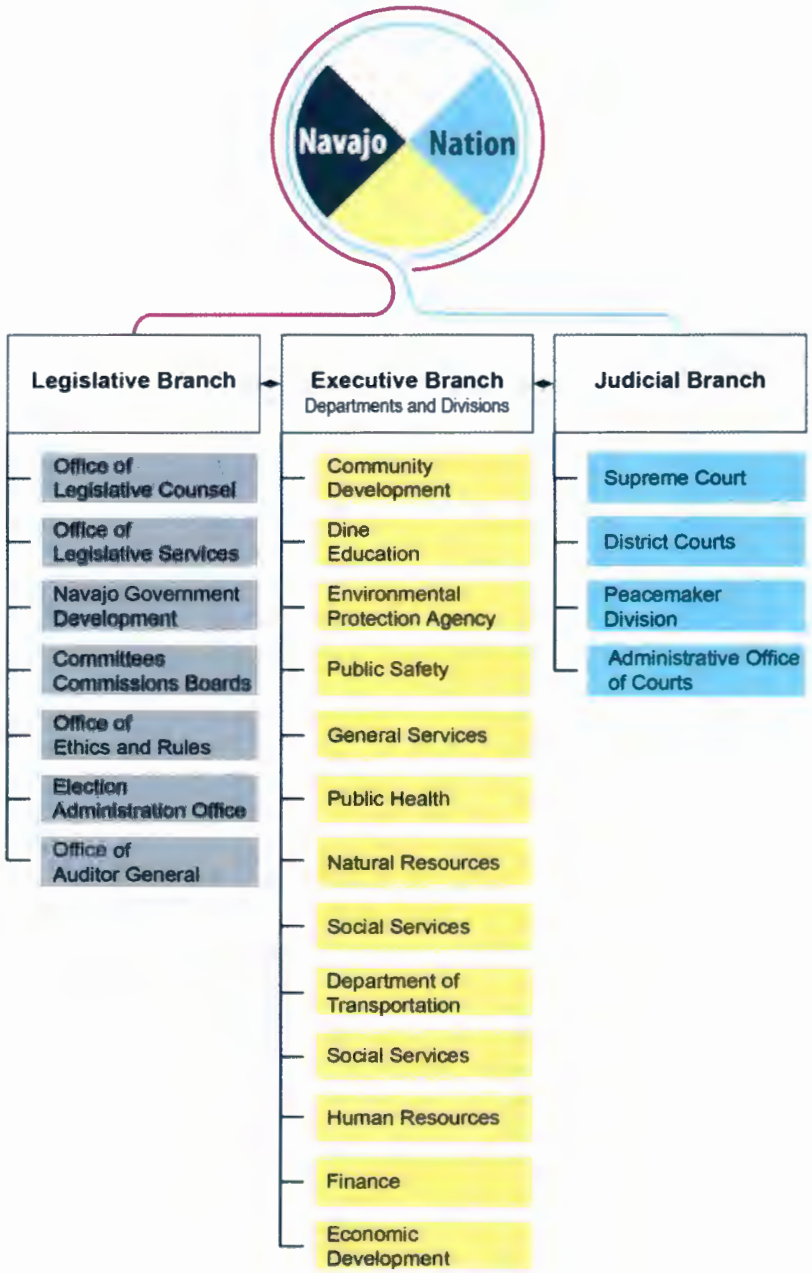
Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Forestry Department

0 5 10 20 30 40 Miles

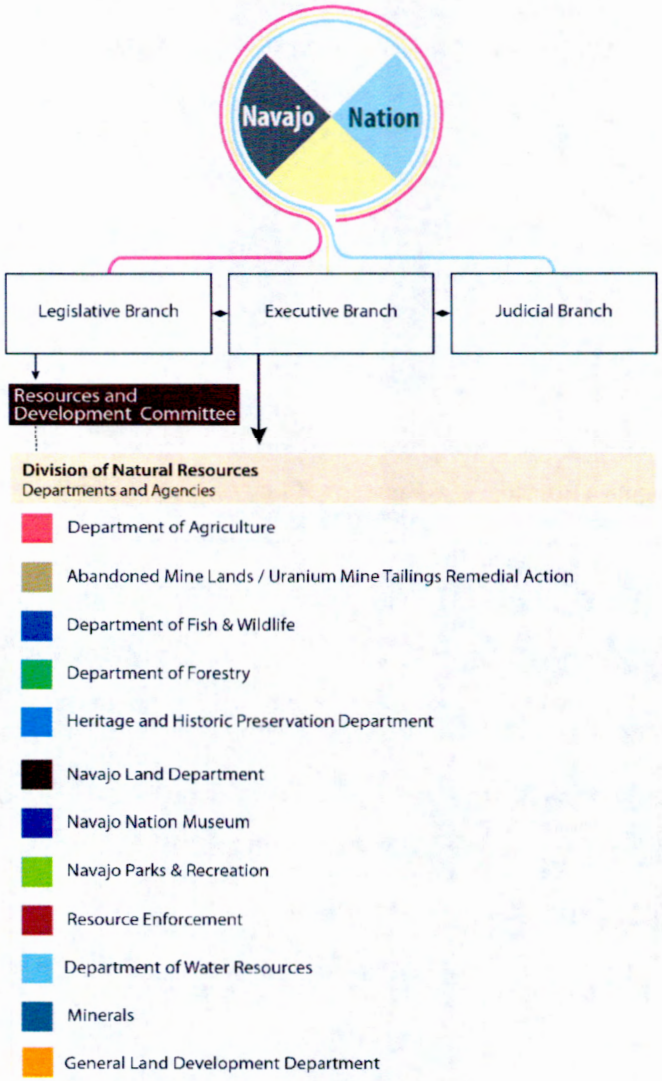
ORGANIZATIONAL CHARTS: MANAGING AGENCIES

NAVAJO NATION GOVERNMENT ORGANIZATION[2]



[2] Adapted from http://www.navajo-nsn.gov/govt.htm and http://www.omb.navajo-nsn.gov/Layout/NNOrgChart.htm

NAVAJO NATION DIVISION OF NATURAL RESOURCES*

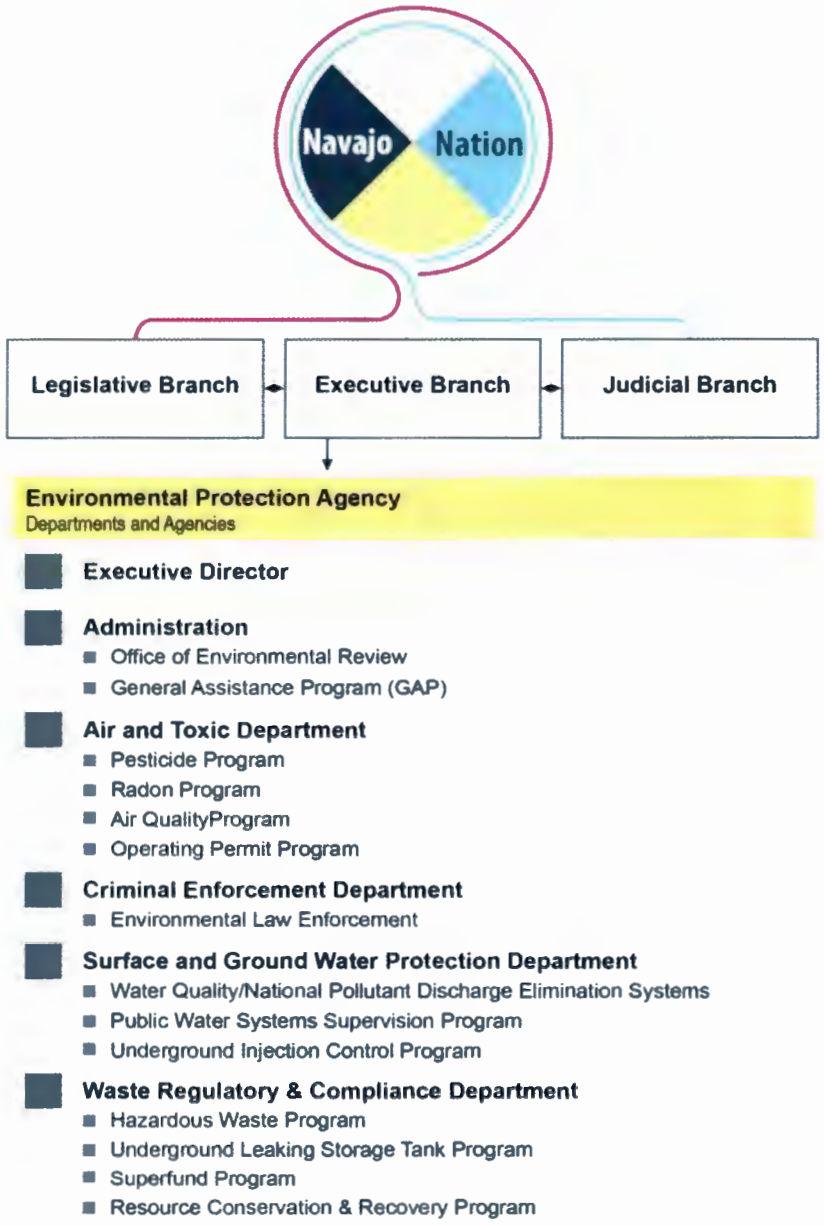


[3]

[3] Adapted from http://www.dnr.navajo-nsn.gov/Departments# and http://dnrnavajo.org/departments/

* DNR is one of 12 major divisions within the Executive Branch of the Navajo Nation government. The Resource and Development Committee of the Navajo Nation Council works closely with DNR by introducing legislation and developing policies. There are approximately 780 permanent employees under DNR who work throughout the Navajo Nation. The Navajo Nation Division of Natural Resources Executive Director and six staff within the DNR Administration oversee 12 different departments who all work cooperatively to attain DNR's main mission. Each department has its own sub-mission, goals and objectives to provide direct services to help the Navajo people.Departments: Department of Agriculture, Abandoned Mine Lands/ Reclamation UMTRA Department, Archaeology Department, Fish & Wildlife Department, Forestry Department, Historic Preservation Department, Navajo Land Department, Minerals Department; Navajo Nation Museum, Navajo Parks & Recreation Department, Department of Resource Enforcement, Department of Water Resources.

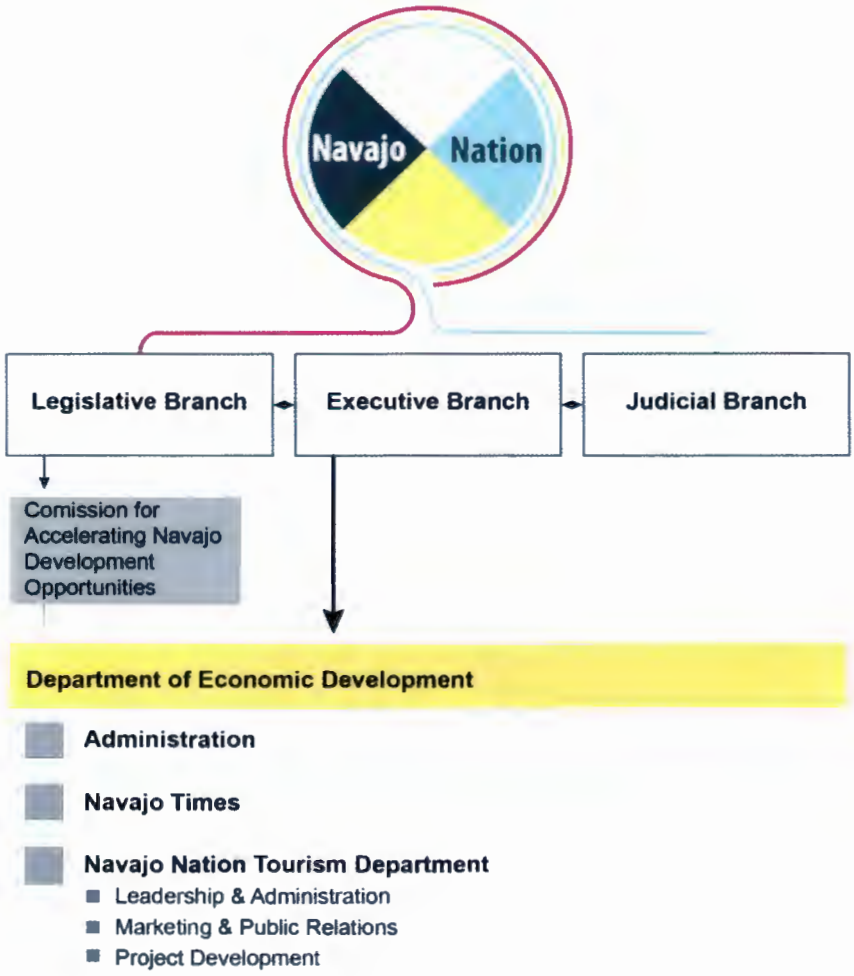
NAVAJO NATION ENVIRONMENTAL PROTECTION AGENCY



[4]

[4] Adapted from http://navajonationepa.org/main/index.php?option=com_content&view=article&id=61&Itemid=139

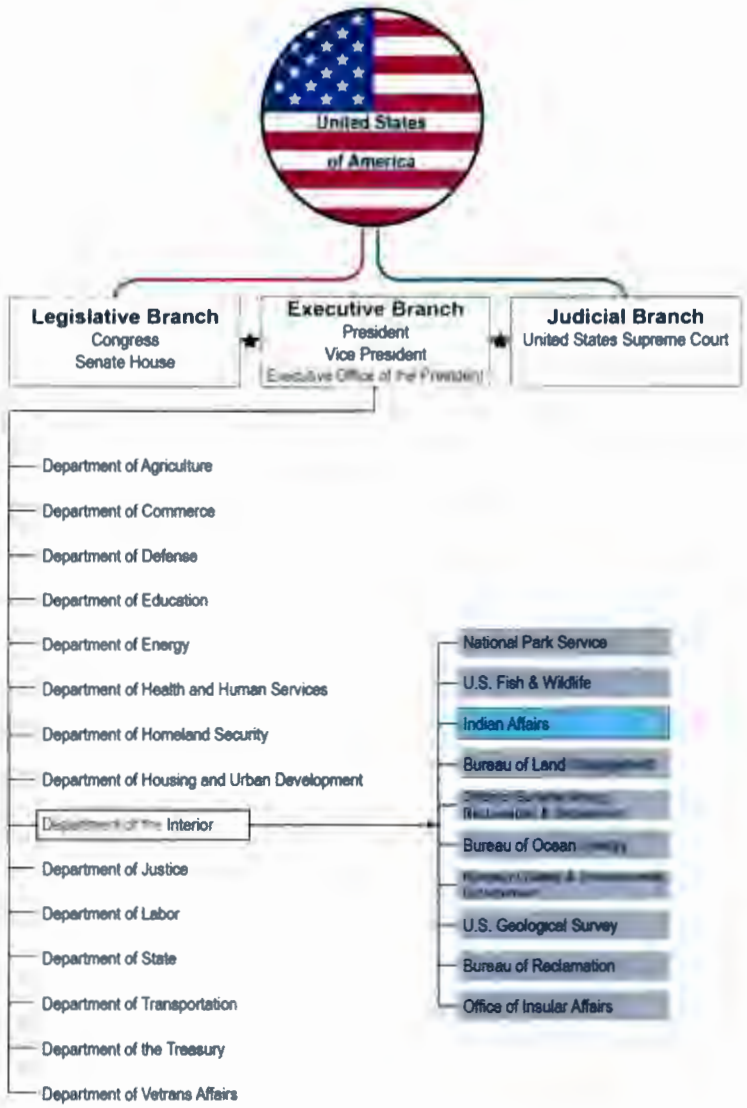
NAVAJO NATION TOURISM DEPARTMENT



[5]

[5] Adapted from http://www.navajobusiness.com/about/Welcome.htm http://www.discovernavajo.com/about-the-department.aspx and http://www.navajo-nsn.gov/govt.htm

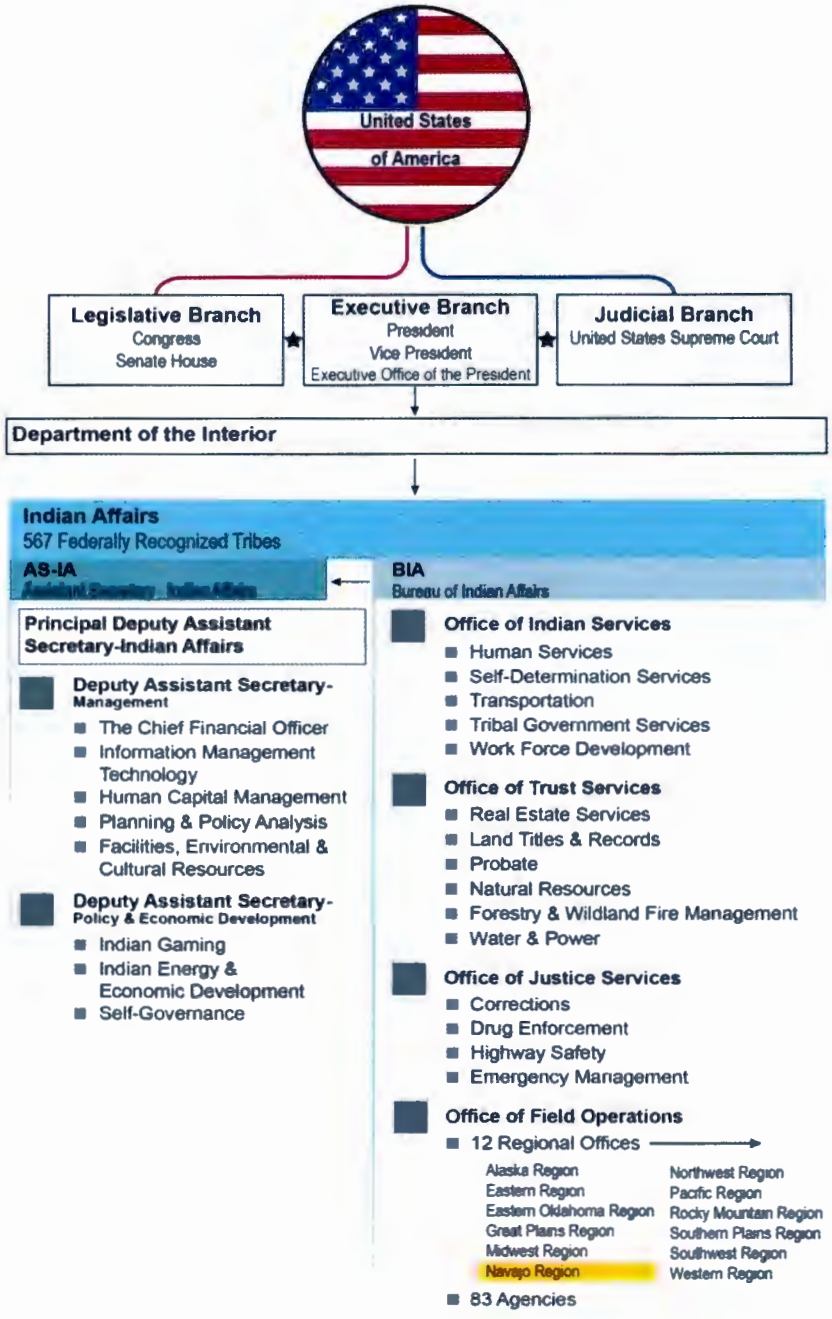
UNITED STATES OF AMERICA GOVERNMENT ORGANIZATION - INDIAN AFFAIRS



[6]

[6] Adapted from https://www.usgovernmentmanual.gov/ReadLibraryItem.ashx?SFN=Myz95sTyO4rJRM/nhIRwSw==&SF=VHhnJrOeEAnGaa/rtk/JOg==&AspxAutoDetectCookieSupport=1

UNITED STATES OF AMERICA INDIAN AFFAIRS ORGANIZATION CHART



[7]

[7] Adapted from https://www.indianaffairs.gov/sites/bia_prod.opengov.ibmcloud.com/files/Org%20Chart%20FY%20%2718%20Greenbook.pdf; https://www.bia.gov/; https://elips.doi.gov/elips/0/doc/4160/Page1.aspx; https://www.lib.noaa.gov/about/news/downes_02092012.pdf

1. Agricultural Lands

1.1 Description

Agricultural lands are all lands used to cultivate animals and plants for products used to sustain and enhance human life. This includes growing crops and grazing livestock. Rangelands are lands that the native vegetation is predominantly grasses, grass-like plants, forbs, or shrubs suitable for grazing or browsing use. Rangelands include natural grassland, savannas, many wetlands, some deserts, tundra, and certain forb and shrub communities. Pastures are lands that are primarily used for the production of adapted, domesticated forage plants for livestock. Other grazing lands include woodlands, native pastures, and croplands producing forages. The major differences between rangelands and pastures are the kind of vegetation and level of management that each land area receives.[8] Cropland and farmland are synonymous. Cropland includes areas used for the production of adapted crops for harvest. Two subcategories of cropland are recognized: cultivated and uncultivated. Cultivated cropland comprises land in row crops or close-grown crops and also other cultivated cropland, for example, hay-land or pasture-land that is in a rotation with row or close-grown crops. Non-cultivated cropland includes permanent hay-land and horticultural cropland.[9] A majority of the land on the Navajo Nation is Agricultural Land and is used for grazing various livestock by residents.

1.2 Context

Ranching and sheep herding are a major occupation and way of life for Navajo residents. "The importance of livestock to the Navajo Nation cannot be overstated. In spite of droughts, harsh winters and fluctuating prices, raising livestock has historically been one of the few economic enterprises which have been successfully managed in the Reservation environment... [The] cultural importance of livestock to the Navajo Nation exceeds its monetary value. Livestock have been integrated into the Navajo lifestyle for many generations, and much of the Navajo culture is imparted through the raising of livestock. Navajo families are called upon to provide animals for cultural and social activities throughout the year."[10] Designated rangeland within the Navajo Nation is defined as either Range Units or Range Management Units (RMU). Range Units are defined by the BIA as rangelands consolidated to form a unit of land for the management and administration of grazing under a permit. Navajo Nation Ranches (Range Management

[8] https://www.epa.gov/agriculture/agriculture-pasture-rangeland-and-grazing

[9] https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/crops/

[10] Navajo Nation Drought Contingency Plan, 2003. NN Dept. of Water Resources.

Units) are defined by Navajo Nation per 3 N.N.C. 3 as Fee Patent Lands, Trust Lands, Allotted Lands, BLM Leased Lands, State Leased Lands, and other forms of land in the States of New Mexico and Arizona.[11]

1.2.1 Historical Overview of Grazing

- 1937 - Grazing regulations adopted by the Tribe and District boundary lines and carrying capacities established
- 1941 - First grazing permit issued
- 1953 - District Grazing Committee formed
- 1956 - Revised grazing regulations approved and adopted
- 2000 - Draft Navajo Nation Grazing Act written
- 2002 - Tribal Council tabled the Act and decided to leave it to the Tribe's 90,000 registered voters. To date, the Grazing Act has not been voted on.

1.2.2 Key Agricultural Lands Challenges:

- Overstocking and intense grazing practices continues to threaten the viability of grazing on Navajo Nation lands.
- Drought has significantly impacted the quality of grazing lands. Global climate change will continue to exacerbate this problem.
- Soil erosion
- Enforcement of Grazing Regulations
- Feral Horse Problem
- Diné Food Security & Sovereignty - Lack of access to healthy foods and extremely high rates of nutritionally-related illness on the Navajo Nation
- Climate Change

1.3 Policies, Programs and Regulatory Framework

- Navajo Grazing Regulations (25 CFR, Part 167.3) - It is the purpose of the regulations in this part to aid the Navajo Indians in achievement of the following objectives:
    - The preservation of the forage, the land, and the water resources on the Navajo Reservation, and the building up of those resources where they have deteriorated.
    - The protection of the interests of the Navajo Indians from the encroachment of unduly aggressive and anti-social individuals who may or may not be members of the Navajo Tribe.

[11] Navajo Nation Integrated Weed Management Plan, Fred Phillips Consulting, Flagstaff, AZ. U.S. Department of Interior, Bureau of Indian Affairs, Navajo Region. April 2016

- The adjustment of livestock numbers to the carrying capacity of the range in such a manner that the livestock economy of the Navajo Tribe will be preserved.
- To secure increasing responsibility and participation of the Navajo people, including tribal participation in all basic policy decisions, in the sound management of one of the Tribe's greatest assets, its grazing lands, and to foster a better relationship and a clearer understanding between the Navajo people and the Federal Government in carrying out the grazing regulations.
- The improvement of livestock through proper breeding practices and the maintenance of a sound culling policy. Buck and bull pastures may be established and maintained either on or off the reservation through District Grazing Committee and Central Grazing Committee action.
- 22 grazing districts organized by BIA.

- Tribal Ranches Program - Oversees Navajo Nation Ranch lands by administering and ensuring all Tribal Ranch regulations and lease agreements are in compliance with Navajo Nation Law. The Program also ensures that sufficient revenues are generated to pay taxes, land use fees, and the cost of administration, by assessing and ensuring grazing lease fees are paid in a timely manner. Tribal Ranches carry out for land acquisitions pursuant to 16 N.T.C., § 1:
  - Consolidate Indian holdings in "Checkerboard" areas in the best interest of the Navajos residing in the area and the welfare of the Navajo Nation.
  - Provide grazing lands for members of the Navajo Nation who have valid grazing permits.
  - Provide additional and substitute lands for members of the Navajo Nation who reside in over populated areas of the Reservation.
  - Relieve Reservation land resources from excessive use, (if not due accepted Navajo range management practices).
  - Provide land necessary for approved Navajo Nation enterprises.

1.4 Managing Agencies

"The BIA Natural Resource Program is responsible for soil and water conservation on the Navajo Reservation. This is part of the BIA's responsibility to help manage livestock and range resources. The department of Resource Enforcement and the Navajo Veterinary Livestock Program in the Department of Agriculture manages and enforces livestock on the Navajo Nation. The Department of Water Resources Technical, Construction and Operations Branch (TCOB) are responsible for planning, design, constructing, and operating water infrastructure to serve ranchers. The TCOB provides livestock well facilities, irrigation systems, water lines for livestock use, and earthen stock ponds or earthen dams (WHP 2008a, pg. 112). The BIA's Natural Resources division shares responsibility for range conservation, soil and water conservation,

and livestock management with the Navajo Nation's Department of Agriculture. The BIA administers grazing permits and land-use permits on several of the grazing districts.[12]"

1.4.1 Navajo Nation Department of Agriculture

Mission Statement: "Provide guidance to the Diné people in the stewardship of Mother Earth by providing leadership, knowledge and technological assistance in the management and conservation of her resources, for the inheritance of generations to come. The Navajo Department of Agriculture (NNDA) is established under the Division of National Resources within Executive Branch of the Navajo Nation. Today, the Nation Department of Agriculture is the lead agency in planning, coordination, and management of all programs, policies and regulatory provisions designed to protect and preserve Navajo rangelands, livestock and agricultural resources. NNDA strives in the redevelopment of a viable rural economy for the Diné people, focused on livestock ownership, commercial and subsistence farming enterprises. Establish efficient range management programs and practices; consistent with the principles and established guidelines for conservation of soil and water resources. NNDA provides technical assistance and educational outreach to Navajo ranchers, farmers and communities on various livestock and agricultural issues. The department facilitates and fosters coalitions among county, state and federal agencies to assist Navajo communities with their agricultural and livestock needs. Finally, NNDA provides administrative, guidance and support services to District Grazing Committees, Farm Boards and Eastern Land Boards Members, with emphasis on regulatory oversight in accordance to the specified provisions of Title III of the Navajo Nation Code."

Vision Statement: Attain sustainability of Land, People, Water and Agricultural resources through conservation, protection and preservation.[13]

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[12] FBFA Integrated Resource Management Plan. Bureau of Indian Affairs, Navajo Region and The Navajo Nation. October 2016. (Page 37)

[13] http://www.agriculture.navajo-nsn.gov/nnda.html

Navajo Nation Department of Agriculture

Division of Natural Resources

Department of Agriculture

Administration

General Office Functions

Oversees finances, personel, reporting and property

Ranch & Eastern Land Management

Land Use Management, Productivity & Optimization

Improve Herd Genetics Throught Herd Establishment and Management

Aquisition of Additional Lands

Tribal Ranch Section

- Lease Tribal Ranches
- Provide Land for Tnbal Enterprises
- Land Consolidation for Grazaing Intrests

Eastern Agency Section

- Manage Eastern Agency Range and Farm Resources

Range and Farm Management

Manage Grazing, Range and Farm Resources

Veterinary Management

Regulatory Section

- Prevention, suppression, control and eradication of communicable diseases of animals, wildlife and poultry.

Veterinary Clinic Section

- Prevention, treatment, suppression, control and eradication of communicable diseases of livestock, companion animals and poultry.

Livestock Brand Management

Protect Livestock Industry

Livestock Inspection

Protect Livestock from Theft, Disease & Mishandling

1.4.2 Supporting Agencies

- District Grazing Committees
- BIA - All Grazing Permits are managed by the BIA per 25 CFR 167 and 166.
- The Navajo Nation Ranch Program
  - Fulfills the following purposes:
    - Provide for productive and optimum use of lands under the direct control of the Navajo Nation designated as Ranch Lands;
    - Ensure that sufficient revenues are realized to pay taxes, land use fees, and cost of administration; and
    - To carry out select purposes from land acquisition
- Navajo Indian Irrigation Project (NIIP)
  - The Navajo Indian Irrigation Project is on an elevated plain south of the San Juan River, in San Juan County in northwestern New Mexico. It is bordered by New Mexico State Highway 44 on the east and the Chaco Canyon in the west. Project lands range from 5,250 to 6,450 feet above sea level, and are from 100 to 1,000 feet above the San Juan River. The project area has a temperate and semi-arid climate, with a growing season of about 160 days. The annual average precipitation is only about 8 inches. The project is being exclusively managed for Navajo use on lands on or next to the Navajo Reservation. The Bureau of Reclamation is responsible for the design and construction of irrigation facilities through the turnouts at the individual farm units. The Bureau of Indian Affairs, in cooperation with the Navajo Nation, is responsible for developing the farm units, farm distribution systems, drainage, and farm-to-market roads. Based on an economic analysis made in 1973, the entire Project was designed for full-sprinkler irrigation. The project facilities are being constructed in eleven blocks of approximately 10,000 acres each were developed for irrigation. Seven blocks are currently under irrigation. The development created a large municipal and industrial water use in the San Juan Basin. Therefore, the authorization provides for these uses in addition to irrigation, but stipulates that separate contracts for such uses must first be executed and approved by the Congress.
- Navajo Agricultural Products Industry (NAPI)
  - In 1970, the Navajo Nation established Navajo Agricultural Products Industry (NAPI), a Navajo Nation Enterprise to operate the NIIP and manage the Industrial Agri-business company.
  - Mission Statement: Continue the legacy of Navajo farming, producing superior products, practicing stewardship and creating value for our people.
  - Vision Statement: Farming sustainably across generations to cultivate a healthy Nation.

1.5 Current Management Plans

A 2009 NN Ranch Management Plan is referenced on the Department's website but not found. There is a table of contents found here: http://www.agriculture.navajo-nsn.gov/pdf/091217_Ranch-Mgt-Plan-12.15.09.pdf

Priority management services are:

- Range inventories, erosion identification, conservation planning and land evaluations.
- Farm and range planning: Technical assistance is provided to ranchers, farmers, Farm Board members and Grazing officials, by developing land management plans for ranchers, and updating land management plans in sustaining range condition for future use.

- Rangeland improvements: staff provides technical assistance to ranchers, farmers, Farm Board, and grazing officials by preparing GIS maps and recommending land leveling, farm drainages, and erosion control recommendations.
- Rangeland protection: staff provides support to management of rangeland noxious weed control by applying herbicides, implementing non-point source projects for soil erosions, and livestock control by reviewing tally counts, and making recommendation on modifying stocking rates.
- Leasing and permitting services: staff monitors permits changes and land ownership for land use permits.

1.6 Community Concerns

Grazing and farming are culturally, economically and historically relevant practices. Farming is an important way of life for some community members, though on a smaller scale than grazing. Some Chapters have access to more surface and groundwater sources than others which has benefited rangelands and ranching efforts within those Chapters. Grazing is valued for the cultural, economic and aesthetic values it offers.

The following quote illustrates the dominant concerns about grazing:

"On the whole, range conditions throughout the Fort Defiance Chapter are poor. The combined effects of an extended drought throughout the Southwest and overgrazing have reduced the ability of grazing land to support both domestic animals and wildlife. Sheep are an integral part of Navajo culture, and protecting this traditional heritage will require range management practices that protect natural resources while allowing them to be used in a sustainable manner. Additionally, livestock businesses provide an important source of income to many families. This is particularly important because of the limited number of available employment opportunities in the area. The Navajo Nation has for a number of years tried to establish a grazing ordinance, but has met with strong resistance across the Navajo Reservation. Chapter officials should actively participate in education efforts to gain Chapter-wide support for a grazing or range management ordinance.[14]"

1.6.1 Concerns by Forestland:

Defiance Plateau

- Land and resource planning efforts are stymied by politics surrounding grazing practices.
- Ranching is an important part of the community; livestock are used for transportation, ceremonial purposes and are a source of income.
- Overgrazing of rangeland is a major concern. Adding to rangeland degradation is erosion caused by using vehicles to herd animals.[15]
- Water infrastructure and availability threaten grazing and growing operations and compete with other land uses. Drought has also impacted range quality throughout the Navajo Reservation.

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[14] Fort Defiance Chapter, Community-Based Land Use Plan – Comprehensive Report (Page 52)

[15] Kin Dah Lichii Chapter Comprehensive Strategic Planning Manual, Navajo Nation Fiscal Year 2011 & 2012 (Page 29)

  - An agricultural floodplain in the heart of the community is a constraint to development in the Fort Defiance Chapter.[16]

- There is some desire to expand farming but irrigation and water availability are major constraints with most farmers relying upon rainwater and ephemeral washes. Erosion has further deteriorated existing irrigation infrastructure. Furthermore, bureaucratic hurdles and lack of support for farmers makes agriculture challenging.

Chuska Mountains

- A majority of land in the Chuska Mountain forestland is used for grazing. The steep terrain of the mountains makes other types of enterprise difficult. Sheep, goats, cows and horses are the most represented livestock.

- Many communities within the forestland report overgrazing. Overgrazing is reported to have affected water supply and quality, increased erosion and created conflicts over livestock management. Overall grazing conditions are reported by the communities in the Chuska Mountains as poor.

- The community struggles with inadequate water for livestock and occasionally feed. Drought in the region has multiplied these concerns.

- The communities within the forestland want to protect grazing lands and keep the tradition of domestic livestock grazing.

- There are a large number of community concerns surrounding grazing regulation and enforcement; particularly that regulation and enforcement have not been practiced or are ineffective. Many Community Land Use Plans identified goals to identify and set aside land for grazing and agriculture and manage those lands in a sustainable way and follow grazing permit laws.

- The cultivation of land for crops also has a long history in the communities within the Chuska Mountain forestland. There is some desire to expand farming but irrigation and water availability are major constraints with most farmers relying upon rainwater and ephemeral washes. Erosion has further deteriorated existing irrigation infrastructure. Furthermore, bureaucratic hurdles and lack of support for farmers makes agriculture challenging. In Crystal chapter, community elders report that there used to be a greater abundance of resources such as water, firewood, open land for grazing and farming. These resources were employed to create a more "self-sufficient" community and greater economic opportunities.[17] Historically, vegetables and fruits were grown for primarily for domestic consumption with some being sold at "market."

Navajo Mountain

- For the past 300 years, the Navajo of this area have had a livestock oriented culture. During the early part of this period. the people of this semi-nomadic culture raised sheep and horses that were the primary users of the range feed. Cattle numbers have increased in recent years. Today, based on economics, horses and burros are secondary users of the range plants. However, they are strong

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[16] Fort Defiance Chapter Community-Based Land Use Plan – Comprehensive Report (Page 11)

[17] Crystal Chapter Community Based Land Use Plan. Prepared by Planners Ink. Santa Fe, NM with Red Mountain Engineering. June, 2003. (Page 37)

competitor for the range forage due to the increasing numbers. Since the beginning of the twentieth century. the Navajo people have struggled to reach a balance between modem policies and their traditional migratory/nomadic herding practices.

Mount Powell

- Grazing cattle and sheep is an important practice, culturally, historically and economically. Grazing faces water shortages and pressure on grazing lands from overgrazing and poor livestock and land management. The majority of residents in Smith Lake Chapter felt that grazing conditions were, fair.[18] "Community members expressed a desire for several agricultural developments. These included better livestock breeding, the development of the Navajo pony as a breed, better livestock management, promotion of 4-H, a Smith Lake Fair to promote farming in the Chapter, community gardens, and a greenhouse to produce seedlings for transplanting into local farming operations.[19]"
- "Farming is historically and culturally significant. Current farming is less that historic.[20]" Corn, squash, watermelons and pumpkins were grown. Rain has become more scarce and now agriculture is rare.[21]

Carrizo Mountains

- "Develop excellent agricultural and livestock management practices by Improve livestock and breeding practices, Establish a 4-H Cooperative Extension Program, and Establish farming and crop production[22]"
- "Residents have maintained some dependence on livestock for subsistence and part of customary practice.[23]"

1.7 External Resource Department Concerns and recommendations

- Grazing on riparian areas in watersheds removes plant material and exposes surfaces to increased amounts of erosion. Excessive erosion leads to increased sedimentation in lakes and streams. Increased sediment deposition also leads to shallower lake levels. Plant cover also serves to regulate water temperature. Overgrazing of the riparian zones can negatively impact critical spawning habitat and hinder fish growth. Excessive fecal deposition by cattle, sheep, horse, and

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[18] Community Land Use Plan for the Smith Lake Chapter, Final Report. Prepared by, Architectural Research Consultants, Incorporated and Smith Lake Chapter Community Land Use Planning Committee. July 2005. (Page b-21-22)

[19] Community Land Use Plan for the Smith Lake Chapter, Final Report. Prepared by, Architectural Research Consultants, Incorporated and Smith Lake Chapter Community Land Use Planning Committee. July 2005. (Page b-22)

[20] Mariano Lake CLUP, 5 Existing Land Use and Goals. (Page 11)

[21] NAHASDA Chapter Land Use Plan and Housing Planning Project, Master Land Use Plan Thoreau Chapter, Navajo Nation. Prepared by Duane H. Yazzie, Rez Star Point, Shiprock, Navajo Nation. (Page 29)

[22] Beclabito Chapter Community-Based Land Use Plan. Beclabito Chapter, Shiprock, NM and JJ Clacs and Company Fort Wingate, NM. December, 2011 (Page 66)

[23] Community Land Use Plan, Red Valley. LSR Innovations, Research and Planning. May 08,2002 and February 27, 2004. (Component 3 Page 11)

wildlife can increase nutrient loads and increase algal blooms which in turn alters water chemistry/quality such as pH and dissolved oxygen.

- The highly disturbed nature of designated rangelands has promoted the growth of many invasive weeds due to overgrazing.
- The NN Water Department of Water Resources includes detailed information in the Drought Contingency Plan regarding grazing practices and dryland farming. The drought mitigation measures for ranchers include four broad components:
    - Establish an effective Navajo Nation Grazing Policy
        - "Numerous studies have established the link between overgrazing and drought vulnerability. However, the Navajo Nation does not have control over the excess number of livestock on the range. One key step toward establishing an effective Navajo Nation Grazing Policy is adopting a Navajo Nation Uniform Grazing Act. This act would delegate the local administration of grazing permits and enforcement away from locally elected officials to salaried administrators. It would also establish grazing fees comparable to the ones charged on federal land. These fees would be dedicated to the stewardship of the range. This act, if approved by the Navajo Nation Council, would respond to many of the range management conditions required by the BIA during the 1989 drought. Passage of this act is by no means certain. Consequently, other range management measures must be concurrently addressed."[24]
    - Improve range management
        - "Separate from adopting the Navajo Nation Uniform Grazing Act, there are numerous actions that the Navajo Nation can take to improve range management. The NNDA estimates that the Navajo range is overstocked by more than 40 percent. Overgrazing is directly connected with poor range management practices, deteriorating range conditions and drought vulnerability. Under these conditions, livestock assistance that fails to protect the range from overgrazing, especially during droughts, is counterproductive. Instead of providing supplemental feed and water during severe droughts, it is more constructive to initiate mitigation programs to will reduce the number of animals and improve range management." Specific recommendations included in the Drought Contingency Plan:
            - Conduct a comprehensive, accurate and independent livestock tally
            - Remove feral animals
    - Provide assistance to ranchers, with specific recommendations elaborated on in the Drought Contingency Plan include:
        - Distribute climate and market information for ranchers more widely.
        - Encourage livestock sale barns or cattle auctions.
        - Construct storage for USDA grain

[24] Navajo Nation Drought Contingency Plan, 2003. NN Dept. of Water Resources.

        - Increase the number of range managers to assist the Chapters
    - Improve the reliability of livestock water.
        - Developing the livestock water plan
        - Repair and overhaul livestock wells
        - Establishing Circuit Riders

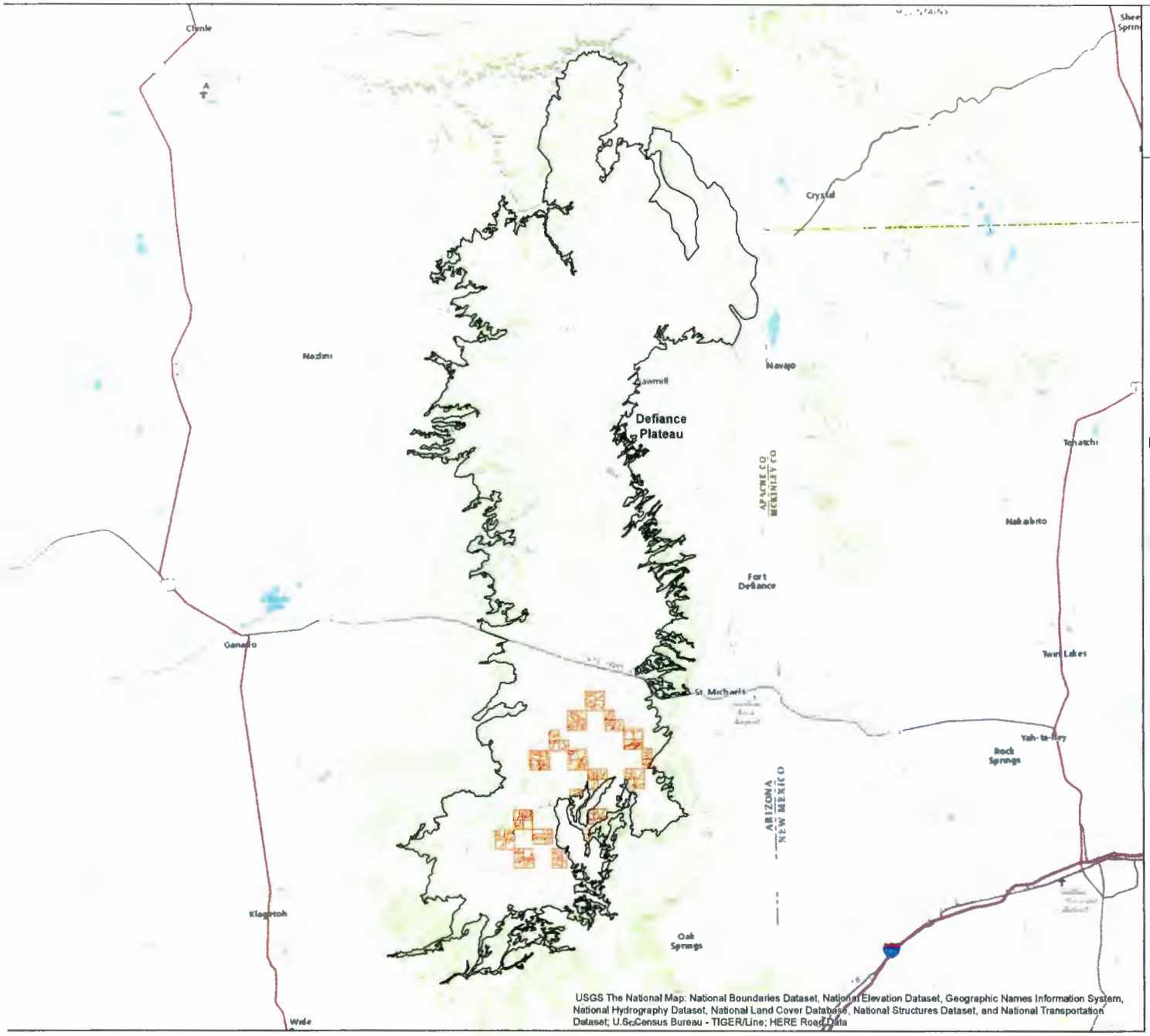
1.8 Agricultural Lands Collaboration Chart

Primary Concerns	General Best Management Practices[25]	Opportunities for Integrated Mgmt.
Range degradation due to overgrazing and drought **Soil erosion** **Enforcement of Grazing Regulations**	• Implement conservative stocking rates to retain greater amounts of foliage. • Diversify type and age of livestock to allow for flexible grazing practices. • Consider developing a drought reserve pasture or zone which rests an entire growing season providing for rotation and back up resources in case of worsening drought. • Have a reallocation plan in writing to preserve range resources. Identify critical dates to ensure high market prices and, identify critical dates relevant to the grass growing cycle. Too many livestock during drought conditions can cause greater economic loss and range resource damage. • Consider early weaning of calves on a cow-calf operations. Calves weaned early will reduce grass and water consumption of cows by more than 33%. Consult a nutritionist or Extension livestock specialist on how to best manage calves that are weaned at less than four months of age. • Identify options to improve grazing distribution to underutilized areas. In most situations, the simplest way to improve grazing distribution is to move salt, minerals, and supplements away from a primary water source to where cattle do not prefer to graze. However more permanent solutions such as fencing and water infrastructure need to be evaluated.	Department of Agriculture Department of Forestry Department of Water Resources

Key resources:

- NN Drought Contingency Plan http://drought.unl.edu/archive/plans/drought/tribal/NavajoNation_2003.pdf
- NN Rangeland Improvement Act, 2014. http://www.agriculture.navajo-nsn.gov/NRIA.html
- NN Grazing Act (Draft), 2000.

[25] http://aces.nmsu.edu/pubs/_b/B816.pdf



Map 1.1 - Defiance Plateau

Agricultural Resource Inventory

NAVAJO FORESTLAND IRMP

LEGEND

Grazing Allotments (Defiance Plateau)

Grazing Allotments - 9,366 acres

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

- Interstate Highway
- Other Road
- Forest Study Area Boundary
- Lake or Reservoir
- Stream/River
- County Boundary
- State Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Forestry Department

0 1.75 3.5 7 10.5 14 Miles

2. Air Quality & Resources

2.1 Description

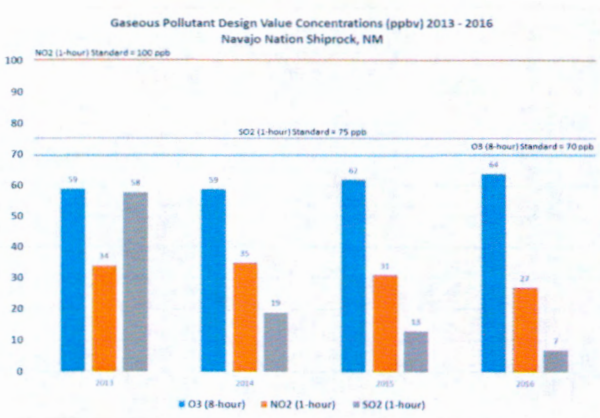
Air quality and resources are broadly defined as atmospheric and surrounding air conditions. Closely associated with this resource category are pollution concerns which are broadly classified into four air quality and atmospheric change issues: Particulate Matter, Ozone Precursors, Odor, and Greenhouse Gases and Carbon Sequestration. These concerns make-up air quality which can range from good, clear and pollution free, to poor, smoggy and polluted. Air quality affects human and ecosystem health. Air quality on the Navajo Nation consists of both outdoor and indoor air quality monitoring. The Navajo Nation EPA administers an air quality control program(AQCP). The purpose of air quality monitoring is to protect, preserve, and enhance the air resources for current and future Navajo Generations.

2.1.1 Data

Available Type of Data/Resource Inventory Method

Air Quality Monitoring Station data.[26]

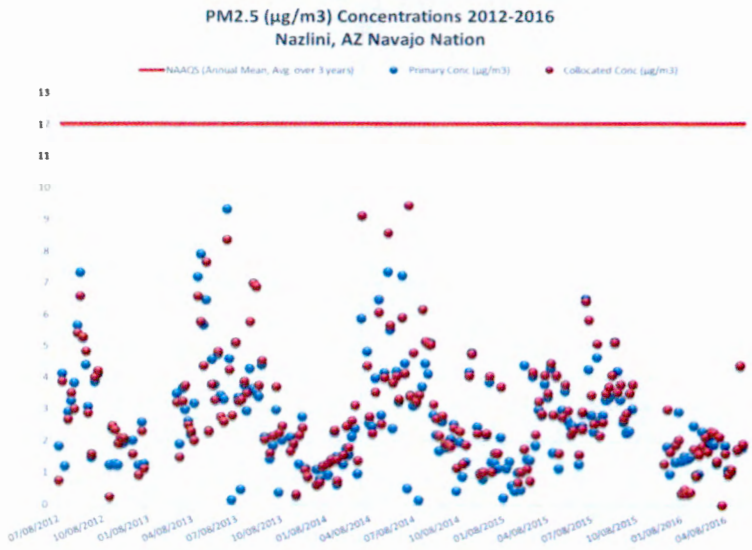
Shiprock, NM



Note: The NAAQS (1-hour) design values are based on maximum concentrations averaged over 3 years. And the NAAQS (8-hour) design values are based on 4th highest maximum averaged over 3 years.

[26] http://navajonationepa.org/main/index.php?option=com_content&view=article&id=6&catid=14

Nazlini, AZ



Not Available but would be useful Type of Data/Resource Inventory Method

- Establish air quality monitoring program for forestlands. Install additional air quality monitoring station within forestlands or utilize mobile air monitoring unit within all forestlands.
- Utilize indoor air quality monitoring program in place to monitor indoor air quality within forestlands.

2.1.2 Forestland Air Quality

No specific air quality provided.

2.2 Policies, Programs and Regulatory Framework

Air Quality programs are administered by the Navajo Nation EPA, Air Quality and Air & Toxics Departments.[27] The website page describes the air quality program as follows: "The air monitoring section is responsible for operating and maintaining the AQCP ambient air monitoring network on the Navajo Nation. The AQCP uploads collected air quality data to U.S. EPA's Air Quality Systems (AQS) database; which is then used to determine compliance with the National Ambient Air Quality Standards (NAAQS) to protect human health and the environment. The NAAQS consists of six criteria pollutants for which the Navajo Nation monitors four of these criteria pollutants: particulate matter 2.5 ($PM_{2.5}$, or

[27] http://navajonationepa.org

airborne particles 2.5 microns in diameter and smaller), ozone (O_3), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2). The program currently has two monitoring stations on the Navajo Nation, one in Shiprock, NM and the other in Nazlini, AZ. The Shiprock station is equipped with federal reference method gaseous analyzers that monitor for ground-level O_3, SO_2 and oxides of nitrogen (NO, NO_2, NO_x). The Shiprock station is also equipped with a 10-meter meteorological tower which measures wind speed, wind direction, relative humidity, temperature, precipitation and solar radiation. The Nazlini station consists of collocated federal reference method monitors that measure filter-based $PM_{2.5}$.

The AQCP also responds to community concerns regarding impacts to residential air quality. Upon request, the AQCP mobile air monitoring unit can be deployed for up to a one (1) year duration and is equipped to measure gaseous pollutants and particulate matter. Requests for community air monitoring is considered on a case by case evaluation, please contact the program for further information.

- Applicable National Ambient Air Quality Standards (Section 109) – Specific Referenced in Navajo Nation http://navajonationepa.org/main/index.php?option=com_content&view=article&id=3&catid=14
- Open Burn Regulations - 7 N.N.C. C §254(A). The NNOBR are promulgated under the authority of § 1103 of the Navajo Nation Air Quality Pollution Prevention and Control Act, 4 N.N.C. §§1101-1162
- Indoor Air Quality Standards – Specific to Navajo Nation
- State Implementation Plans (Section 110); (applicable?)
- Control of Pollution from Federal Facilities (Section 118); (applicable?)
- Prevention of Significant Deterioration, including visibility impacts to mandatory Federal Class I Areas (Section 160 et seq.); and(applicable?)
- Conformity Analyses and Determinations (Section 176(c)). (Applicable?)

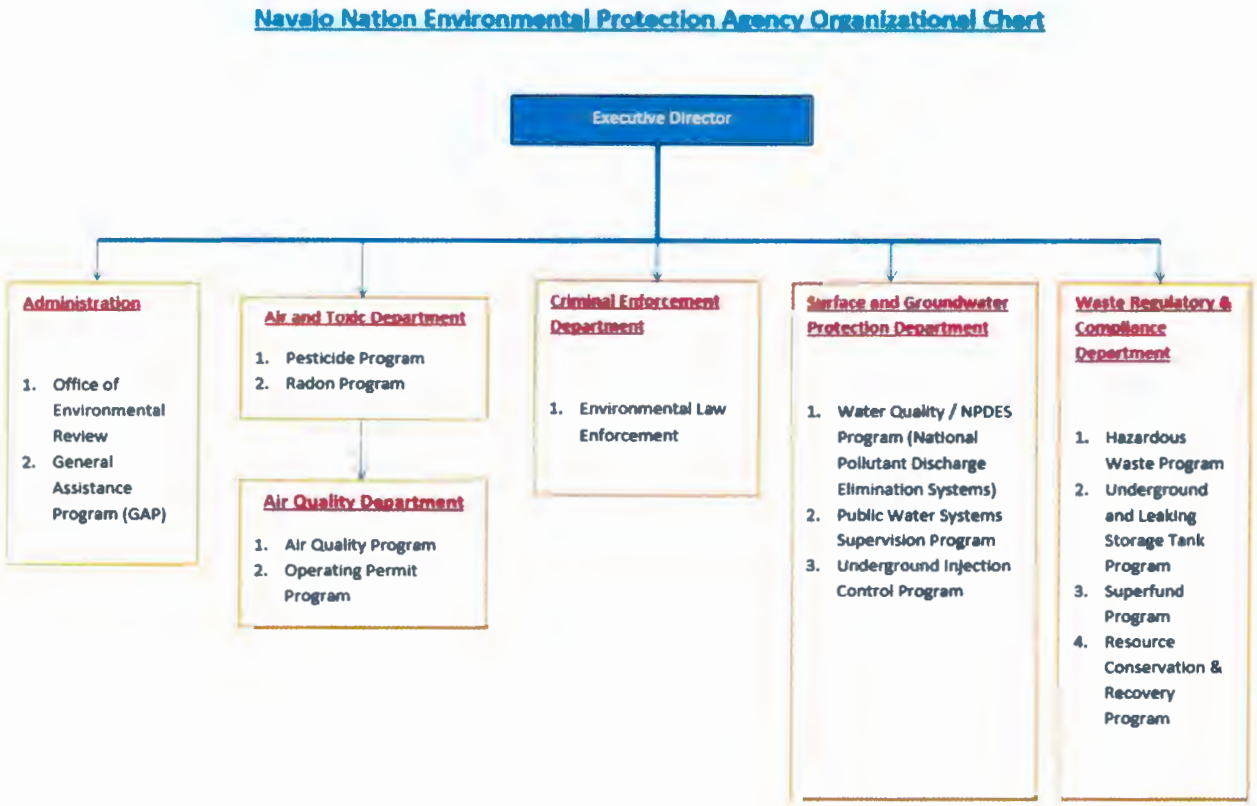
2.3 Managing Agencies

2.3.1 NNEPA Air Monitoring Program

The air monitoring program is responsible for operating and maintaining the AQCP ambient air monitoring network on the Navajo Nation. The AQCP uploads collected air quality data to U.S. EPA's Air Quality Systems (AQS) database; which is then used to determine compliance with the National Ambient Air Quality Standards (NAAQS) to protect human health and the environment.

Mission Statement: Protect, Preserve, and Enhance the Air Resources for Current and Future Navajo Generations.

Program Organization:



2.4.2 Supporting Agencies

USEPA

2.4 Community Concerns

2.4.1 Concerns by Forestland

Defiance Plateau - N/A

Chuska Mountain

Community feedback on this issue in extremely limited. Blowing Dust is reported to cause respiratory issues.[28] Most likely sources of pollution are vehicle emissions from highway 666, windblown particulates from the McKinley Coal Mine and dust and sand particulates. Seasonal changes result in haze produced by

[28] Final Comprehensive Land Use Plan Report for Sheep Springs Chapter. Sheep Springs, New Mexico and Navajo Housing Authority, Office of Navajo Government Development. Window Rock, Arizona. Miller, Arviso & Associates, Albuquerque, NM November 30, 2000. (Page 15)

wood and coal burning, slash burning, fugitive dust emissions from automobiles on unimproved roads and refuse burning.[29]

Navajo Mountain - N/A

Mount Powell - N/A

Carrizo Mountain - N/A

2.5 External Resource Department Concerns

- Inflammatory potential associated with proximity to AUMs, but not oral intake of specific metals, additionally suggests a role for inhalation exposure as a contributor to cardiovascular disease.[30]
- Open Burn: The regulations are intended to discourage open burning disposal practices where alternative methods are feasible and practicable.
- Indoor Air Quality: refers to the quality of the air within and around a home or structure and how it affects the health of its occupants. Over the past couple of years, the NNEPA AQCP has been developing an indoor air quality component to the program by conducting indoor air quality assessments within Navajo homes and developing outreach material on wood and coal use.
- Radon Exposure

2.6 Key Resources:

- Oil & Gas industry BMP's for Air Quality: http://www.emnrd.state.nm.us/OCD/documents/2000PollutionPreventionBMPs.pdf
- Agriculture BMP's for Air Quality: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1049502.pdf
- Indoor Air Quality: https://www.fs.fed.us/t-d/pubs/htmlpubs/htm08732841/page10.htm

[29] Nakaii bito'í Comprehensive Land Use Plan (Page 27-28)

[30] Harmon, Molly E., et al. "Residential proximity to abandoned uranium mines and serum inflammatory potential in chronically exposed Navajo communities." Journal of Exposure Science and Environmental Epidemiology (2017).

3. Cultural Resources

3.1 Resource Description

"Cultural resource" means any product of human activity, or any object or place given significance by human action or belief. Cultural resources are Historic and Archaeological sites, Gravesites, location of human remains, funerary items and Traditional Cultural Properties (TCPs). Historic and archaeological properties include, but are not limited to, artifact scatters, structures or structural remains of various types with associated features, rock art and inscriptions, ceremonial/religious features, and roads and trails. A TCP is a property that has associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community. There are specific places within the Navajo nation that are considered to be highly sensitive and the Navajo people expect these specific places to be protected and ideally kept in their pristine context. These places are subject to Navajo traditional laws. Their location are sources of power that are used for protection, healing, stability and the continued existence of harmony/balance of all Navajo people. These places may not represent evidence of human activity and may simply be embedded in the landscape. There are hundreds of TCPs across the Navajo nation and throughout the forestland areas and can include natural landscapes (mountain, rivers, trees, springs), offering places, home-sites, places considered sacred for ceremonies, clan histories, oral histories, or overall histories of the Navajo people. Archaeological sites can be TCPs and includes areas that can be sources of sacred or spiritual power and are significant based on information they may contain about past lifeways such as structures, rock alignments, scatters and landscapes. Gathering places are places where natural resources were hunted, gathered or collected for various reasons and can include (wildlife, plants, minerals, etc.). These areas include specific locations where these activities were carried out. (footnote: Significant Cultural Properties of the Navajo People. By Judy A. Martin, Cultural Resource Specialist, Robert M. Begay, Steven Begay. Navajo Nation Historic Preservation Department, Window Rock, AZ.) Gravesites, human remains and any other items related to death are treated with the utmost respect. Burial sites are avoided and materials belonging to one who is deceased are not handled. The Diné view is that human remains, associated funerary items, and unassociated funerary items all fit under jishchaa', a term that refers to things that are associated with death as well as the burial itself. Cultural resources and TCPs are only some of the features of the overall ethnographic landscape of the Diné People. In other words, Diné sense of place is critical to the expression of Diné culture and interpretation of the archaeological record. This bond to place is timeless, guiding the Foundation of Diné Law (Diné Bi Beehaz'áanii Bitse Siléí). Anticipated TCP types in the Forestland Areas include:

- Sacred landscapes
- Place for gathering plants
- Place for gathering contents of sacred bundles

- Ceremonial Sites
- Former home site locations
- Former sweathouse locations
- Offering places
- Place associated with general Navajo origin
- Place associated with origin or home of a clan
- Place identified as home of a Holy Being

3.1.1 Data

Due to the highly sensitive nature of cultural resources and concerns associated with looting, destruction or compromising the integrity of these areas, NNHHPD does not support sharing any existing inventories of cultural resources. NNHHPD has shared areas that have been evaluated within the five forestland areas, and is denoting where cultural resource compliance permits have been cleared. Again, the general or exact location of this information must remain confidential and is not available for inclusion in the IRMP.

- Cultural Resources Inventory for five Forestland Areas – Not available
- Ethnographic studies documenting Traditional Cultural Properties – Not available
- Locations of areas that meet cultural resource protection compliance (Safe Zones) – Not available

Cultural Resource Inventory by Forestland Area – Completed but NOT AVAILABLE

- Defiance Plateau
- Chuska Mountains
- Navajo Mountain
- Mount Powell
- Carrizo Mountains

3.2 Context

"Navajo people believe they have a sacred duty to protect archaeological sites, human remains, burial items, and cultural items found on sites. Navajo traditional history incorporates all aspects of Navajoland, and many traditional people believe that non-Navajo versions of history do not contain as much information about history as their own. In short, there is a tremendous amount of Navajo traditional information regarding the preservation and management of cultural resources. We know how to take care of cultural resources—we have been doing this for centuries, long before cultural resource protection legislation existed.[31]"

Archaeology on the Navajo reservation has a long history, as many of the early Anglo traders and explorers excavated with the help of local Navajos since the early 1900s. In response to large-scale development

[31] Richard Begay, "How Traditional Navajos View Historic Preservation"

projects affecting Navajo Nation lands, in 1977 the Navajo Nation Cultural Resource Management program was formally established, in order to provide archaeological services to the tribe. In 1986 this program split into two departments: The Navajo Nation Archaeology Department (NNAD), which provides archaeological field services, and the Navajo Nation Historic Preservation Department (NNHPD), the designated Tribal Historic Preservation Office, which reviews, provides permits, and "grants clearance" for projects on the Navajo reservation (as opposed to the State Historic Preservation Offices of Arizona, New Mexico, and Utah). On October 2015, the Navajo Nation Historic Preservation Department merged with the former Navajo Nation Archaeology Department to provide heritage management services for the Navajo people.

3.2.1 Key Cultural Resource Challenges

- Coordination across departments for education and protection of cultural resources, and for integration of cultural resources into development of management planning activities
- Need to digitize location data so can map inventories and delineate protection areas
- Need for more education so that people so people are aware of the importance of protection-not just an afterthought during project development process
- Need to capture information on Traditional Cultural Properties from elders – through ethnographic studies

3.3 Policies, Programs and Regulatory Framework

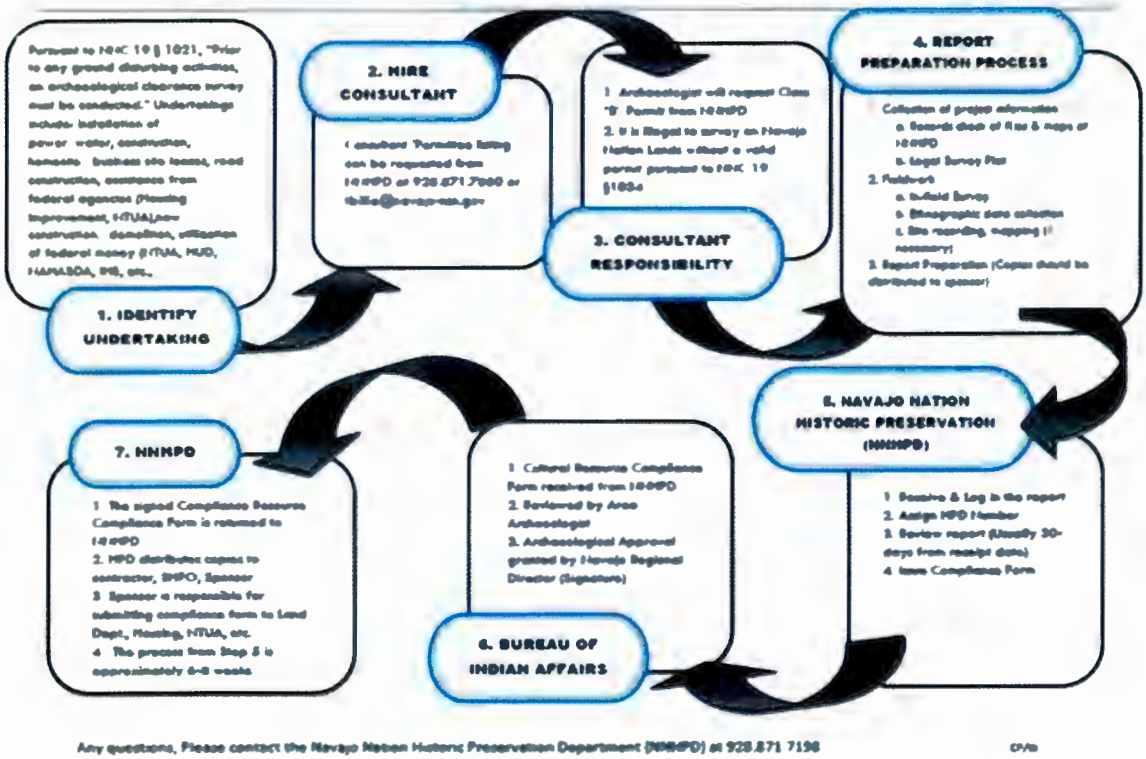
Summary

- Cultural resources are evaluated based on whether they meet the eligibility criteria required for listing in the NRHP (National Register Bulletin #15). Section 106 of the NHPA requires that Federal agencies consider the effects of their actions on such properties, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800).
- The NNHHPD maintains records of cultural resources investigations and cultural resources properties within lands administered by that office.
- Traditional cultural properties are considered eligible for inclusion in the National Register of Historic Places and protected under the National Historic Preservation Act, even when they lack clear evidence of human use. Such places are not likely to be detected by conventional surveys but through ethnographic research.
- Federal Antiquities Act of 1906 (P.L. 59–209)
- National Historic Preservation Act (P.L. 89–665)
- National Environmental Protection Act of 1969 Executive Order 11953; "Protection and Enhancement of the Cultural Environment," May 13, 1971 (36 C.F.R. 8921)
- Archaeological Resources Protection Act of 1978 (P.L. 95–96)
- American Indian Religious Freedom Act of 1978 (P.L. 95–341)
- Native American Graves Protection and Repatriation Act (NAGPRA)

- Arizona laws protecting human remains on private lands
- Navajo Nation Policies and Procedures Concerning Protection of Cemeteries, Gravesites, and Human Remains of 1986 (ACMA-39-86)
- Navajo Nation Cultural Resources Protection Act (CMY-19-88) (http://www.hpd.navajo-nsn.gov/files/5.0_TCP_Policy.pdf).
- Permit Requirements: Section 1031 of the Navajo Nation Cultural Resources Protection Act, (CMY-19-88), prohibits visitation or investigation of cultural properties except those open to the public within the boundaries of a park or monument. The law further prohibits any alteration, defacing, destruction, excavation or removal of cultural properties, or engage in any ethnographic research. Exception to such activities may be conducted under the authority of and in accordance with the stipulations of a valid Navajo Nation Cultural Resources Permit issued by the Preservation Officer under the authority of section 1032 which specifies three different classes of permits that are required for visitation, inventories, research or ethnographic inquiries occurring on Navajo Nation Lands:
    - Class A: For site visitation including personal archaeological research
    - Class B: For archaeological excavation, or collection purposes (including monitoring), ethnographic inventories conducted as a separate phase of Section 106 and/or NNCRPA, and ethnographic research conducted for the purpose of treating traditional cultural properties pursuant to Section 106 and/or Navajo Nation Policy to Protect Traditional Cultural Properties. An ARPA permit is also required for archaeological excavation or collection purposes including monitoring.
    - Class C/Type 1: For archaeological excavation or collection purposes (including monitoring), ethnographic inventories conducted as a separate phase of Section 106 and/or NNCRPA, and ethnographic research conducted for the purpose of treating traditional cultural properties pursuant to Section 106 and/or Navajo Nation Policy to Protect Traditional Cultural Properties. An ARPA permit is also required for archaeological excavation or collection purposes including monitoring.
    - Class C/ Type 2: For Ethnographic inquiries involving personal/professional research. Ethnographic research includes any systematic collection of oral information from members of the Navajo Nation regardless of differences in academic definitions for specific kinds of ethnography.
- The Navajo Nation Heritage and Historic Preservation Department has specific written policies, procedures and forms that detail how the Navajo Nation addresses cultural resources and carries out protection laws. The following is a list of policies, procedures, schedules and forms that address protection requirements, compliance and activities associated with cultural resources. Each of these policies is listed below and is also located on the NNHHPD web site and can be found here: http://www.hpd.navajonsn.gov/index.php?option=com_content&view=article&id=79&Itemid=484
    - Policies, Procedures & Requirements for Acquiring Cultural Resources Investigation Permits, including fee schedule and forms
    - Application for Federal Permit under the Archaeological Resources Protection Act (ARPA)
    - Fieldwork, Report Standards & Guidelines

- Archaeological Inventory Report (AIRs Form) Documentation
- Site Survey & Management Form & Update Form
- Site Number Request Form
- TCP Record Search Verification Form
- Guidelines for the Treatment of Historic, Modern Contemporary Abandoned Sites
- Policy to Protect Traditional Cultural Properties Sacred & Traditional Places Documentation Form
- Resolution – Navajo Nation Burial Policy
- Policies & Procedures Concerning the Protection of Jishchaa': Cemeteries, Gravesites & Human Remains
- Identification of Gravesites, Human Remains & Funerary Items & Statement of Wishes – Burials WITH Lineal Descendants
- Identification of Gravesites, Human Remains & Funerary Items & Statement of Wishes – Burials WITHOUT Lineal Descendants
- Guidelines for the Treatment of Discovery Situations
- Navajo Nation Cultural Resource Protection Act (NNCRPA)
- Navajo Nation Policy for the Disposition of Cultural Resources Collections
- Archaeological Clearance Process Flow Chart
- HPD Copy Policy

The flowchart below depicts the process under which potential projects must go through to achieve compliance, beginning with the steps to conduct an archaeological survey.



3.4 Managing Agencies

3.4.1 Cultural Resource Department

Through its programs and services, the Navajo Nation Heritage and Historic Preservation Department (NNHHPD) works to foster conditions under which our modern society and our cultural resources can coexist in productive harmony and fulfill the social, economic and other requirements of present and future generations. NNHHPD is responsible for carrying out the laws that protect archaeological and historic resources and traditional cultural properties. agency responsible for the protection, preservation and management of the Nation's cultural resources; and is responsible for promoting sovereignty of the Navajo Nation by: Promoting respect for and encouraging Navajo heritage and tradition. Seeking guidance and support of the Navajo people in developing and implementing programs to preserve, protect and manage the cultural resources of the Navajo Nation and its people. Meeting the community and economic development needs of the Navajo people by ensuring the harmonious co-existence of the Navajo Way with "present world"

Mission Statement - From time immemorial, the Nihookaa' Diné'e Bila' Ashdla'ii has been tied to the aboriginal landscape through our oral ceremonial histories. As such, we are entrusted with the collective responsibility by protect, preserve, and continue Navajo cultural heritage and traditions for future generations. As the Navajo Nation's cultural heritage regulatory body, the NNH&HPD will consult with internal and external communities and provide guidance on Navajo fundamental laws, in addition to

historic preservation and archaeological laws and policies to maintain in the integrity of Navajo traditions and culture.

Vision Statement/Goals - Protecting, Maintaining, and Balancing Navajo Cultural Heritage in a Changing World.

Department Organization - The Department is organized around four primary programs:

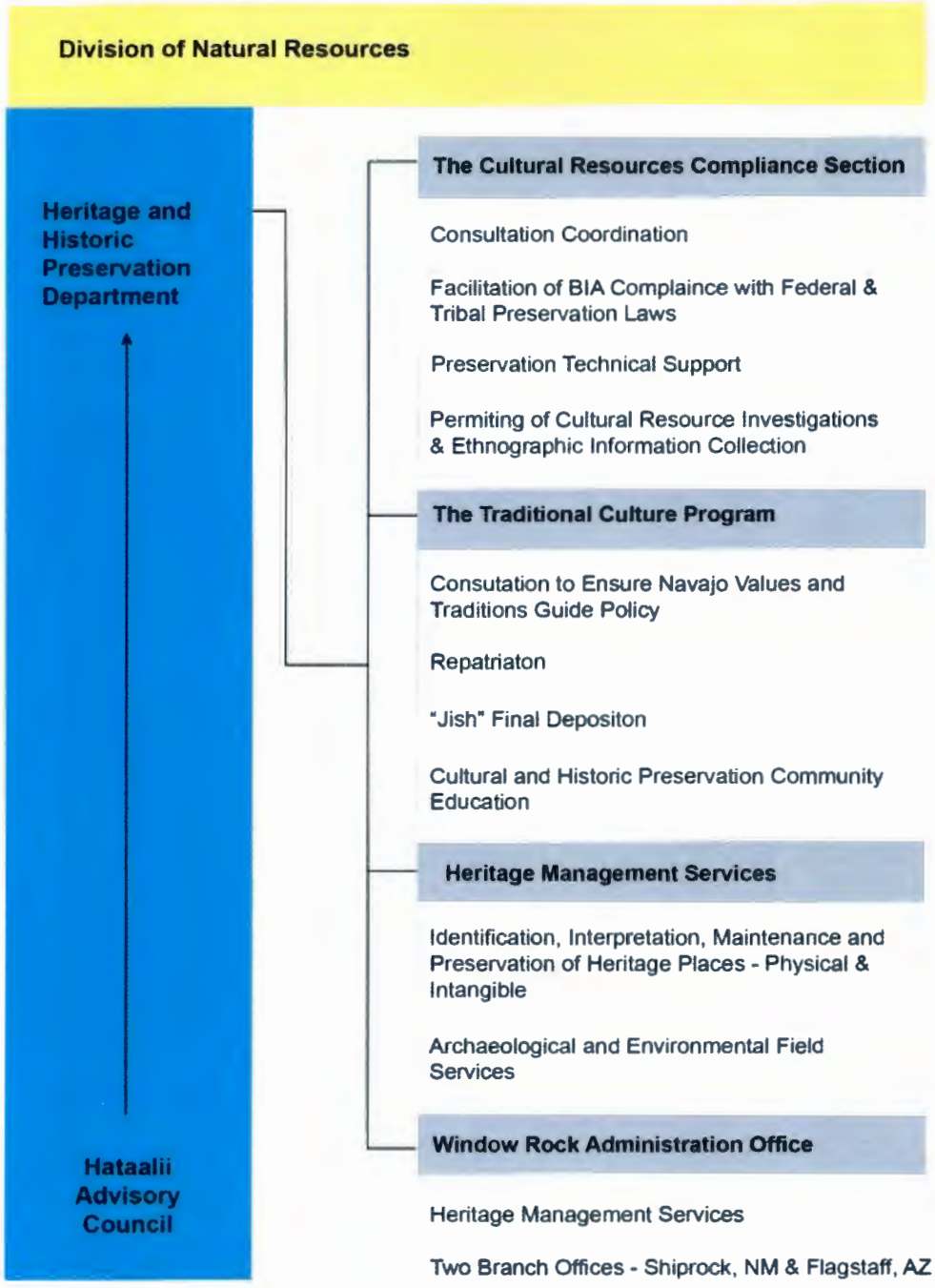
- Traditional Cultural Program: NNHHPD uses Navajo Nation and federal laws to preserve historic and traditional cultural properties. They maintain a database of known traditional cultural properties on the Navajo Nation. A TCP is a property that is eligible for inclusion in the NRHP based on its associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community. TCPs are rooted in a traditional community's history and are important in maintaining the continuing cultural identity of the community Traditional Cultural Properties are subject to meeting NRHP criteria. Traditional Cultural Properties are reviewed by the NNHHPD and verified with ethnographic surveys to provide guidance on how protect TCPs in forestland areas.

- Cultural Resource Compliance Section: NNHHPD requires that before any disturbance of land for project development or field work on the Navajo Nation is conducted, that a cultural resource permit be obtained and that an investigation is completed. This section facilitates compliance with tribal and federal preservation laws, issues permits for investigations and assists with collecting ethnographic information.

- Chaco Protection Sites Program: NNHHPD program staff work with tribal, state and federal officials for the identification, documentation, development, interpretation, protection, stabilization and enhancement of protected sites located on tribal land.

- Glen Canyon Adaptive Management Program: This program works with the US Bureau of Reclamation to develop and implement a long term monitoring and scientific research program to document the effects of the Glen Canyon Dam on the natural, recreational and socio-cultural resources of the Colorado River ecosystem.

Navajo Nation Heritage and Historic Preservation Department



Contact Information

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928.871.7198

Fax: 928.871.7886.

www.hpd.navajo-nsn.gov

3.4.2 Supporting Agencies

3.5 Current Management Plans

The Navajo Nation Heritage and Historic Preservation Department does not currently have a comprehensive management plan that governs cultural resource protection, activities and services across the Navajo Nation. Rather policy direction, procedures and guidance with respect to cultural resources is provided by federal, state and Navajo Nation laws and an internal Department Plan of Operation. Management guidance with respect to any and all cultural resource activities by individuals, business, organizations or departments is managed through the application and issuance of permits.

3.6 Community Concerns

Many of the community comments received with respect to cultural resources protection center around the lifeways and beliefs of the Navajo people. They view the Diné people as one with nature, where everything is connected. Much of the feedback received pointed to the Diné Fundamental laws (natural law) that traditionally govern the Navajo people. The Diné do not view themselves as separate from the environment. Their hopes are that the IRMP views the Dinéculture as the foundation of the IRMP. Further community members expressed concern that cultural traditions and practices are not being taught to the youth, and as a result they are losing their heritage and the broader understanding of what it means to be Diné. There was a general consensus that traditional ceremonies and activities, medicinal plants, places and practices of these communities need to be protected, so that community members have access to these areas and so that they are protected from destructive activities, or development. Community members agreed that protecting archaeological sites, cultural resources, burial sites and traditional cultural properties is of great importance. Some expressed the need to identify these areas so that can be protected.

3.6.1 Concerns by Forestland

Defiance Plateau

- Need traditional and western teaching about how to protect our natural and cultural resources.
- Use fundamental laws to protect all the elements/resources on the Navajo Nation.
- Consider the traditional practices in how to define management activities

Chuska Mountains

- Concern about sacred sites in the mountains; whole mountain is sacred.
- Cultural areas need to be identified and mapped; educate people to respect sites.
- Would like to continue having family summer camp and continue to farm. Still gather herbs for healing and medicine.
- Identify sacred places on a map; educate people on natural resources.
- Save and protect the ancient cultural sites, structures, and burial grounds.
- Cannot overlook traditional cultural belief system. Use cultural values as basis of the plan

Navajo Mountain

- The air, Sunlight, water, and vegetation are all sacred, it makes up the universe, our earth mother all natural resources, too.
- All are in the Navajo songs, prayers, sacred legends, rituals, ceremonies and futuristic elements that we depend upon as generations come.
- Need balance between Western development and culture.
- Our youth do not listen to traditional stories, practices, ceremonies, and have no connection to true cultural instincts

Mount Powell

- Cultural teachings are deteriorating as people don't' teach them to their children, our sacred sites are oblivious to them today.
- Too much impact on cultural resources – sacred sites

Carrizo Mountain - N/A

3.7 External Resource Department Concerns

- Incorporate Navajo Cultural Sensitivity & Values in planning and management activities on the Navajo Nation Forestlands

3.8 Cultural Resource Best Mgmt. Practices

General Best Management Practices
• NNHHPD staff should work with Natural Resources departments to identify, develop prescriptions and management activities that promote the restoration and enhancement of medicinal plants. • Medicinal plant areas should be monitored to assess the impacts of specific projects, and to determine whether they were effective in reducing or eliminating adverse impacts. • Buffers should be placed around archaeological sites. An archaeologist will determine the width of the buffer. Management activities may occur within the buffer by implementing mitigation measures in the Cultural Resources inventory report submitted to NNHHPD. • Work with certified Chapters to review their Community Land Use Plans and future plans for community and economic development to ensure that cultural resources are avoided and adequate protection measures are in place. • A tribal stewardship program should be established to monitor cultural resource sites.

4. Wildlife & Fisheries

4.1 Description

Wildlife, fisheries and their associated habitats are natural resources which make specific regions unique. Wildlife and fisheries within the Forest Study Areas and on the Navajo Nation reflect the variation and type of species found throughout the Southwest Region. The Navajo Nation in its entirety is host to approximately 80 vertebrate species including mammals, birds, reptiles and amphibians, and fishes[32].

Navajo Nation's Department of Fish & Wildlife strives to conserve, protect, and manage these resources for recreational fishing and hunting, and to maintain overall ecosystem health and balance. Wildlife and fisheries resources are managed to sustain biota and the ecosystems on which they depend while accommodating for human needs and welfare. Plant resources on the Navajo Nation have historic and cultural significance to the Navajo people and are an integral part of ecosystem management. Proper management based on research can lead to the development of regulations that ensure the sustainable use of natural resources, conserve biodiversity and result in healthier populations of people, wildlife and fishes.

4.1.1 Data

Available Type of Data/Resource Inventory Method -

Wildlife and fisheries data utilized for inventory and analysis was provided by the Navajo Natural Heritage Program, Navajo Nation Department of Fish and Wildlife (NNDFW), United States Fish and Wildlife Service (USFWS), New Mexico Fish and Game (NMDGF) and Arizona Game and Fish Department (AZGFD). The NNDFW through the Natural Heritage Program provided a detailed report and inventory of known species and potential species that occur within the five (5) forestlands.

Fishery Resources

Historically, 14 species of fishes, and one species of non-native crayfish (Orconectis virulis) have been stocked to provide recreational fishing on the Navajo Nation. Currently, 12 species of nonnative fish, and 3 species of native fish are known to inhabit lakes and perennial streams (excluding the Colorado River, Little Colorado River, and San Juan River) on the Navajo Nation.[33]

- Recreational fishing opportunities on the Navajo Nation vary with elevation and climate. Each waterbody can be categorized as either cold-water, warm water, or mixed fishery. Coldwater

[32] Mikesic, D. and D. Roth. 2008. Navajo Nation endangered species list: species accounts. Version 3.08. Navajo Natural Heritage Program, Department of Fish and Wildlife, Window Rock, Arizona.

[33] Fisheries Management Plan, Navajo Nation. 2014-2018. Glenn Selby, Navajo Nation Department of Fish and Wildlife, Chris Kitcheyan, New Mexico Fish and Wildlife Conservation Office.

fisheries on the Navajo Nation are put and take/put-grow-take rainbow trout (*Oncorhynchus mykiss*) fisheries. Warmwater fishing opportunities consist of largemouth bass (*Micropterus salmoides*), channel catfish (*Ictalurus punctatus*), and bluegill (*Lepomis macrochirus*). Mixed fisheries are a combination of coldwater and warmwater fish species. Hatchery fish stockings on the Navajo Nation are either put-and-take and/or put-grow-and-take. Put-and-take is stocking of catchable size fish where angling pressure is intensive and long-term survival is not expected or needed. Put-grow-and-take can include sizes from fry to catchable stocked into productive waters where long term growth and survival is necessary for good returns to the angler. Revenue from the sale of fishing licenses is vital to the Tribe. In the 2013 fiscal year (Oct 1-Sep 30) the Navajo Nation sold 7,948 fishing permits and generated $150-504 in revenue. Currently, only two species of fish are stocked in Navajo Nation waters, rainbow trout and channel catfish. Future plans are to also stock largemouth bass and bluegill. Largemouth bass stockings on Navajo Nation were discontinued in 2011 because of detection of largemouth bass virus in federal hatcheries (i.e., Inks Dam National Fish Hatchery).[34]

Wildlife Resources

The diversity of ecosystems across the Navajo Nation supports a diversity of animal life just like much of the American Southwest. The distribution of vertebrate species in this arid land is limited by water availability and water-related vegetation diversity. Especially important are the riparian corridors, which provide vital migratory and breeding habitat for birds. Habitat degradation is responsible for the region-wide decline of several rare and listed species. Ungulates, once hunted to low numbers or near extinction, have made a comeback in mountain forests in much of the Southwest. However, on the Navajo Nation ungulate populations continue to struggle. Reptiles are abundant in desert and grassland areas as are rodents. Larger mammals such as black bear are present but rare. [35]

Endangered Species

Threatened and endangered species that are known to occur within the Forest Study Areas include the Mexican Spotted Owl *(Strix occidentalis lucida*), Bluehead *(Catostomus discobolus)*and Zuni bluehead Sucker *(Catostomus discobulus yarrowi)*, Great Basin Silverspot Butterfly *(Speyeria nokomis nokomis)*, Gooding's Onion *(Allium gooddingii)*, Golden Eagle *(Aquila chrysaetos)*, Bald Eagle *(Haliaeetus leucocephalus)*, Northern Goshawk *(Accipiter gentilis)*, band tailed pigeon *(Patagioenas fasciata)*, and maybe zuni fleabane. The Goodings Onion, Northern Goshawk, Bluehead and Zuni Bluehead Sucker and Great Basin Silverspot Butterfly are almost exclusively found in Chuska Mountains and Defiance Plateau Study Areas. The majority of the Mexican Spotted Owl habitat is also located within the forest/woodlands (except for the deep canyon owls). The Great Basin Silverspot Butterfly is a strong candidate for federal listing within the next couple of years. Navajo Nation Heritage Program staff biologist will be on the species assessment team that will be working on the listing decision recommendation in 2018. A full list of known and potential species and their listing status for the forestlands is included in Appendix A.

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[34] Fisheries Management Plan, Navajo Nation. 2014-2018. Glenn Selby, Navajo Nation Department of Fish and Wildlife, Chris Kitcheyan, New Mexico Fish and Wildlife Conservation Office.

[35] https://www.nps.gov/subjects/swscience/plants-animals.htm

4.1.2 Wildlife and Fisheries Inventory by Forestland:

This section includes select wildlife and fisheries inventories or information as available for each of the five Study Areas. Data included in this section was provided by Navajo Nation Fish & Wildlife Department and the Navajo Nation Natural Heritage Program.

Location		Mule Deer				Elk				Pronghorn				Feral and Domestic Livestock	
GMU	Forestland Region	Bucks	Does	Fawn	Totals	Bulls	Cows	Calves	Totals	Bucks	Does	Fawns	Totals	Horses	Cattle
1	Chuska Mtns	43	241	76	360	0	0	0	0	0	0	0	0	31	45
2	Chuska Mtns	26	69	21	116	0	0	0	0	0	0	0	0	9	5
3	Chuska Mtns	30	105	39	174	7	45	13	65	0	0	0	0	143	34
4	Chuska Mtns	12	32	8	52	0	0	0	0	0	0	0	0	41	14
5A	Chuska Mtns	87	394	117	598	0	0	0	0	0	0	0	0	8	117
5B	Defiance Plateau	52	191	52	295	0	0	0	0	0	0	0	0	84	101
12	Carrizo Mtns	82	373	86	541	0	0	0	0	0	0	0	0	60	103
8	Outside forestlands	4	15	8	27	0	0	0	0	4	2	0	6	44	11
16	Outside forestlands	6	14	5	25	34	15	10	59	0	3	0	3	77	29
Totals		**342**	**1434**	**412**	**2188**	**41**	**60**	**23**	**124**	**4**	**5**	**0**	**9**	**497**	**459**
Count percentage of survey		**66.8%**				**3.8%**				**0.3%**				**15.2%**	**14.0%**

Table 1. Results of aerial survey counts divided into Game Management Units (GMU) for mule deer, elk, pronghorn, and feral and domestic horses and cows. Survey was conducted by the Navajo Nation Fish & Wildlife Department in January, 2017.

- Chuska Mtns -
  - Tsaile Lake – Tsaile Lake is 1.5 miles south of Tsaile, AZ and 1 mile west of Highway 12. The elevation at Tsaile Lake is 7,010 feet. At full capacity, the lake is 260 acres. Tsaile Creek and Wheatfield Creek drain into the lake. Channel catfish, brown trout, rainbow trout, and cutthroat trout were previously stocked. Currently, the dam repairs at Tsaile Lake are scheduled for the spring of 2014. The lake is stocked with rainbow trout annually, and also has populations of goldfish and green sunfish. Goldfish were first discovered in 2003 (David, 2006), and were likely introduced from illegal release into the lake. During dam repairs, the lake was drained but as of March, 2017, the lake was refilled and re-stocking has continued as before. All nongame fishes would be eradicated either by mechanical or chemical efforts. After complete eradication, rainbow trout distribution would proceed.
  - Wheatfield Lake – Wheatfield Lake is the Navajo Nation's most popular lake. Wheatfield Lake is home to the Wheatfield Lake Recreation Area and provides campgrounds west of

the lake. It is located along Navajo Route 12, 7 miles south of Wheatfield Chapter. The elevation at Wheatfield Lake is 7,295 feet. The lake is 250 acres and fed by a perennial stream, Wheatfield Creek. In the past, brown trout and cutthroat trout were stocked. Currently, the lake is only stocked with rainbow trout annually.

- Chuska Lake – Chuska Lake is located 1 mile east of Tohatchi, NM. Chuska Lake is at an elevation of 6,296 feet, at full capacity the lake is 100 acres. Spring runoff drains into the lake, therefore water levels are subject to fluctuate annually. Tamarisks are present along the shorelines of Chuska Lake. Brown trout and cutthroat trout were lasted stocked in 2003 and 2005. Currently, only rainbow trout are stocked when lake conditions are suitable.[36]
- Red Lake – Red Lake is located on the west side of Navajo Route 12, and is 0.5 miles north of Navajo Pine, NM. Red Lake sits at an elevation of 7,080 feet and is 908 surface acres at full capacity. The lake serves as an irrigation supply for local chapter members. Historically, Red Lake was home to channel catfish, largemouth bass, and northern pike (*Esox lucius*). Currently, Red Lake is dry due to needed repairs in the dam. After dam renovations are completed, the lake will be filled again and stocked with largemouth bass, bluegill, and channel catfish.[37] Red Lake is also designated as a waterfowl sanctuary/biological preserve and large game and bird hunting is prohibited.

- Navajo Mountain – No Data
- Mt. Powell – No Data
- Carrizo Mtns – No Data

4.2 Resource Context

Wildlife, fish, and their associated habitats hold cultural, historic, and economic significance to the Navajo People. Certain animals, fish and plants are used for ceremonial purposes, in addition sport fish, big and small game animals are taken for consumption. The Navajo Nation, in collaboration with the Navajo Fish and Wildlife Department, developed a list of culturally important plant species to both the Department and the Navajo Nation as a whole. These species are ecologically and/or culturally significant due to their value or because of their impact and are as follows; yucca, Mesa Verde cactus, Navajo sage, piñon pine, and salt cedar.[38]

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[36] Fisheries Management Plan, Navajo Nation. 2014-2018. Glenn Selby, Navajo Nation Department of Fish and Wildlife, Chris Kitcheyan, New Mexico Fish and Wildlife Conservation Office.

[37] Fisheries Management Plan, Navajo Nation. 2014-2018. Glenn Selby, Navajo Nation Department of Fish and Wildlife, Chris Kitcheyan, New Mexico Fish and Wildlife Conservation Office.

[38] FBFA Integrated Resource Management Plan. Bureau of Indian Affairs, Navajo Region and The Navajo Nation. October 2016. (Page 39)

4.2.1 Key Wildlife and Fisheries Challenges

Fisheries

The majority of fish are habitat specialists requiring specific habitats during various life stages. The following are threats to fishery resources.

- Sedimentation, Pollution and Erosion. An accumulation of sediments can lead to increased levels of deposition, pollution and turbidity[39]. This can be caused by: Livestock Grazing, Logging, Fire and disturbance, Building and Road Construction, Water Pollution, and Recreation.
- Dewatering - Lowered stream volumes can lead to increase in water temperature and habitat vitality. This can be caused by: Stream water diversions, Groundwater pumping, Drought, and Climate Change.
- Stream Channel Alterations - Stream channel alterations can affect the structure and resilience of a habitat. This can be caused by: Flood Control and Channelization, And stream Diversion or Impoundment.
- Interactions with Nonnative fish and crayfish - non-native and invasive species can outcompete native species leading to habitat restrictions and decreases in population. This can be caused by: Recreational Fish Stocking, and the introduction of Nonnative, nongame species.
- Genepool Isolation - If a species is geographically constrained and does not have an opportunity to interbreed with other groups of the same species the species gene pool can become isolated and less resilient to change. This can be caused by: Natural Catastrophic Events and Lack of genetic diversity to preserve genotype caused by habitat isolation and dwindling species numbers.

The Department of Fish and Wildlife has identified 4 threats to management of fisheries.

- Limited Access and Poorly Maintained Recreational Resources
- Budget Cuts and Climate Change
- Undesired and Invasive Species
- Information and Marketing of Fishing Opportunities

Wildlife

The Department of Fish and Wildlife has identified the following threats to wildlife;

- Climate Change and extreme weather, including drought
- Invasive species
- Wildlife diseases

[39] Fisheries Management Plan, Navajo Nation. 2014-2018. Glenn Selby, Navajo Nation Department of Fish and Wildlife, Chris Kitcheyan, New Mexico Fish and Wildlife Conservation Office.

- New energy Development
- New home construction/Habitat loss and human encroachment
- Illegal harvesting/poaching
- Unsustainable Harvesting
- Food availability-
- due to prey reduction and competition for grazing/browsing land

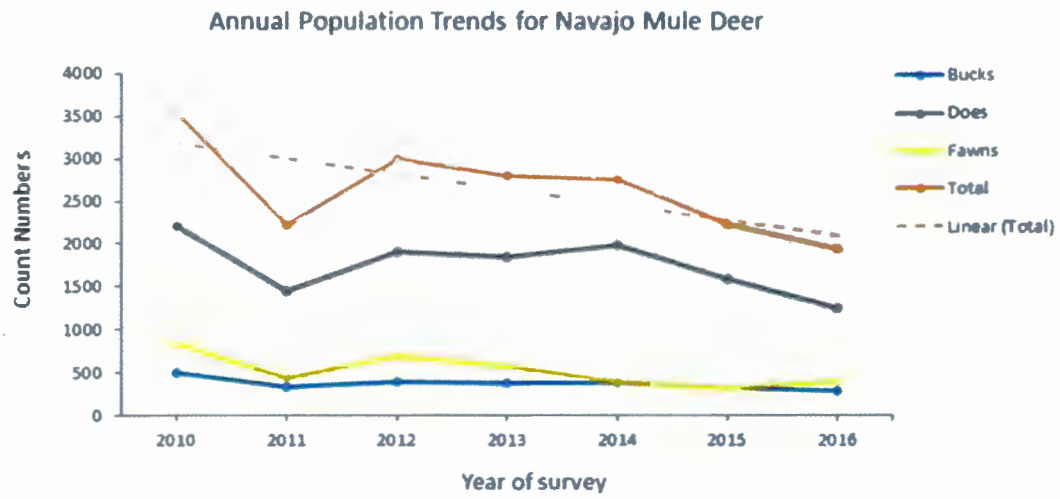


Figure 1. Mule deer population trends over a 7-year period, including total count number trend (dashed Linear), determined by annual aerial survey counts conducted by the Navajo Nation Fish & Wildlife Department.

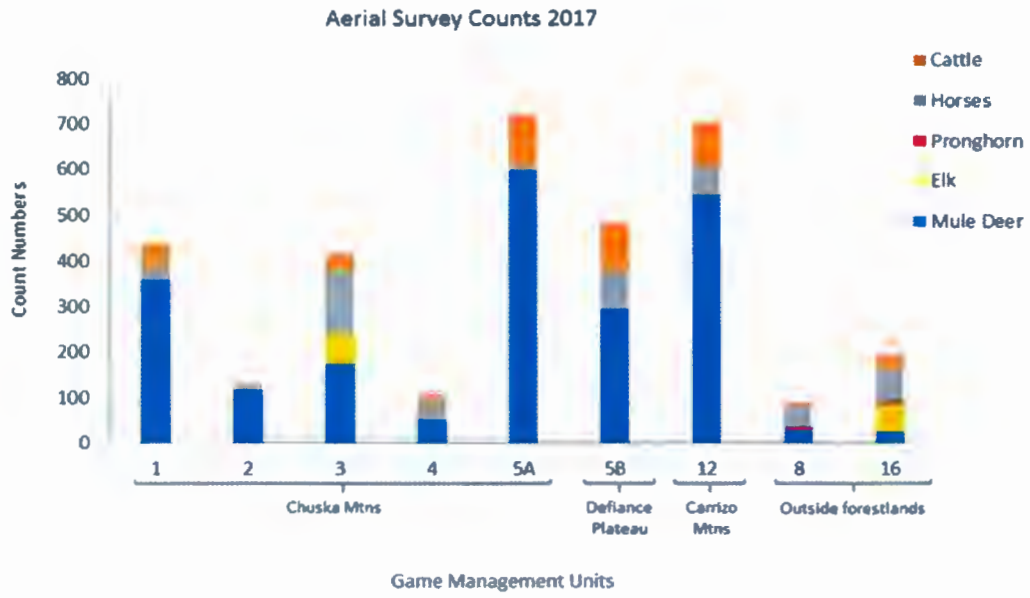


Figure 2. Count numbers for mule deer, elk, pronghorn, and feral and domestic horses and cows determined by the aerial survey count conducted by the Navajo Nation Fish & Wildlife Department in January, 2017.

Big Game Management

Big game species, which typically live at low densities and require large areas of land for territories and home ranges, are particularly sensitive to disease and human land-use changes that result in habitat fragmentation. The following are threats to big game species:

- Human-caused impacts: Several anthropogenic factors combined have resulted in the reduction of big game numbers and the fragmentation of their habitat. Urban development projects, including the construction of new homes and roads, result in the clearing of vegetation important for big game forage and concealment, in addition to the fragmentation of movement corridors and core use areas. Unregulated grazing of domestic livestock combined with large feral horse populations (see below), have significantly reduced the available forage for certain big game species, including Mule Deer. The constant reduction and degradation of habitat has significantly restricted big game movements and access to suitable habitat, in addition to increasing the risk of poaching and illegal harvest.

- Feral Horse Populations: In 2016, a survey conducted by Navajo Nation Dept. of Fish and Wildlife and Eagle Environment, Inc., estimated a total of 38,223 horses of all ages occurring on Navajo Nation. The estimated average density of 0.570 horses/km2 on Navajo lands was 30% higher than that estimated to occur on BLM lands in 2016. Horse densities on BLM lands are currently double what is recommend in the Appropriate Mgmt Level (AML); therefore, feral horse population growth on Navajo Nation is exceedingly high and has likely reached a tipping point. The survey concludes that "the physiology and behavior of horses make them less selective grazers than other ungulates and domestic livestock [...] As a result, feral horses graze rangeland more intensively than other

species, which can reduce forage available to native wildlife and domestic livestock, decrease vegetation amount and diversity, and impair water quality"[40]. Deer and elk habitat, including forage and permanent sources of water, has been severely impacted by the overpopulation of feral horses.

- Chronic Wasting Disease (CWD): Although the Department of Wildlife and Fisheries has never had a positive detection of CWD among harvested deer and elk, the disease could still be present within Navajo Nation boundaries and gone undetected. The threat of CWD spreading to Navajo cervids is highest in Game Management Units that border Colorado and Utah, areas that have known populations of CWD positive deer and elk. Detection of CWD in cervid populations is expensive, labor intensive, and requires very large numbers of samples from a representative population. Samples from the department's CWD surveillance program are limited to deer that are voluntarily brought in by hunters, and spatially restricted to only 3 deer check station periods among 5 locations within the Chuska/Carrizo Mtns and Defiance Plateau. Efforts are underway to expand the surveillance program, including additional periods of check stations during certain hunting seasons, and additional locations for the check stations, most importantly locations near the Utah and Colorado borders.

4.3 Policies, Programs and Regulatory Framework

Summary

Policies, programs and regulatory framework which dictate the protection, use and status of fish and wildlife on the Navajo Nation are extensive. This list is not exhaustive but gives a general overview of some of the most important regulations, policies and efforts which effect resource planners.

- Navajo Endangered Species List Resource Committee Resolution No. RCS-41-08 – Outlines how species are categorized into protection groups such as "endangered" or "threatened." See Appendix A for full listing.

- Permitting Process, hunting fishing - Navajo Nation Hunting, Trapping, Fishing and Boating Regulations (17 N.N.C. 512) – establishes the regulations for permitted lawful take of game within the jurisdiction of the Navajo Nation. Yearly proclamations for hunting and trapping define the permitting process guidelines with an application deadline date. Fishing and boating permitting process is open throughout the year.

- Navajo Nation Conservation and Wildlife Regulations (23 N.N.C) authorizes the Navajo Nation to regulate hunting, fish and forestry operations within tribal trust lands.

- Navajo Nation Fish and Wildlife Regulations (17 N.N.C. 21) authorizes the Navajo Nation Department of Fish and Wildlife to identify and protect endangered species identified by both the U.S. Fish and Wildlife Service and the Navajo Nation Council. Classifies terrestrial wildlife species as big game animals, waterfowl, small game animals fur-bearing animals, game birds, raptors, invasive species, and endangered species. These criminal and civil codes also established regulations on

[40] Wallace, Z. P., Stahlecker, D. W., Ruehmann, M, Nielson, R. M., and DiDonato, G. T. (2017) Survey of Free-Ranging Horses (Equus caballus) on the Navajo Nation. Final Report.

unlawful take of these species. This title includes additional species specific regulations such as the Golden and Bald Eagle Protection Regulations and Raptor Electrocution Prevention Regulations.

- Navajo Nation Biological Resource Land Use Clearance Policies and Procedures (RCS-44-08) - establishes land use policies for the Navajo Nation which detail permitted and permitted activities based on habitat suitability and use for Navajo Nation listed species. The purpose of the Navajo Nation Biological Resource Land Use Clearance Policies and Procedures is to assist the Navajo Nation government and chapters ensure compliance with federal and Navajo laws which protect, wildlife resources, including plants, and their habitat resulting in an expedited land use clearance process. The Navajo Nation Biological Resource Land Use Clearance Policies and Procedures assists in directing development to areas where impacts to wildlife and/or their habitat will be less significant. Development includes but is not limited to human activities that result in permanent structures, temporary, long-term, or repetitive disturbance to wildlife or habitat as defined by Navajo Nation Code 17 NNC 500 et. Seq.

- Navajo Nation Golden and Bald Eagle Nest Protection Regulations (RCS-42-08) establishes protection and avoidance measures in and around Golden and Bald Eagle nesting sites as enforced by the Navajo Nation Department of Fish and Wildlife.

- Migratory Bird Treaty Act (MBTA) (16 United States Code [USC] 703 et seq.) - The MBTA, originally passed in 1918, implements the U.S. commitment to four bilateral treaties [with Canada, Mexico, Japan, and Russia], or conventions, for the protection of a shared migratory bird resource (16 USC 703-712). The MBTA applies only to migratory bird species that are native to the U.S. or its territories. A native migratory bird is defined as one that is present as a result of natural biological or ecological processes. Excluded are species whose presence in the U.S. is solely the result of intentional or unintentional human-assisted introductions. The list of migratory bird species protected by the MBTA appears in 50 Code of Federal Regulations 10.13. The MBTA provides that it is unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg of any such bird, unless authorized under a permit issued by the Secretary of the Interior. Some regulatory exceptions apply. "Take" is defined in regulations as: "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt." Nongame species that are excluded from protection under the MBTA include the rock pigeon, Eurasian collared-dove, European starling, and house sparrow. For all other native migratory bird species, the MBTA includes, but is not limited to, the following protections:

    - A total of 1,007 species of migratory birds and their parts, including eggs, feathers, and nests, are protected. • Proof of intent to violate the MBTA is not required for prosecution.

    - The MBTA has no consultation process such as Section 7 consultation under the Endangered Species Act. The MBTA does not permit incidental or unintentional take, such as that provided by Sections 7 and 10 of the Endangered Species Act.

- Bald and Golden Eagle Protection Act (16 USC 668 et seq.) - The Bald and Golden Eagle Protection Act (16 USC 668-668c), enacted in 1940 and amended several times since enactment, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles,

including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment (USFWS 2016). Eagle breeding activities and nesting locations are afforded legal protection under the act.

- Executive Order 13186 (66 Federal Register 3853) - Executive Order 13186 directs federal agencies that take actions that either directly or indirectly effect on migratory birds to develop a Memorandum of Understanding (MOU), and to work with the USFWS, and other federal agencies to promote the conservation of migratory bird populations.

- BLM MOU WO-230-2010-04 - In accordance with Executive Order 13186, this MOU outlines a collaborative approach to promote the conservation of migratory bird populations. The MOU is intended to strengthen migratory bird conservation efforts by identifying and implementing strategies to promote conservation and reduce or eliminate adverse impacts on migratory birds through enhanced collaboration between the BLM and the USFWS, in coordination with State, tribal, and local governments. The MOU also identifies migratory bird conservation as a significant part of the BLM National Environmental Policy Act and planning process. Strategic planning for migratory bird conservation is a key element to the MOU implementations.

- U.S. Forest Service Agreement # 08-MU-1113- 2400-264 - In accordance with Executive Order 13186, this MOU outlines a collaborative approach between the U.S. Forest Service and USFWS to promote the conservation and reduce the take of migratory birds. The Executive Order directs agencies to take certain actions to further comply with the migratory bird conventions, the MBTA, the Bald and Golden Eagle Protection Act, and other pertinent statutes. The purpose of this MOU is to strengthen migratory bird conservation by identifying and implementing strategies that promote conservation and avoid or minimize adverse impacts on migratory birds through enhanced collaboration between the Parties, in coordination with State, Tribal, and local governments. This MOU identifies specific activities where cooperation between Parties will contribute to the conservation of migratory birds and their habitats. These activities are intended to complement and support existing, and facilitate new, collaborative migratory bird conservation partnerships and comprehensive planning efforts for migratory birds

- Avian Power Line Interaction Committee (APLIC) Guidance - APLIC was formed in 1989 to address whooping crane collisions with power lines. Since its inception, the organization has expanded to address a variety of avian/power line interactions including electrocutions, collisions, and nests. APLIC was originally comprised of 10 utilities, the Edison Electric Institute, the USFWS, and the National Audubon Society. The membership now includes over 50 utilities, the Edison Electric Institute, the USFWS, the Electric Power Research Institute, the National Rural Electrical Cooperative Association, and the Rural Utilities Service. APLIC has developed guidance documents

identifying causes and minimization methods for avian electrocutions and collisions and released national Avian Protection Plan Guidelines in conjunction with the USFWS in 2005 (APLIC 2016). APLIC also published Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 and Reducing Avian Collisions with Power Lines: The State of the Art in 2012.

- Navajo Nation Department of Fish and Wildlife Raptor Electrocution Prevention Regulations - It is the Navajo Nation Policy to have electrical power companies reduce the likelihood of electrocution of raptors on the Navajo Nation by enforcing raptor-safe power pole design standards for new power line constructions within Raptor Sensitive Areas to protect Golden Eagles, Bald Eagles and Ferruginous Hawks. These regulations apply to projects involving repairs or upgrades to existing power lines within Raptor Sensitive Areas, by requiring raptor-safe power pole designs when poles are replaced, and retrofitting of existing power poles on a case-by-case basis, with techniques to minimize the risk of raptor electrocution. The Department of Fish and Wildlife has identified Raptor Sensitive Areas for these regulations from its knowledge of raptor breeding areas and wintering concentrations. Breeding Area R.S.A.s are depicted as circular areas, centered on nests, that are equal to the average home range size for that species. Breeding Area R.S.A.s are depicted for Golden Eagles (Aquila chrysaeots), Bald Eagles (Haliaeetus leucocephalus) and Ferruginous Hawks (Buteo regalis) because these are native breeding species of the Navajo Nation, susceptible to electrocution, and are listed as "endangered" on the Navajo Endangered Species List. Wintering Concentration R.S.A.s are depicted by the outline of areas known to harbor aggregations of raptors during the winter.

4.4 Managing Agencies

Summary

4.4.1 NN Fish and Wildlife Department

NN Fish and Wildlife Department (NNDFW) is the official wildlife management agency for the Navajo lands, and is legally authorized by the Navajo Nation Council to manage fish, wildlife, and plant resources for the benefit of present and future generations of the Navajo Nation, established under Title 23 of the Navajo Nation Code.

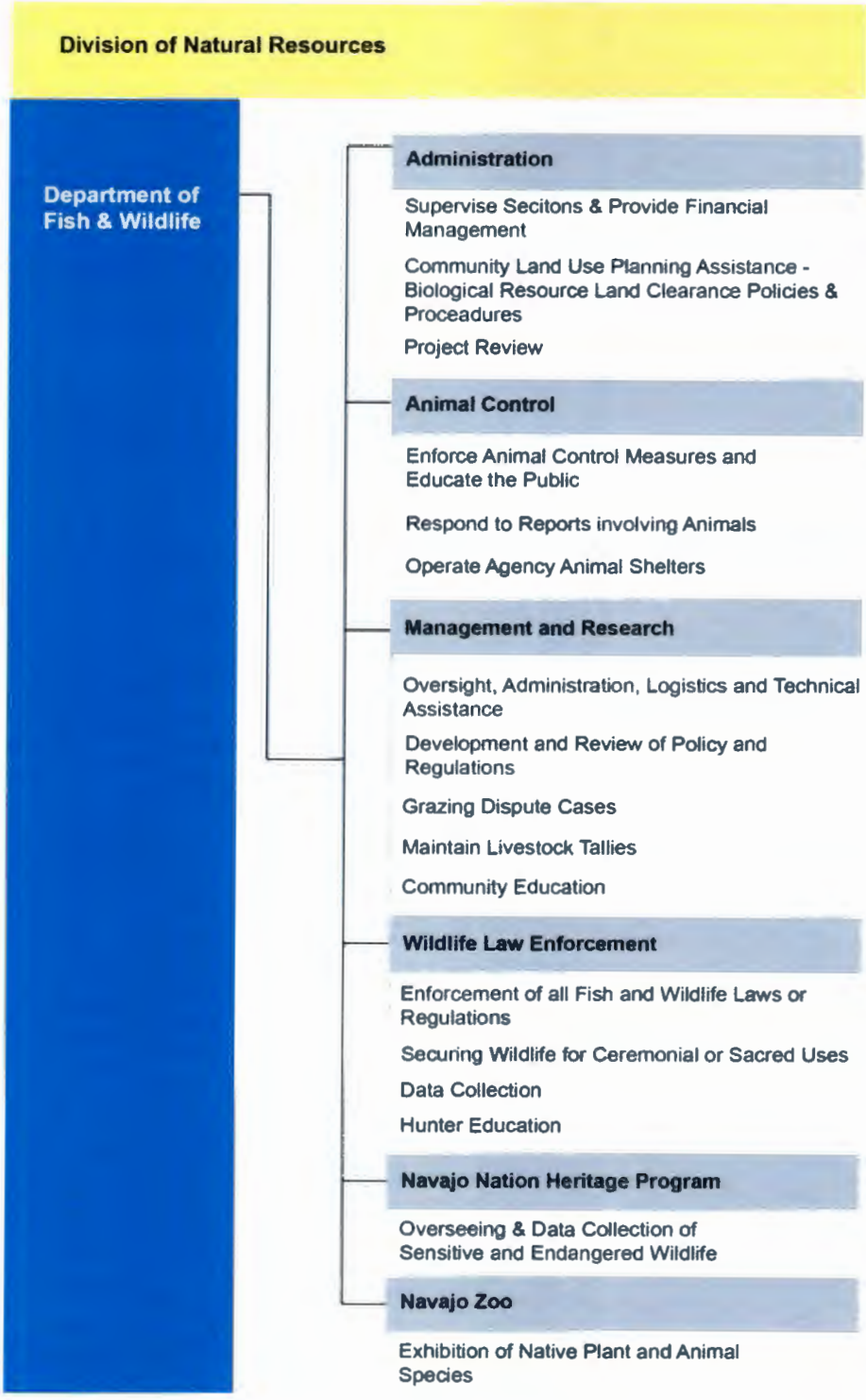
Mission Statement

"Conserve, protect, enhance, and restore the Navajo Nation's fish, wildlife and plants through aggressive management programs for the spiritual, cultural, and material benefit of present and future generations of the Navajo Nation."

Navajo Nation Department of Fish and Wildlife Organization

The Department is organized by Sections which are as varied in their scope of duties as the wide-range of species the agency manages. The six Sections are: Administration, Animal Control, Management and Research, Navajo Natural Heritage, Wildlife Law Enforcement, and the Navajo Nation Zoological and Botanical Park.

Navajo Nation Department of Fish and Wildlife



Agency Contact Information

- PO Box 1480, Window Rock, Az 86515
- Phone 928-871-6450

Navajo Natural Heritage Program - Navajo Fish and Wildlife - The Navajo Natural Heritage Program has tracked and monitored sensitive and endangered plants species on the Navajo Nation since the inception of the program in 1984. They collect data on plant demography on an annual basis within permanent monitoring plots for 9 species on the Navajo Endangered Species List. The Navajo Natural Heritage Program currently tracks and monitors 39 plant species on the endangered species list. They also track the status, condition, and record threats to populations of all species on the NESL within a NatureServe Biotics database.

4.4.2 Supporting Agencies

US Fish and Wildlife

Mission Statement - The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

Vision Statement/Goals - We will continue to be a leader and trusted partner in fish and wildlife conservation, known for our scientific excellence, stewardship of lands and natural resources, dedicated professionals, and commitment to public service.

- Priorities:
    - National Wildlife Refuge System: Conserving Our Lands and Resources
    - Landscape Conservation: Working with Others
    - Migratory Birds: Conservation and Management
    - Threatened and Endangered Species: Achieving Recovery and Preventing Extinction
    - Aquatic Species: National Fish Habitat Action Plan and Trust Species
    - Connecting People With Nature: Ensuring the Future of Conservation
- Conservation Principles
    - Stewardship: Our ethic is to conserve natural resources for future generations.
    - People: Our employees are our most valued asset.
    - Science: Our work is grounded in thorough, objective science.
    - Partnerships: We emphasize creative, innovative partnerships.
    - Professionalism: We hold ourselves to the highest ethical standards, strive for excellence and respect others.

- Legacy: We ensure the future of natural resource conservation by connecting people with nature.
- Service: It is our privilege to serve the American people.

Agency Organization - USFWS is divided into programs with various goals and objectives. The programs within the USFWS are as follows, underlined programs are of specific interest to Native American Tribes and include contact information[41]:

- Budget, Planning and Human Resources
- Business Management and Operations
- Public Affairs
- Congressional and Legislative Affairs
- Ecological Services
- Information Resources and Technology Management
- International Affairs
  - 5275 Leesburg Pike, Mail Stop: IA, Falls Church, VA 22041
  - Phone: (800)344-9453
  - CITES Permits: (800)358-2104
  - www.fws.gov/international
- Law Enforcement
- Migratory Bird Program
- National Conservation Training Center
- National Wildlife Refuge System
- Native American Liaison
  - 8510 NE 69th Street, Vancouver, WA 98683
  - Phone: (360) 604-2531
  - www.fws.gov/nativeamerican
- Marketing Communications
- Wildlife and Sport Fish Restoration

[41] https://www.fws.gov/info/pocketguide/program-information.html

NNEPA

Mission Statement - The Navajo Nation Environmental Protection Agency is committed to protecting Mother Earth and Father Sky and all living beings through environmental laws and regulations by honoring traditional Diné teachings and culture.

Vision Statement - Restoring harmony and a sustainable environment among all living things.

Agency Organization - The agency is organized into five departments; Navajo Nation Administration, Navajo Nation Air and Toxics Department, Navajo Nation Environmental Law Enforcement Department, Navajo Nation Surface and Ground Water Protection Department, Navajo Nation Waste Regulatory Compliance Department.

NNEPA Organizational Chart - appendix

Agency Contact Information

- http://navajonationepa.org/main/index.php?option=com_content&view=article&id=86&Itemid=143

New Mexico Fish and Wildlife Conservation Office (NMFWCO)

Arizona Fish and Wildlife Conservation Office (AZFWCO)

4.5 Current Management Plans

Summary -

Fisheries Management Plan– A guide for 2014-2018 for accomplishing the goals outlined for managing, maintaining, enhancing and conserving the fishery resources on the Navajo Nation. The purpose of the plan is, "To encourage long-term management and conservation of sport fish populations and their habitats on the Navajo Nation." Specifically, it sets guidelines for maintaining, enhancing, restoring, and managing the quality, abundance, availability, and diversity of recreational fishing opportunities. It also serves to provide information concerning the sport fish and recreational fishing opportunities provided by the Navajo Nation to present and future generations.

- Goals
    - Maintain, manage, and enhance the quality of sport fishing and sport fishing opportunities while contributing towards the recovery efforts of native fish species.
    - Enhance and diversify fishing opportunities on the Navajo Nation.
    - Enhance funding to support Tribal management activities for sport fish and their habitats.
    - Manage, protect, and enhance existing populations of native fish species with priority given to threatened and endangered species.
    - Restore degraded habitats of native fish species when economically feasible.

- Prevent, minimize, or mitigate negative impacts on native fishes from both nonnative invasive fish and nonnative sport fish.
- Annually evaluate status of native fish for possible listing, delisting, or down-listing on the Navajo Nation Endangered Species List.
- Improve communication with the public community (tribal & non-tribal) on nongame, threatened and endangered fish species and their habitats.
- Mitigate, prevent, or minimize threats to native fish species from various land uses.
- Enhance funding for projects and research designed to support management and conservation of native fish species and their habitats within the Navajo Nation.

- Objectives/Projects
  - Assess and manage various lakes and fisheries on an individual and specific basis.
  - Create additional fishing opportunities to increase recruitment of new anglers.
  - Provide information to the public about fishing opportunities, fisheries management, and regulation enforcement. Improve communication with the public community (tribal & non-tribal) on nongame, threatened and endangered fish species and their habitats.
  - Monitor known populations of native fish to determine distribution, relative abundance, and population dynamics of native fish. Monitor for declines in population.
  - Determine areas appropriate for restoration of degraded native fish habitat.
  - Minimize impacts to native fishes and habitats caused by the introduction of nonnative fishes.
  - Promote natural resource conservation and education in local schools.

Report and Workshop Summary - Provides a summary of the findings from the two strategic planning meetings within the NNDFW in 2011 aimed at identifying challenges and opportunities for wildlife management over the next 10 years on Navajo Lands. The report presents information about the current activities, conservation priorities, management challenges, and potential strategic management directions of the Navajo Nation Department of Fish and Wildlife. The report is intended to serve as a resource and guidance document for the Department in the planning process and development of a ten-year management plan. The document also aids as a planning tool for daily NNDFW operations to conserve the vital resources of the Navajo Nation.

- Goals:
  - To focus strategic planning efforts on a small suite of species with high management, cultural or ecological values, and a small number of important vegetation communities,

sites, or landscape features which have high biological, cultural, or ecological values. This accomplished the most conservation within a small resource budget.

- Conservation Priorities
- Identification of threats and Stressors
- Development of Conservation Actions
    - Monitoring and Evaluation to track progress

- Employ Adaptive Management Techniques - Adaptive management provides managers with a framework for adjusting their activities in response to actual changes in ecosystems.
    - Define the management problem by selecting a conservation target and identify goals and objectives for its management;
    - Identify actions that could achieve the stated management objectives;
    - Use a modeling exercise to predict the outcomes of these management actions, based on best available scientific data, and design a monitoring program to determine whether or not the management actions achieve the desired effect;
    - Implement the management activities and monitoring program; and
    - Review the results of the monitoring program and update management activities accordingly.

- Objectives/Priorities: Priorities in this document are for specific animal species, habitats, and plant species.
    - Animal Species - The following species were selected for their cultural significance, recreation value, revenue value, threatened and endangered status, and need for monitoring and additional information.
        - American Black Bear *(Ursus americanus)* - Black bear populations are lower than historical proportions, however populations have steadily rose over the last 20 years. The species are not a of conservation concern. Black bear is one of eight big game species hunted on the Navajo Nation. Priority status was given to this species due to a lack of information about it on the Navajo Nation, lack of a management strategy for problem bears within the reservation, and the bear's cultural significance.
        - Bobcat *(Lynx rufus)* - Bobcat are not a conservation concern. The species was listed as a priority due to lack of information about it, considerations of hunting limits and the economic value of its fur/pelt.

- Colorado River Cutthroat Trout *(Oncorhynchus clarkii pleuriticus)* - Colorado River Cutthroat Trout populations have declined; Roughly only 13 percent of the species historic range remains. Decline is due to overgrazing, roads, energy development, water depletion and diversion, disease, habitat fragmentation and population isolation, predation by and competition with non-native fishes, and hybridization with non-native trout. The last two factors, as well as changes in precipitation and temperature due to climate change, are considered chief threats to the species. Despite population declines and growing threats, the species is not listed under the U.S. Endangered Species Act. It is unclear if a population of Colorado River Cutthroat remain within the Navajo Nation. Studies are being conducted to determine species present. There is a chance that the subspecies Greenback Cutthroat are present which would be or extreme conservation significance.

- Coyote *(Canis latrans)* - Coyote are abundant, versatile and lack threats. The species are not of conservation concern. The coyote has immense cultural significance and is the most powerful animal to the Navajo people. Coyote are not managed or hunted on the Navajo Nation, with the exception of an annual Coyote Calling Contest. Some coyote cause damage by killing livestock.

- Desert Bighorn Sheep *(Ovis canadensis nelsoni)* - Desert Bighorn Sheep populations are about 10 percent of their "pre-settlement" population. The species is not listed as threatened or endangered under the Endangered Species Act but is a species of greatest conservation need in Arizona and is listed in group 3 (prospects of survival or recruitment are considered likely to be in jeopardy in the foreseeable future) of the Navajo Nation Endangered Species list. Threats include, parasites and diseases, loss or degradation of habitat, competition with domestic livestock, wild ungulates, and free-range animals, human disturbance, predation and poaching. The Navajo Nation instituted a bighorn sheep management plan in 1996 which increased population numbers. Bighorn sheep are listed as a game species on the Navajo Nation with a single permit issued to a tribal member once a year to harvest a sheep for ceremonial purposes. Bighorn Sheep are not found within the forestland areas.

- Golden Eagle *(Aquila chrysaetos)* - Population trends of golden eagle are not fully understood but face pressure from reduced prey, habitat loss, invasive species, climate change, and human activity and development. Golden eagle is not listed as a threatened or endangered species under the Endangered Species Act but has protections under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. US Fish and Wildlife Service lists it as a species of concern and is listed as a section 3 species under the Navajo Nation Endangered Species List. The Golden Eagle is the official bird of the Navajo Nation. Some harvesting of the eagle is permitted however poaching is a serious concern.

- Gunnison's Prairie Dog *(Cynomys gunnisoni)* - Gunnison's prairie dog habitat has declined by 95 percent. 49 percent of that remaining habitat occurs on tribal land in Arizona and New Mexico; a large amount of the potential habitat is on Navajo lands.

Threats to the prairie dog include, sylvatic plague, poisoning, urbanization, grazing, roads, oil and gas development, habitat fragmentation, recreational shooting, and pest management. The species has special conservation status in Arizona and Utah, the BLM lists it as a sensitive species, and is protected under the Endangered Species Act. On the Navajo Nation the species is both a pest, disrupting agricultural lands, and a key species to the ecology of desert ecosystems.

- Mountain Lion *(Puma concolor)* - Mountain lions are not a species of conservation concern. Navajo Nation DFW included this species as a priority due to a need for information including data for recreational hunting, and because mountain lion pelts and fat are used for ceremonial purposes.

- Mule Deer *(Odocoileus hemionus)* - Mule deer are abundant throughout their historic range. The population fluctuates in a "boom bust" cycle caused by the following: habitat loss and/or change, starvation, population age and sex structure, predation, disease, competition with livestock, wildlife species and free-range animals, poaching, hunting, drought, and severe winter weather. Mule deer are culturally significant to the Navajo people and have ceremonial uses throughout the year. As a game species they provide cultural, recreational, and economic benefits to the community. Although they are not currently considered a species of conservation concern, annual aerial survey counts (see the Fig. 1) conducted by the Navajo Nation Dept. of Fish & Wildlife show a steady decline in mule deer populations over the last 7 years, warranting further scientific investigation and potential changes to their conservation status.

- Merriam's Wild Turkey *(Meleagris gallopavo merriami)* - Merriam's Wild Turkey are not a species of conservation concern. On the Navajo Nation they are one of eight big game animals hunted. Culturally, turkeys have a place within Navajo religion and certain parts of the bird have cultural significance.

- Rocky Mountain Elk *(Cervus elaphus nelsoni)* - Elk are numerous and have a stable population. They are not a species of conservation concern. Threats to populations include habitat loss and fragmentation, human pressures and encroachment, habitat degradation, hunting, poaching, predation, and disease. Elk is an important game species which generates revenue for the tribe. Certain parts of the elk have ceremonial value to the Navajo People.

- Habitats - The following priority habitats were selected for their value for wildlife, cultural reasons, and because they are actively managed by the NNDFW. Many of these areas face cross jurisdictional hurdles and complications which have been highlighted.

  - Biological Preserves - Areas that contain excellent or potentially excellent wildlife habitat and are recommended by the Department for protection from most human-related activities, and in some cases are recommended for enhancement. Existing preserve areas include **Navajo Mountain**, Marble Canyon, and a few smaller areas.

The Department is currently working on a management plan for the Little Colorado Preserve. There are a few areas for which preserves have been recommended due to cultural significance. Biological preserves can shelter species of concern.

- Mountain Ponds and Springs - The Chuska and Carrizo Mountains are among the mountain ranges located within the Navajo Nation borders. The numerous ponds and springs found in these mountain ranges support a wide spectrum of wildlife. Stressors to these important systems include: climate change, grazing, habitat conversion, invasive species, recreational use, and increased infrastructure such as roads and pipelines. Mountain ponds and springs have cross-jurisdictional management within the Navajo Nation depending on their exact location.

- High Elevation/Mountain Grasslands and Meadows - High-elevation grasslands were once prime grazing lands, stressors such as overgrazing, altered fire regimes, and climate change have resulted in lower quality grazing areas and have encouraged encroachment of shrubs and conifers; browsing by wild horse populations add to grazing pressures. These areas are important to the Department for their use by various wildlife species. The Navajo Nation Department of Agriculture is responsible for reviewing and recommending policies and procedures for grazing on trust, ranch, and leased lands.

- Pinyon-Juniper Woodlands. Pinyon-Juniper woodlands are important habitat areas. These woodlands are important to the people of the Navajo Nation as a source of wood, for tree needles and ashes that are used in ceremonies, and for the gum found in the trees which has several traditional uses. Juniper has invaded areas that were once dominated primarily by grasses, while pinyon pine populations have declined in recent years due to drought and insect infestation, non-native species, fire suppression, and overgrazing also contribute to changes within this habitat type. Management of these woodlands is cross-jurisdictional, falling to various departments within the Division of Natural Resources, including the Forestry, Water, Agriculture, and Land offices.

- Lakes (fishing) - The NNDFW actively manages over a dozen fishing lakes throughout the Navajo Nation. Popular lakes include Wheatfields Lake and Tsaile Lake, both located in Apache County in Arizona; Chuska Lake and Whiskey Lake in McKinley County, New Mexico; as well as reservoirs including the Cutter Dam and Navajo Dam. Fishing lakes are valued for sport fish species, such as rainbow trout, catfish, bass, pike, and crappies. Wildlife such as bald eagles can also be found near fishing lakes. Some lakes are used for agricultural irrigation as well.

- Plant Species - The following species were selected for their cultural significance, habitat value, threatened and endangered status, and need for monitoring and additional information.

- Yucca - Numerous types of yucca are reported in the vicinity of Navajo Nation lands. Some livestock and wildlife utilize various yucca species as browse or cover. Yucca is used for soap by the Navajo, and the needles are used for paintbrushes and pottery. Various portions of the yucca plant have reportedly been used in the past by the Navajo for garments, bedding, jewelry, baskets and ceremonial purposes.

- Mesa Verde Cactus - Listed as threatened on the Navajo Endangered Species List, the Mesa Verde cactus occurs primarily (at least 70 percent of the population) on the Navajo Nation. In 2011, the U.S. Fish and Wildlife Service conducted a five-year review of the Mesa Verde cactus. Their report noted that there has been a 58% loss of individual cacti throughout its range since the early 2000s. Threats to the population's recovery, including habitat loss due to ORV use, energy development, urban development, overgrazing, illegal collection, genetic isolation and biological threats.

- Navajo Sage - Navajo sage is an ecologically dominant species in some areas and has ceremonial uses and medicinal properties. Many wildlife species utilize sagebrush habitat for food or for cover. Sagebrush habitat is impacted by a number of threats and stressors such as, increased number and acreage of fires, encroachment of pinyon-juniper woodlands at higher elevations, invasion of cheat-grass at lower elevations, habitat conversion to human uses such as agriculture and urban development, livestock grazing and movement, and energy development are among the major threats and stressors affecting this habitat system.

- Pinyon Pine - Various wildlife utilize pinyon pine for habitat. Drought is a major stressor on this tree and has led to die offs and exacerbated bark beetle infestations. Pinyon pines are important culturally as well as ecologically. pinyon pines are important as a food source to both humans and wildlife. Commercially, pine nuts have a U.S. market value of approximately $100 million annually.

- Salt Cedar - Tamarisk or Salt Cedar is an introduced species sometimes considered invasive or noxious. Its deep roots and high water usage outcompete other riparian plant species, particularly in dry areas. It is difficult to eradicate because of its rapid growth and its ability to spread by either seeds or cuttings. However, the shrub provides habitat and bank stabilization in ecosystems in the southwest.

Big Game Management Plan - Does not currently exist, but is a departmental goal.

Mexican Spotted Owl Management Plan – The management plan is based of principles outlined in the 1995 "Recovery Plan for the Mexican Spotted Owl" by the USDI Fish and Wildlife Service. On the Navajo Nation, the Mexican Spotted Owl is known to occupy habitat from the Chuska Mountains, Defiance Plateau, and Canyon de Chelly, north to the Carrizo Mountains; and its range extends from Black Mesa northwest through the extensive canyon systems to just north of Navajo Mountain. This species should be of special concern to the Study Areas.

4.6 Community Concerns

The following quote illustrates the general Navajo attitude and value of wildlife and natural resources:

"Wildlife and plants are an essential part of Navajo history and tradition, especially for Navajo elders and medicine people. Many native plants are used in Navajo ceremonies. There are mountains, natural springs, birds, wildlife and plants that are considered sacred by the Navajo people and require preservation:[42]"

Furthermore fish and wildlife are valued as recreational resources for hunting and fishing.

4.6.1 Concerns by forestland

Defiance Plateau

- Red Lake is a popular catfishing destination.
- In Sawmill chapter, the Northern portion of the chapter was being considered as a wildlife refuge at the time of the Community Land Use Plan.

Chuska Mountain

In the Chuska Mountain forestland community concerns surrounding wildlife are twofold, pest species and protection of native wildlife.

- The first concern is pest species, particularly prairie dogs and feral horses, which contribute to overgrazing and range degradation. Furthermore, the communities within the forestland believes pest species negatively impact wildlife communities.
- The second concern is protecting and enhancing existing wildlife communities and habitats. "Wildlife are culturally and traditionally important to the Navajo people, thus it is crucial to protect and preserve wildlife and their habitat.[43]" *"Growing up in the Chuska Mountains, I remember common sightings of brown bears, deer, eagles, falcons, blue jays, woodpeckers, and owls, and many other species, now you have to seek them out to find them. The deforestation likely eliminated or drastically reduced various species.[44]"* There is community interest in reinvigorating fisheries and fish hatcheries for recreation and sustenance.

Navajo Mountain - N/A

Mount Powell

- "The Chapter is actively pursuing protection of Mount Powell as a wildlife preserve. The area was set aside as a Special Management Unit by the Navajo Nation Forestry Department, but there has been little attention paid to the area and law enforcement has been ineffective. Problems such as poaching of wildlife, illegal woodcutting, and dumping trash are continuing problems. The area,

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[42] Sawmill Chapter Community Based Land Use Plan. By Atkins Benham. NAHASDA Land Use Planning Project Number 31-2000-1. (Page 3-5)

[43] Cover Chapter K'aabiishii Nasdl'ah Community-Based Land Use Plan. Cove, AZ. JJ Clacks & Company. Fort Wingate, NM and Navak Environmental, Inc. Tuscon, AZ. March 2002. (Page 24)

[44] Quote from community meetings conducted by Revolution Advisers - Tohatchi Chapter.

however, has maintained a relatively healthy forest of pinyon-juniper in the lower elevations and ponderosa pine forest in the higher elevations.[45]"

- In Mariano Lake Chapter is was reported that wildlife habitats tend to be small, limited in number and spaced out.

Carrizo Mountain

- Create hunting areas, preserve and enhance wildlife habitat

4.7 External Resource Department Concerns

- The Timber-Wildlife Coordination Manual is a very good example of integrated resource management between the Forestry Dept. and Fish & Wildlife Dept. The manual seeks to establish guidelines for timber-wildlife coordination and set minimum standards and general requirements for habitat management on the Navajo Nation Forest. The manual makes a clear case for forest ecosystem health as being mutually beneficial for both wildlife sustainability and timber production.[46]
    - Clearance Surveys - All timber sales should be evaluated for the presence of habitat for the sensitive and endangered plants species listed above and pre-timber sale surveys conducted when appropriate. These surveys can be conducted during the general wildlife inventory for timber sales, in coordination with a qualified botanist. For each new population found, a species report form should be completed and submitted to the NNHP botanist. This form includes data on the location, size, condition, landscape context, and potential threats to the population. This form can be found on the NNHP website (https://www.nndfw.org/nnhp/species_rpt_form.pdf). Plant vouchers of the new population should also be collected and submitted to the NNHP botanist for species identification and inclusion in the Navajo Nation Herbarium.
- Water Resources - "Drought is part of a natural cycle. The local flora and fauna are well equipped to endure drought. However, when drought is combined with overgrazing, the impacts to fish and wildlife are magnified and a large number of game animals starve. Streams and riparian areas are impacted by wildlife and livestock. As the drought intensifies, the lack of water drives livestock and wildlife to the few areas that still have water, further impacting the water supply and water quality. The wild and domestic animals congregate in these areas destroying the native flora. The Navajo Nation needs a pro-active approach to lessen these livestock impacts. The NDFW monitors game, non-game, threatened and endangered species. These species are surveyed every September. Based on the game survey hunting permits are allocated for the season. In 1996, due to the smaller

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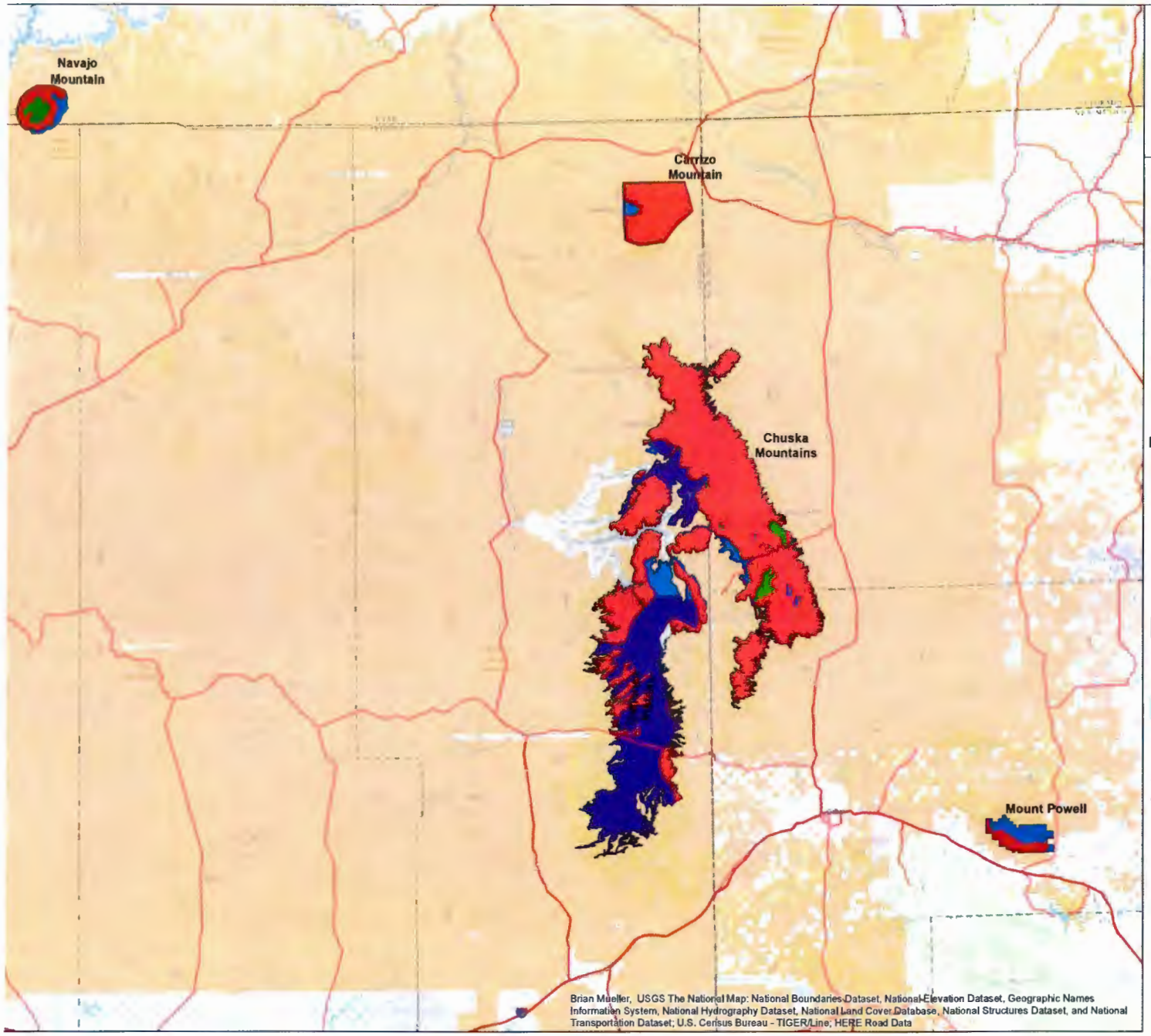
[45] Community Land Use Plan for the Smith Lake Chapter, Final Report. Prepared by, Architectural Research Consultants, Incorporated and Smith Lake Chapter Community Land Use Planning Committee.

July 2005. (Page d-16)

[46] Timber-Wildlife Coordination Manual., Winslow, Rick., NNDFW.

numbers of game animals, approximately 15 percent fewer hunting permits were issued (Personal Communication, Jeffrey Cole, Wildlife Manager, NDFW, July 2001)."[47]

[47] Navajo Nation Drought Contingency Plan, 2003. NN Dept. of Water Resources.



Map 4.0 - Forest Study Area

Wildlife Management Areas

NAVAJO FORESTLAND IRMP

LEGEND

Wildlife Management Areas (Entire Forest Study Area)

- Recreational Area - 3,171 acres
- Moderate Sensitvity - 188,112 acres
- Low Sensitivity - 40,945 acres
- Community Development - 2,263 acres
- Biological Preserve - 13,310 acres
- High Sensitivity - 458,081 acres

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

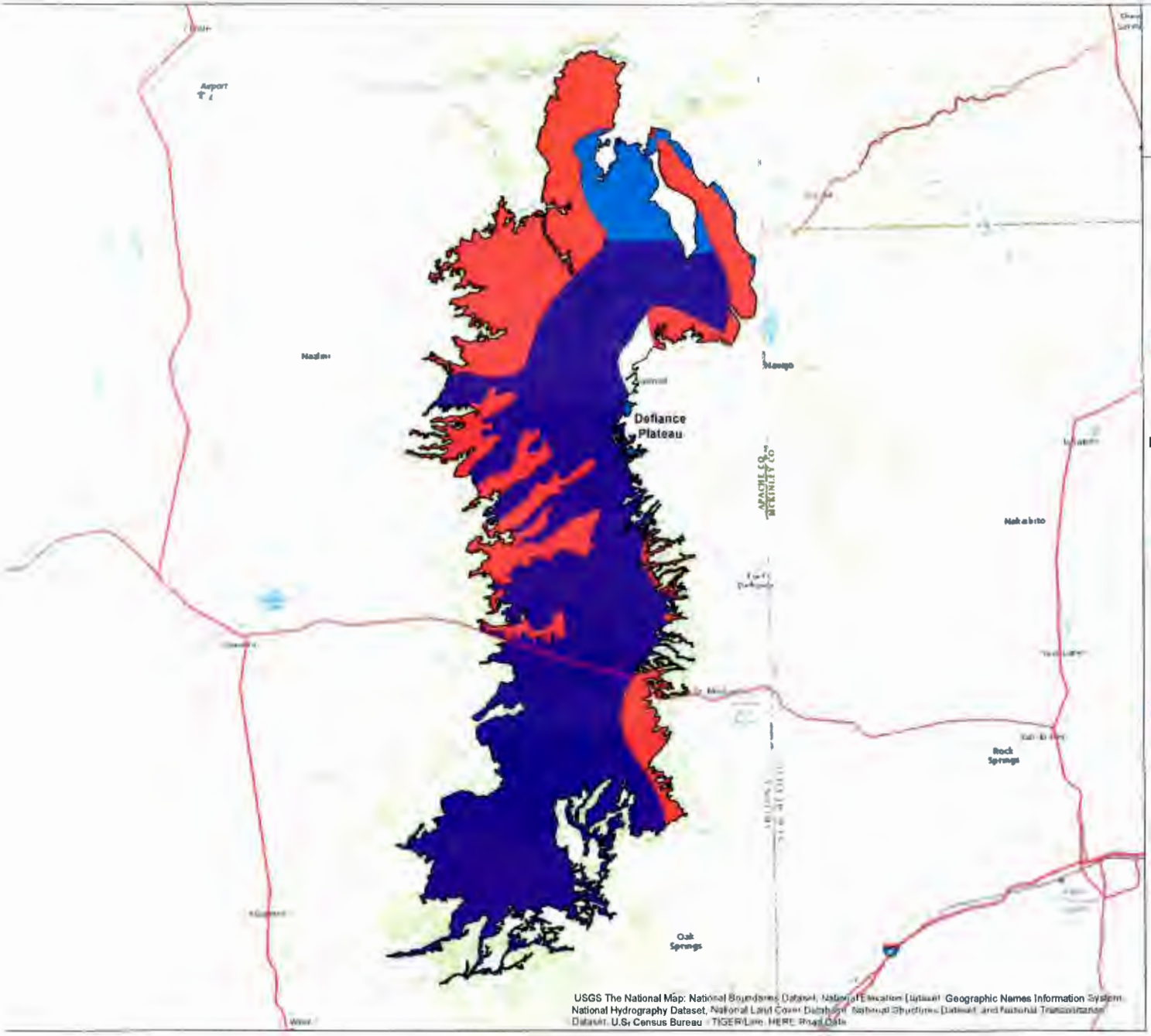
General Reference

- Forest Study Area Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- Stream/River
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Department of Fish and Wildlife

0 5 10 20 30 40 Miles



Map 4.1 - Defiance Plateau

Wildlife Management Areas

NAVAJO FORESTLAND IRMP

LEGEND

Wildlife Management Areas (Defiance Plateau)

- Low Sensitivity - 14,749 acres
- Moderate Sensitivity - 160,572 acres
- High Sensitivity - 160,572 acres

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

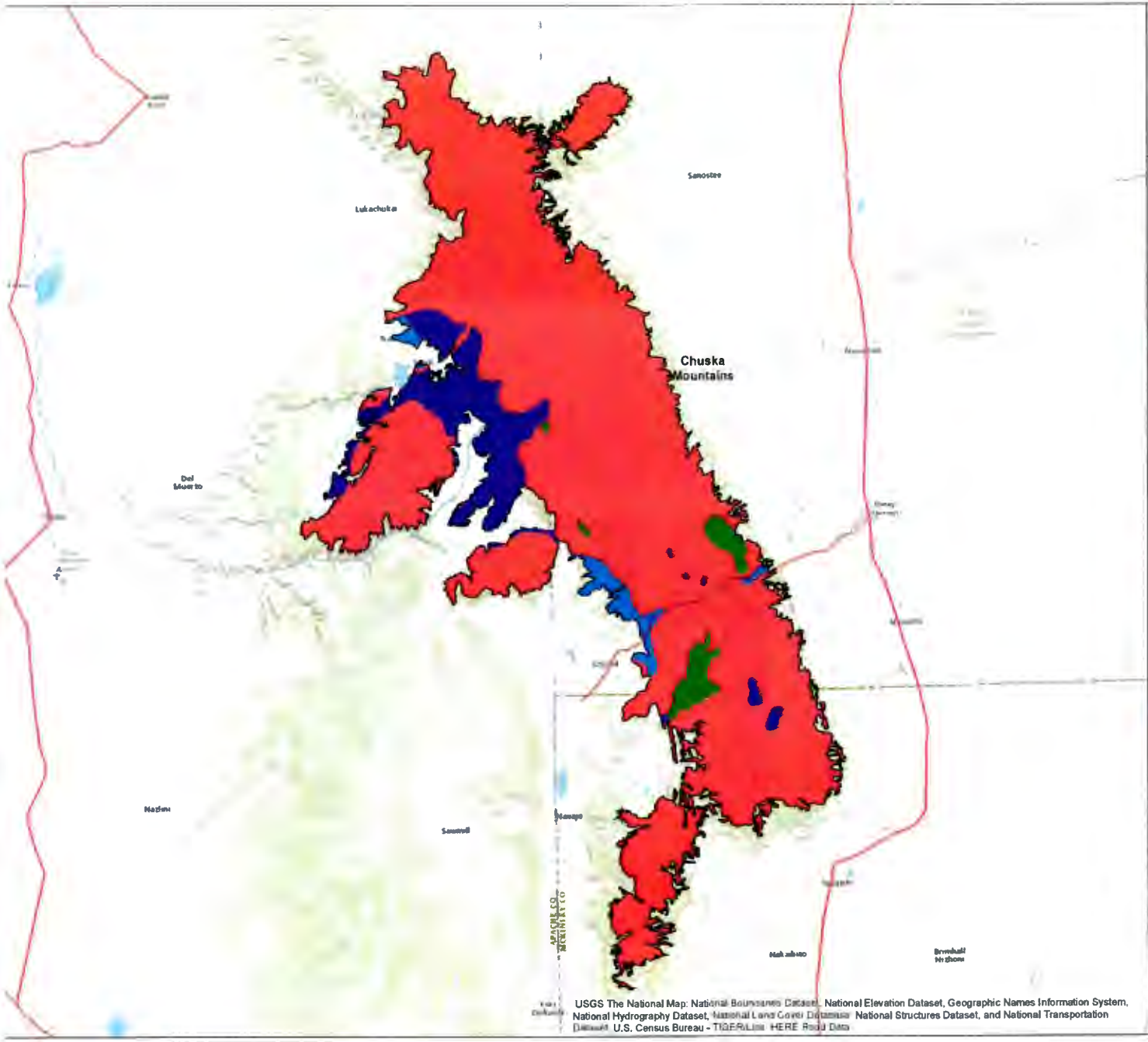
- Forest Study Area Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- Stream/River
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Department of Fish and Wildlife

0 1.75 3.5 7 10.5 14 Miles

N W E S



Map 4.2 - Chuska Mountains

Wildlife Management Areas

NAVAJO FORESTLAND IRMP

LEGEND

Wildlife Management Areas (Chuska Mountains)

- Recreational Area - 3,171 acres
- Moderate Sensitvity - 27,541 acres
- Low Sensitivity - 6,667 acres
- Community Development - N/A
- Biological Preserve - 7,242 acres
- High Sensitivity - 303,256 acres

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

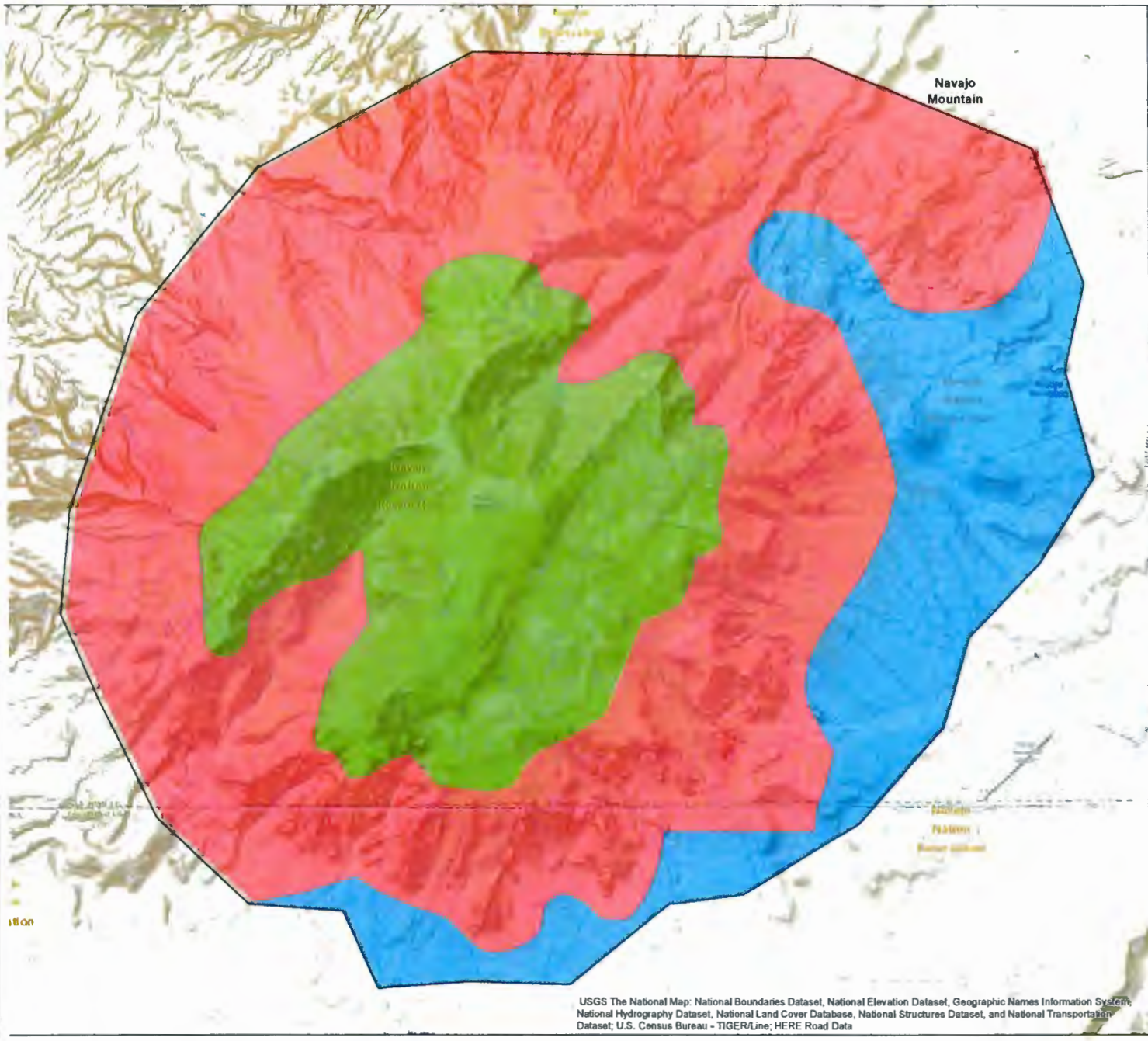
- Forest Study Area Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- Stream/River
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Department of Fish and Wildlife

0 2 4 8 12 16 Miles

N W E S



Map 4.3 - Navajo Mountain

Wildlife Management Areas

NAVAJO FORESTLAND IRMP

LEGEND

Wildlife Management Areas (Navajo Mountain)

- Biological Preserve - 6,065 acres
- High Sensitivity - 15,271 acres
- Low Sensitivity - 4,497 acres

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

- Forest Study Area Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- Stream/River
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Department of Fish and Wildlife

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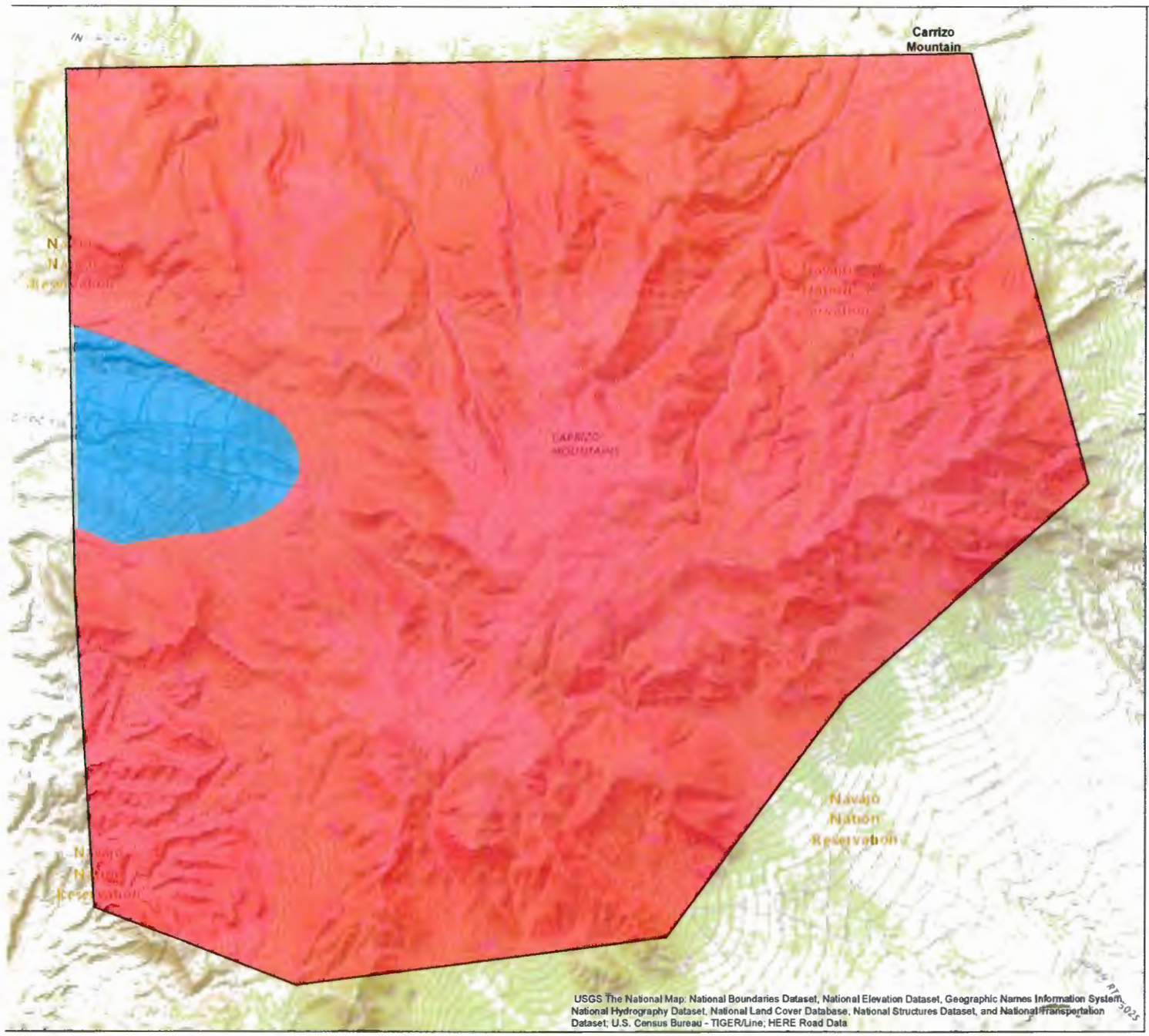


Map 4.4 - Carrizo Mountain

Wildlife Management Areas

NAVAJO FORESTLAND IRMP

LEGEND

Wildlife Management Areas (Carrizo Mountain)

- Low Sensitivity - 2,271 acres
- High Sensitivity - 48,060 acres

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

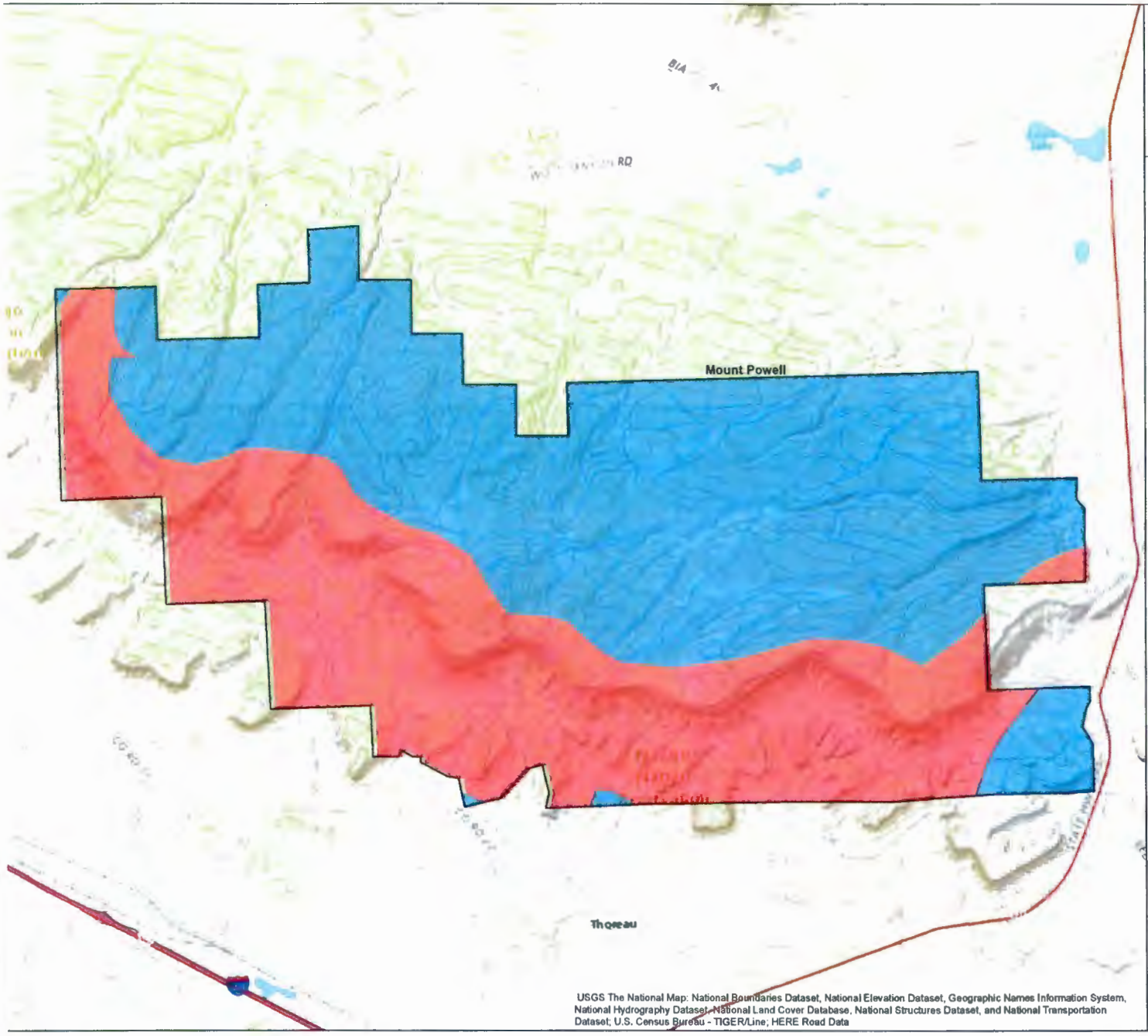
- Forest Study Area Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- Stream/River
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Department of Fish and Wildlife

0 0.35 0.7 1.4 2.1 2.8 Miles

N W E S



Map 4.5 - Mount Powell

Wildlife Management Areas

NAVAJO FORESTLAND IRMP

LEGEND

Wildlife Management Areas (Mount Powell)

- Low Sensitivity - 12,560 acres
- High Sensitivity - 9,507 acres

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

- Forest Study Area Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- Stream/River
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Department of Fish and Wildlife

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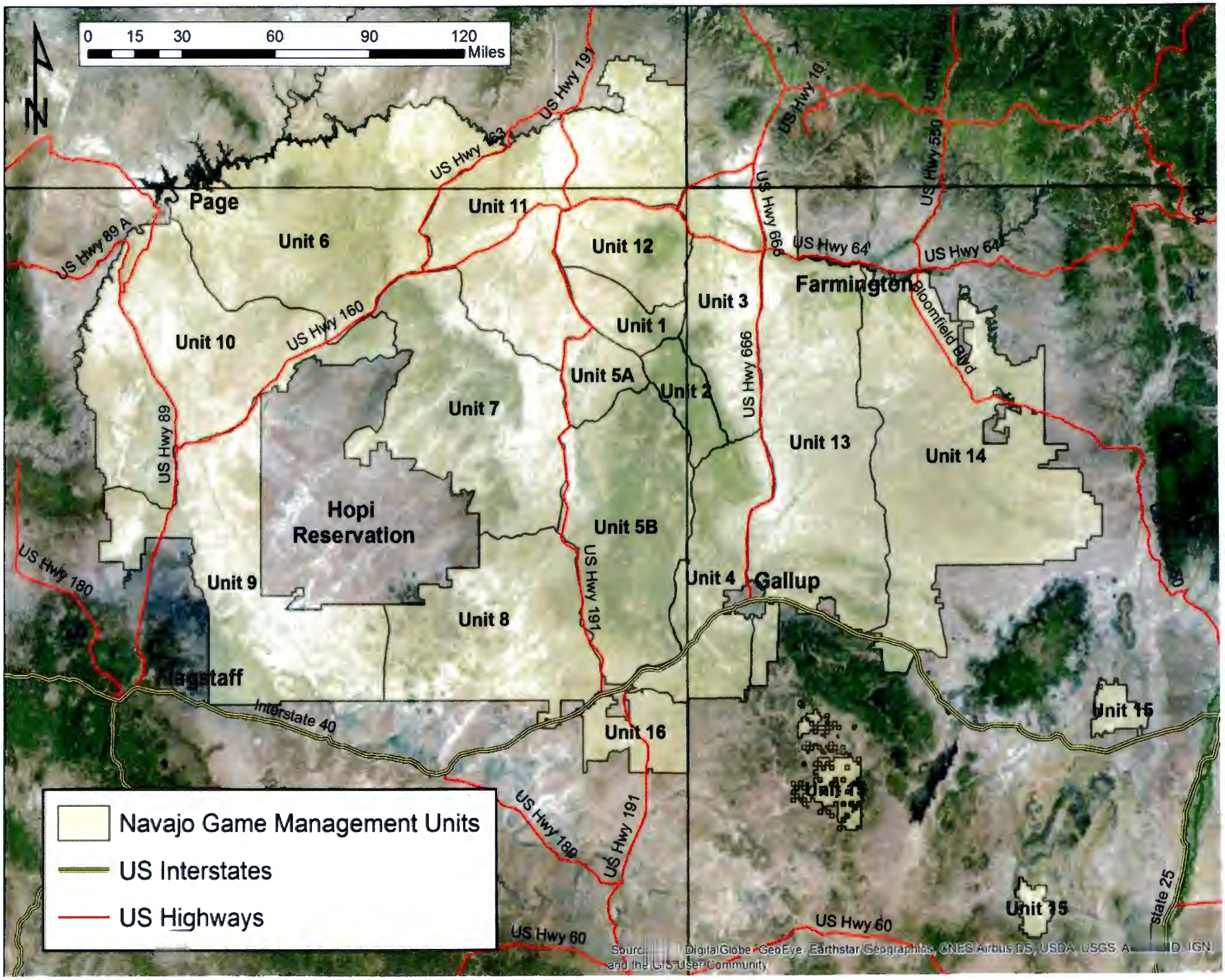
0 15 30 60 90 120 Miles
N
Page
Unit 6
Unit 11
Unit 12
Unit 10
Unit 1
Unit 3
Unit 5A
Unit 2
Unit 7
Unit 13
Unit 14
Hopi Reservation
Unit 5B
Unit 9
Unit 4
Gallup
Unit 8
Flagstaff
Unit 16
Unit 15
Unit 15
Farmington
US Hwy 89 A
US Hwy 160
US Hwy 89
US Hwy 180
US Hwy 191
US Hwy 163
US Hwy 666
US Hwy 64
US Hwy 550
US Hwy 16
Bloomfield Blvd
Interstate 40
US Hwy 189
US Hwy 60
State 25
Navajo Game Management Units
US Interstates
US Highways
Source: DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

5. Forestland & Forest Resources

5.1 Resource Description

Navajo forestland" means lands, including commercial and non-commercial timberland and woodland, that are considered chiefly valuable for the production of forest products or to maintain watershed or other land values enhanced by a forest cover, regardless whether a formal inspection and land classification action has been taken. Generally, this includes land that has at least 10 percent crown cover by live tally trees of any size or has had at least 10 percent canopy cover of live tally species in the past, based on the presence of stumps, snags, or other evidence. To qualify, the area must be at least 1.0 acre in size and 120.0 feet wide. Forestland includes transition zones, such as areas between forest and non-forest lands that meet the minimal tree stocking/cover and forest areas adjacent to urban and built—up lands. Roadside, streamside, and shelterbelt strips of trees must have a width of at least 120 feet and continuous length of at least 363 feet to qualify as forest land. Unimproved roads and trails, streams, and clearings in forest areas are classified as forest if they are less than 120 feet wide or less than an acre in size. Tree-covered areas in agricultural production settings, such as fruit orchards, or tree—covered areas in urban settings such as city parks, are not considered forest land.[48]

"Forest resource" means all the benefits derived from Navajo forestlands, including forest products, soil productivity, water, fisheries, wildlife, recreation, and aesthetic or other traditional values of Navajo forestlands. "Forest products" include:

(A) timber,

(B) a timber product, including lumber, lath, crating, ties, bolts, logs, pulpwood, fuelwood, posts, poles and split products,

(C) bark,

(D) Christmas trees, stays, branches, firewood, berries, mosses, pinyon nuts, roots, acorns, syrups, wild rice, and herbs,

(E) other marketable material, and

(F) gravel which is extracted from, and utilized on, Navajo forest lands.

Forest types within the Navajo Forest include Mixed Conifer, Ponderosa Pine, and Pinyon-Juniper. Subtypes are shown in table 3 below. Each structural type is globally recognized for the life form of its visually dominant plants[49]. Forest management activities include, but are not limited to: The harvesting of forest products,

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[48] https://www.nrs.fs.fed.us/fia/data-tools/state-reports/glossary/default.asp

[49] FBFA Integrated Resource Management Plan. Bureau of Indian Affairs, Navajo Region and The Navajo Nation. October 2016. (Page 37)

forestation, timber stand improvement (thinning), forest protection (fire prevention and suppression, disease and insect control, enforcement against trespass) and other forestry practices. Navajo Nation forestlands provide a multitude of forest resources which include, but are not limited to: forest products, clean air and water, wildlife habitat, range land, recreation, aesthetics, and traditional values.

Table 3 - Forest Types, Stand Types and Sub-Types of the Navajo Forest

MIXED CONIFER FOREST TYPE	
Douglas-fir–Ponderosa Pine–Aspen Stand Type	**DF-PP-A**
Spruce-Fir Sub-Type	*S-F*
Aspen Clone Sub-Type	*A*
PONDEROSA PINE FOREST TYPE	
Ponderosa Pine/Ponderosa Pine Stand Type	**PP/PP**
Ponderosa Pine–Aspen Sub-Type	*PP-A*
Ponderosa Pine/Ponderosa Pine–Gambel Oak Stand Type	**PP/PP-GO**
Gambel Oak Grove Sub-Type	*GO*
Ponderosa Pine/Ponderosa Pine–Pinyon–Juniper–Gambel Oak Stand Type	**PP/PP-PJ-GO**
Ponderosa Pine/Ponderosa Pine-Pinyon-Juniper Stand Type	**PP/PP-PJ**
PINYON-JUNIPER FOREST TYPE	
Ponderosa Pine/Pinyon-Juniper Stand Type	**PP/PJ**
Pinyon-Juniper Sub-Type	*PJ*

Note: The symbols to the right are abbreviations. A slash (/) indicates a separation of the overstory and understory species composition of the stand. A dash (-) indicates species cohabiting throughout the stand profile.

5.1.1 Data

Available Type of Data/Resource Inventory Method

- Tree/Forest types densities
  - Ponderosa Pine Forests
  - Pinyon-Juniper Woodlands
  - Mixed-conifer Forests
- Navajo Nation Available Harvest Timber volumes from 2005-2015 is equal to 158.7 Million Board Feet of Commercial Timber that was not harvested or advertised for sale during the 10 year planning period. There is an allowable annual cut of approximately 15.9 Million Board Feet, available to harvest every year, which is in accordance with principles of sustained yield.
- Treatable Forestland Acreage - For the 10 year planning period, there is 114,024 acres that were identified to be treated. On average there is about 11,402 acres identified to be treated every year.

A total of 388,626 acres are identified as treatable, however the preferred alternative only identifies 253,754 acres of commercial timberland as treatable after removing Special Management Areas.

5.1.2 Forest Type and Percentage by Forestland

Due to their proximity and history of joint management, the data for Defiance Plateau and the Chuska Mountains is presented together.

- Defiance Plateau/Chuska Mountains
  - 10% Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland
  - 80% Southern Rocky Mountain Ponderosa Pine Woodland
- Navajo Mountain
  - 70% Colorado Plateau Pinyon-Juniper Woodland
  - 10% Colorado Plateau Mixed Bedrock Table Canyon
  - 10% Rocky Mountain Cliff, Mosaic Bedrock
- Mt. Powell
  - 50% Southern Rocky Mountain Ponderosa Pine Woodland
  - 50% Colorado Plateau Pinyon-Juniper Woodland
- Carrizo Mountains
  - 50% Colorado Plateau Pinyon-Juniper Woodland
  - 5% Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer/Woodland/Forest
  - 10% Rocky Mountain Gambel Oak
  - 15% Inter-Mountain Basins Big Sagebrush Shrubland
  - 5% Rocky Mountain Lower Montane Riparian Woodland/Shrubland

5.2 Context

For centuries, the Navajo people have valued the forest as being the provider for the necessities of life.

History of Forestry and Timber Extraction

"The Navajo Nation established the Navajo Forest Products Enterprises (NFPI) in 1958 to secure the maximum utilization of forest products, the highest financial returns on its investment, and the greatest possible employment for the Navajo people." A sawmill was established at the Navajo Townsite in 1962 designed to harvest large-sized (at least 16 inches dbh) yellow ponderosa pine. For the most part, NFPI operated at a profit, employed hundreds of Navajo in its mill and logging operations, and returned millions of dollars in income to the Navajo Nation.

"Between 1983 and the early 1990s, timber sales proceeded according [to] the schedule of the 1983-1993 Forest Management Plan. Different figures show the Timber Sales Program harvested an average of 34 to 41 million board feet per year, exceeding the annual growth rate of 27.2 million board feet per year from 7 million to 13.8 million board feet per year, depending on the set of harvest figures used."[50] Over the years, the mill faced an increasing number of operating problems. The large-sized yellow pine disappeared and the [establishment of] young forest encountered regeneration problems largely because of acute overgrazing in the forest[51].

Sawmill Closure

The purpose of the National Indian Forest Resources Management Act (NIRFMA) of 1990 was (1) allow the Secretary of the Interior to take part in the management of Indian forest lands, with the participation of the lands' beneficial owners, in a manner consistent with the Secretary's trust responsibility and with the objectives of the beneficial owners; (2) clarify the authority of the Secretary to make deductions from the proceeds of sale of Indian forest products, assure the use of such deductions on the reservation from which they are derived solely for use in forest land management activities, and assure that no other deductions shall be collected; (3) increase the number of professional Indian foresters and related staff in forestry programs on Indian forest land; and (4) provide for the authorization of necessary appropriations to carry out this chapter for the protection, conservation, utilization, management, and enhancement of Indian forest lands. [An] Intertribal Timber Council-sponsored report stated: "An Assessment of Indian Forests and Forest Management suggested that Indian forests be managed differently than other forests, given the importance Indians attached to natural and cultural values and the interrelationship between the two."[52] "The Forestry Program was transformed from one primarily concerned with timber harvesting for the purpose of supplying the Navajo Forest Products Enterprise (NFPI) with timber for generating tribal income and employment to one based more on an integrated form of forest management with timber harvesting being only one of several Navajo natural resource programs and only one of several forestry values to be considered in the planning process.

In the early 1990's, increasing concerns from environmentalists and Navajo Natural Resource Division departments, including the Navajo Fish and Wildlife and Historic Preservation, regarding timber harvest plans within the 1983-1992 Forest Management Plan, were compounded by the impacts of grazing and construction of new home sites in the forest resulted in the withdrawal harvesting operations in environmentally and culturally sensitive areas. This led to an overall decrease in the flow of timber to the NFPI mill which was closed in 1993.

A new Ten-Year Forest Management Plan and Environmental Impact Statement were not completed before the expiration of the 1983-1992 plan, despite two one-year extensions, and a lawsuit brought against the BIA Branch of Forestry for its failure to fully comply with Section 7 of the Endangered Species Act in consultation with the U.S. Fish and Wildlife Service for protection of the endangered Mexican spotted owl. This failure resulted in a federal court order to suspend all forestry-related operations on the Navajo commercial forest in 1995."[53]

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[50] History of the Navajo Forest 1983-1999. Prepared by 'Past & Present', Missoula MT., 2001.

[51] History of the Navajo Forest 1983-1999. Prepared by 'Past & Present', Missoula MT., 2001.

[52] History of the Navajo Forest 1983-1999. Prepared by 'Past & Present', Missoula MT., 2001.

[53] History of the Navajo Forest 1983-1999. Prepared by 'Past & Present', Missoula MT., 2001.

Reforestation Efforts

"From 1981 through the fall of 1994, the Reforestation and Disease Control program planted 5,610 acres of ponderosa pine seedlings, significantly reducing planting backlogs. The Reforestation and Disease Control Program signed contracts in the 1990s with on-reservation mining companies for reclaiming mine sites with native plants produced at the nursery. Insect and disease-caused forest damage has been endemic and at normal levels, although it has caused damage and mortality to the forest. Insects and diseases of concern on the reservation include red rot, the mountain pine beetle, the Douglas-fir beetle, the Arizona five-pined *ips*, the fir engraver beetle, and the needle miner."

Cultural Practices and Forestry Resources

The Navajo Nation, in collaboration with the Navajo Fish and Wildlife Department, developed a list of culturally important plant species to both the Department and the Navajo Nation as a whole. These species are ecologically and/or culturally significant due to their value or because of their impact and are as follows; yucca, Mesa Verde cactus, Navajo sage, piñon pine, and salt cedar.[54]

Gathering is practiced for sacred and utilitarian purposes. Plant/herb (ch'il/azee') gathering areas are important for several reasons. Ceremonial or medicinal plants grow within specific areas which need protection from disturbance. Plants are used in various ceremonies in the form of an emetic (iiłkóóh) to heal a patient from an ailment. Some plants are used as offering paraphernalia (k'eet'áán) and others as hoops (tsibąąs). Various parts of some plants are used as tools. Wool dyes and weaving tools are created from various plants.[55]

5.2.1 Key Forestland and Forest Resource Challenges

- Illegal Harvest of Forest Resources
- Fire Suppression and Management
- Invasive Species
- Gaps in Communication between Departments involved in Management of Forest Resources
- Disease
- Conservation for cultural purposes and ecological health
- Moratorium on House Building in Forestlands

5.3 Policies, Programs and Regulatory Framework

Summary:

- NN Ten-Year Forest Management Plan (RCJY-133-01)
- P.L. 93-638 Forest Mgmt. Contract (NABID-96-12)

[54] FBFA Integrated Resource Management Plan. Bureau of Indian Affairs, Navajo Region and The Navajo Nation. October 2016. (Page 39)

[55] FBFA Integrated Resource Management Plan. Bureau of Indian Affairs, Navajo Region and The Navajo Nation. October 2016. (Page 64)

- Navajo Forestry Department's Plan of Operation (GSCS-80-99)
- Navajo Nation Forest and Woodland Regulations (RCMA-48-01)
- Regulation of Forest Use (23 NNC 2701-2705)
- Forest and Woodland Violations (17 NNC 520-529)
    - T17-523, Fire violation
    - T17-525, No permit violation / forest products
    - T17-527, Unauthorized use of a motor vehicle
    - T17-528, Special Closure of Use Restrictions
- Fire Prevention - General (17 NNC 2701-2705)
    - T17-2733, Manufacture, possession, sale or use of fireworks
- National Indian Forest Resource Mgmt. Act (P.L. 101-630)
- General Forest Regulations (25 CFR 163)
- BIA manuals on forest management (53 IAM)
- Endangered Species Act (16 U.S.C. 1531-1544)
- National Historic Preservation Act (P.L. 89-655)
- Clean Water Act (33 U.S.C. 1251)
- National Environmental Policy Act (P.L. 91-190)
- Permit Requirements: To harvest or transport any forest/woodland product, within the jurisdiction of the Navajo Nation a valid permit must be in one's possession at all times. Permits cover the harvesting and transportation of forest/woodland products. Multiple permitting offices exist across the Navajo Nation and are listed on the NFD's website.

5.3.1 National Core Best Management Practices (for Forest Areas)

This describes the Forest Service National Core Best Management Practices (BMPs). The National Core BMPs are intended for use on National Forest System (NFS) lands as part of the Forest Service strategy for water quality management. The National Core BMPs are grouped into the following resource categories:

- General Planning Activities
- Aquatic Ecosystems Management Activities
- Chemical Use Management Activities
- Facilities and Non-Recreation Special Uses Management Activities
- Wildland Fire Management Activities

- Minerals Management Activities
- Rangeland Management Activities
- Recreation Management Activities
- Road Management Activities
- Mechanical Vegetation Management Activities
- Water Uses Management Activities

5.4 Managing Agencies

5.4.1 Navajo Nation Forestry Department

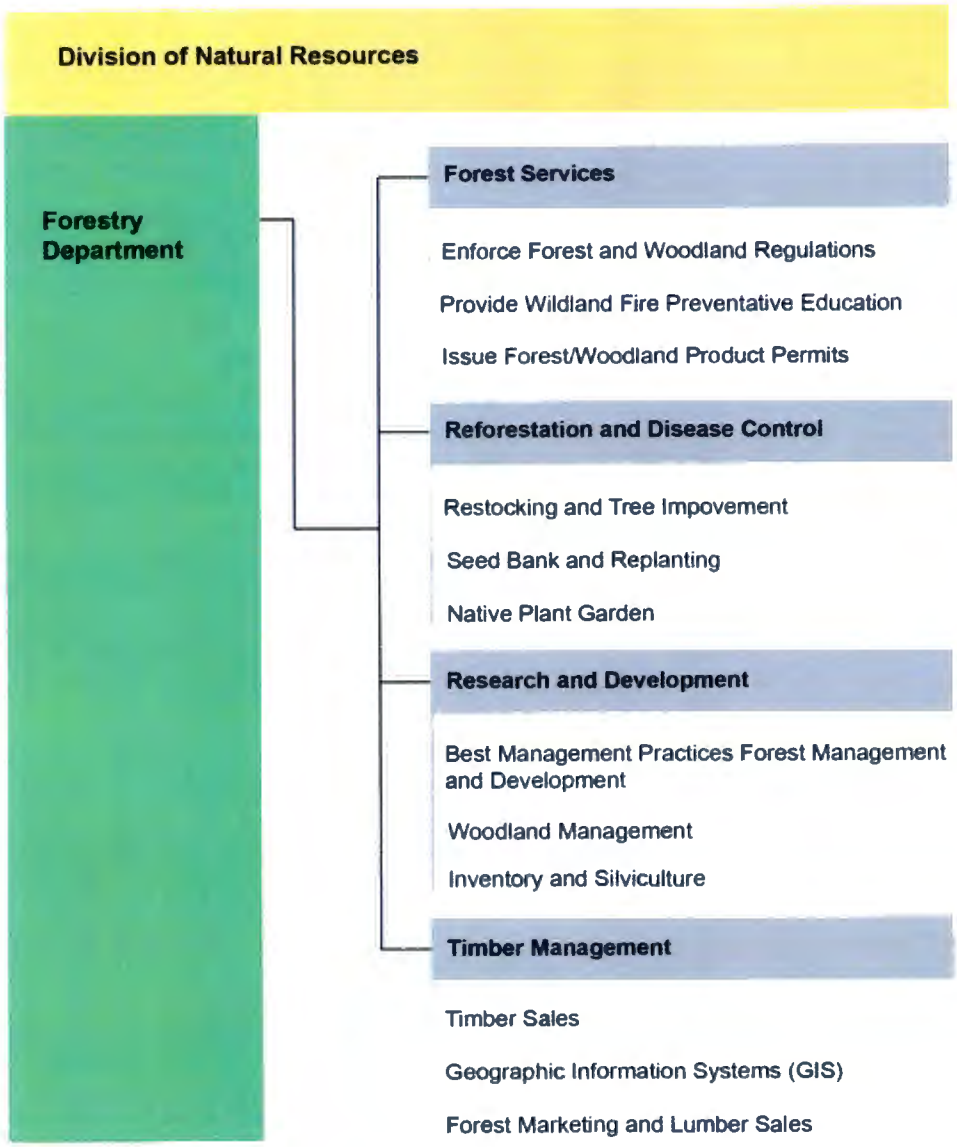
The Navajo Nation Forestry Department was established by the Commissioner of Indian Affairs in 1971. The Navajo Forestry Department manages 596,728 acres of commercial forest and 4,818,815 acres of woodlands. These lands not only provide forest/woodland products, but they provide wildlife habitat, forage for grazing, recreational opportunities, and water resources. These renewable natural resources are very important to the Navajo people, so the forest and woodland resources need to be managed properly. Using established best management practices with available funding, the Navajo Forestry Department manages these important resources for the Navajo people

Mission Statement: The Navajo Nation manages, protects, conserves, and enhances forestlands for the people, using an interdisciplinary and integrated approach for all resources.

Vision Statement/Goals:

- Manage Navajo Nation forestlands for multiple resource benefits.
- Incorporate Navajo cultural sensitivity and values in planning and management activities on the Navajo Nation forestlands.
- Enhance the resiliency of the Navajo Nation forestlands to disturbance processes and changing environmental conditions
- Create jobs and economic development opportunities.
- Provide education and outreach on responsible resource management.
- Improve compliance with applicable laws and regulations that pertain to forestlands.
- To incorporate the natural fire regime back into the forestland ecosystem.

Navajo Nation Forestry Department



Department Contact Information

- Fort Defiance, AZ. (928) 729-4007

5.4.2 Supporting Agencies

Bureau of Indian Affairs, Division of Forestry and Wildland Fire Management - In partnership with the NFD, the BIA assists the Navajo Forestry Department to manage the Navajo Nations forestlands for the betterment of current and future generations.

Mission Statement - The Division of Forestry and Wildland Fire Management (DFWFM) oversees the National Indian Forestry and Wildland Fire Management Program, which is a cooperative effort of the United States Department of the Interior, Bureau of Indian Affairs, Office of the Deputy Director - Trust Services, Division of Forestry and Wildland Fire Management, Intertribal Timber Council and individual Tribal governments on reservations. The Division is responsible for providing coordination, management, planning, oversight, and monitoring for all activities related to development and protection of trust forest resources, including the National Wildland Fire Program.

Vision Statement/Goals - The Branch of Forest Resource Planning exercises program oversight and provides planning and scheduling of Bureau-wide forestry activities at the national level to ensure regulatory and policy requirements are followed and that technical standards of sound forest management are upheld. The Branch of Wildland Fire Management is responsible for the development of policies and standards for wildfire response, firefighting safety and training as well as preventing wildland fires. The Branch also provides guidance to BIA Regional Directors regarding the use of prescribed fire and fuels management to achieve integrated wildland fire management objectives based on management plans approved by the Indian land owner.

Agency Contact Information

- Division of Forestry and Wildland Fire Management, Indian Affairs, 1849 C Street NW, MS-4620-MIB, Washington, District of Columbia 20240

Navajo Nation Department of Resource Enforcement, Navajo Rangers

Mission Statement - To protect and preserve the cultural, historical and archaeological resources of the Navajo Nation, through law enforcement, public education, preventive patrols, and regulatory enforcement. To safeguard and preserve the livestock property of residents to maintain the cultural and traditional significance of this resource for future generations of Diné.

Vision Statement/Goals:

- Place our cultural and religious beliefs as Diné as paramount ideals for future generations, by strengthening our sovereignty as a Nation.
- Develop and foster leadership abilities among workforce while optimizing use of available resources.
- Conduct business in an honest, ethical and consistent manner.

- Maintain performance standards that enhance job satisfaction and provides for professional growth of employees.

Department Organization - The Department of Resource Enforcement / Navajo Rangers are one of three primary law enforcement departments under the Navajo Nations Division of Natural Resources that provide protection, preservation and enforcement over the forestlands; the other two departments are Forestry and Fish & Wildlife. Consists of 16 commissioned law enforcement officers or Rangers; one Chief Ranger, five administrative staff, four Ranger Sergeants and eleven field Rangers.

- Areas of protection, preservation, and/or enforcement:
    - Timber - new and existing forest product
    - Archaeological, cultural resources and sacred sites
    - Recreational park and scenic areas
    - Fish and game; and enforcement of hunting permits and regulations
    - Livestock and livestock grazing areas
    - Water
    - Minerals
    - Home-sites
    - Burial sites
    - Tourism

5.5 Current Management Plans

Ten-Year Forest Management Plan: The current Ten-Year Forest Mgmt. Plan establishes direction for the 596,725 acres of the Defiance Plateau-Chuska Mountains forest area, which includes commercial timberland. This management plan does not directly reference the other forestlands considered in this IRMP. Commercial timberland is classified by the BIA-BOFRP as being capable of producing 15 cubic feet of timber/acre/year. Five (5) alternative management plans were drafted, with one (1) preferred plan identified. The FMP was drafted in 2001.

- Summary Description of the Preferred FMP: Even-aged and Uneven-aged management with SMA's. (*The acronym SMA is here used to mean 'Special Management Areas', as opposed to the commonly used 'Stream Margin Areas'*). The FMP is organized in two sections:
    - Resource Protection
        - "The Navajo forest is an important resource area to the Navajo people and will be protected from damage, such as fire, timber trespass and insect/disease. The Navajo forest contains 596,725 acres. Allotted lands are subject to protection by the BIA.

The desired future condition for this alternative is a forest managed towards an even and uneven-aged mosaic intermixed by areas of special and no management."[56]

- Timber Management
  - "The Navajo commercial forest (exclusive of inoperable and restricted areas) is composed of 388,626 acres. As per Alternative 3, operable timberlands of 74,735 acres for SMAs and 60,137 acres of marginal timber production areas were deducted. This resulted in the commercial forest for this alternative to be 253,754 acres where even and uneven-aged stand development will occur. The desired future condition will be an even and uneven-aged mosaic intermixed with areas of special or no management. Allotted lands are subject to management and regulation by the BIA."[57]
  - As outlined in the FMP, the Navajo Forestry Department forest management goals in terms of resource protection is to protect the Navajo forest against damaging insects, disease, timber trespass and wildfire, in cooperation with the BIA. And in terms of Timber Management, the NFD's goals are to:
    - Utilize even-aged and uneven-aged management to direct the commercial forest age distribution towards a regulated distribution.
    - Ensure that adequate/sufficient regeneration is present.
    - Satisfy local demand for forest products.

Current Forest Management: Through P.L. 93-638, the Indian Self-Determination and Education Assistance Act, as amended, the following forest activities have been contracted from the B.I.A.:

- Forest Management Inventory and Planning
- All aspects of forest management, which includes, but is not limited to; (a) timber sale preparation (cruising, stand exams, silvicultural prescriptions, environmental compliance, cultural preservation compliance, forest product marketing, and advertising), (b) timber sale administration (executing contracts, marking timber, scaling of timber, collecting, recording, and distributing receipts of sales) and (c) supervision of forest product harvesting contracts
- Timber Trespass Prevention (Enforcement)
- Forest Product Permitting (Permitting and Pole Marking)
- Woodland Mgmt.
- Forest Development (Reforestation)
- Forest Marketing

5.6 Community Concerns

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[56] Navajo Nation Ten-Year Forest Management Plan. NFD, 2001.

[57] Navajo Nation Ten-Year Forest Management Plan. NFD, 2001.

Diné CARE (Citizens Against Ruining Our Environment) This is a citizen action group that expresses concerns with Navajo forest management practices and goals. "Since 1991, Diné CARE has sought to defend the forests of the Chuska Mountains and Defiance Plateau, located in the heart of the Navajo Nation along the northern Arizona-New Mexico border, from the adverse effects of over 100 years of unmitigated timber cutting. The Navajo Nation's sawmill enterprise, Navajo Forest Products Industries, utilized the supply of timber from the Navajo forests from 1960 through 1993. This supply exceeded on a per-acre basis, the harvest of any other southwest forest. In 1981, a series of site reports prepared by the Navajo Nation forestry department provided evidence of the poor condition of our forests. Since then, there has little environmental mitigation. NFPI closed operations in 1995, but plans have been devised to renew operations."[58]

5.6.1 Concerns by Forestlands

Defiance Plateau - The Defiance Plateau forestland historically contains some of the most productive forest areas within the Navajo Nation and is comprised predominantly of ponderosa pine forest. "For centuries, the Navajo people have valued the forest as being the provider for the necessities of life. The forest provides food, wood products for homes, other dwellings, corrals, fence posts, ceremonial need, firewood, and habitat for deer and other wildlife.[59]"

- The Kin Da Lichii Chapter in particular presented concerns around illegal cutting, over-harvesting, and preservation of culturally significant plants and trees. Trees of various species are used ceremonially, for traditional medicine, timber, sustenance, firewood and economic gain. Illegal cutting and litter threaten these resources.
    - "The Kin Dah Lichii Community is rich in herbal medication; many medicine men/women come to the community to make their medication for individual depending on them for services. Some medicine man/women assign other people to gather medicine for their ceremonies, who destroy the medicine by sawing them down and leaving a lot of the destroyed medicine behind. Should this continues, there will not be any to restore health concerns.[60]"
- Within Sawmill and Crystal Chapters there have been discussions and goals to increase timber extraction and lumber production through the establishment of a sawmill. In the past, commercial forest harvests conducted without mitigation have resulted in degradation and erosion. Compounding over-extraction, Ips bark beetle has killed pinion and juniper trees throughout the forestland and residents are concerned about dead trees.
- There is conflict between the desire to build homes in forested areas and endangered species. The USEPA has imposed a building moratorium prohibiting new or future building.[61]
- Communities near Canyon de Chelly have expressed the need for restoration work within the canyon and the protection of iconic red rock formations.

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[58] https://www.dine-care.org/

[59] Yazzie, V.R.The values and uses of the Navajo forest (1987) http://www.nal.usda.gov/

[60] Kin Dah Lichii Chapter Comprehensive Strategic Planning Manual, Navajo Nation Fiscal Year 2011 & 2012 (Page 62)

[61] Sawmill Chapter Community Based Land Use Plan. By Atkins Benham. NAHASDA Land Use Planning Project Number 31-2000-1. (Page 2-6)

Chuska Mountains - The Chuska Mountains have historically been a source of timber, traditional herbs and medicine, water, and wildlife habitat. Many land use plans within this forestland call for the careful management and use of natural resources.

- It was reported that old growth yellow pines (200+ years) are considered sacred. However, there is a big problem with illegal firewood collection and concern over wildfire and Navajo Forest Department management of fires and forest resources.
- Within the forestland there have been discussions and goals to increase timber extraction and lumber production through the establishment of a sawmill. Commercial forest harvesting done without mitigation in the past have resulted in degradation and erosion. Compounding over-extraction, Ips bark beetle has killed pinion and juniper trees throughout the forestland and residents are concerned about dead trees.
- There is conflict between the desire to build homes in forested areas and endangered species. The USEPA has imposed a building moratorium prohibiting new or future building.[62]
- Communities near Canyon de Chelly have expressed the need for restoration work within the canyon and the protection of iconic red rock formations.

Navajo Mountain - N/A

Mount Powell - Illegal wood cutting has been identified as a concern in the forestland.

Carrizo Mountains - N/A

5.7 External Resource Department Concerns

- The removal of vegetation through either mechanical or natural means can also lead to disturbances of soil surfaces. If not properly mitigated, this can cause an increase in sedimentation and pollution in streams/lakes. Spawning areas may also be affected, and eggs may be suffocated. The removal of canopy cover leads to increased water temperatures.

[62] Sawmill Chapter Community Based Land Use Plan. By Atkins Benham. NAHASDA Land Use Planning Project Number 31-2000-1. (Page 2-6)

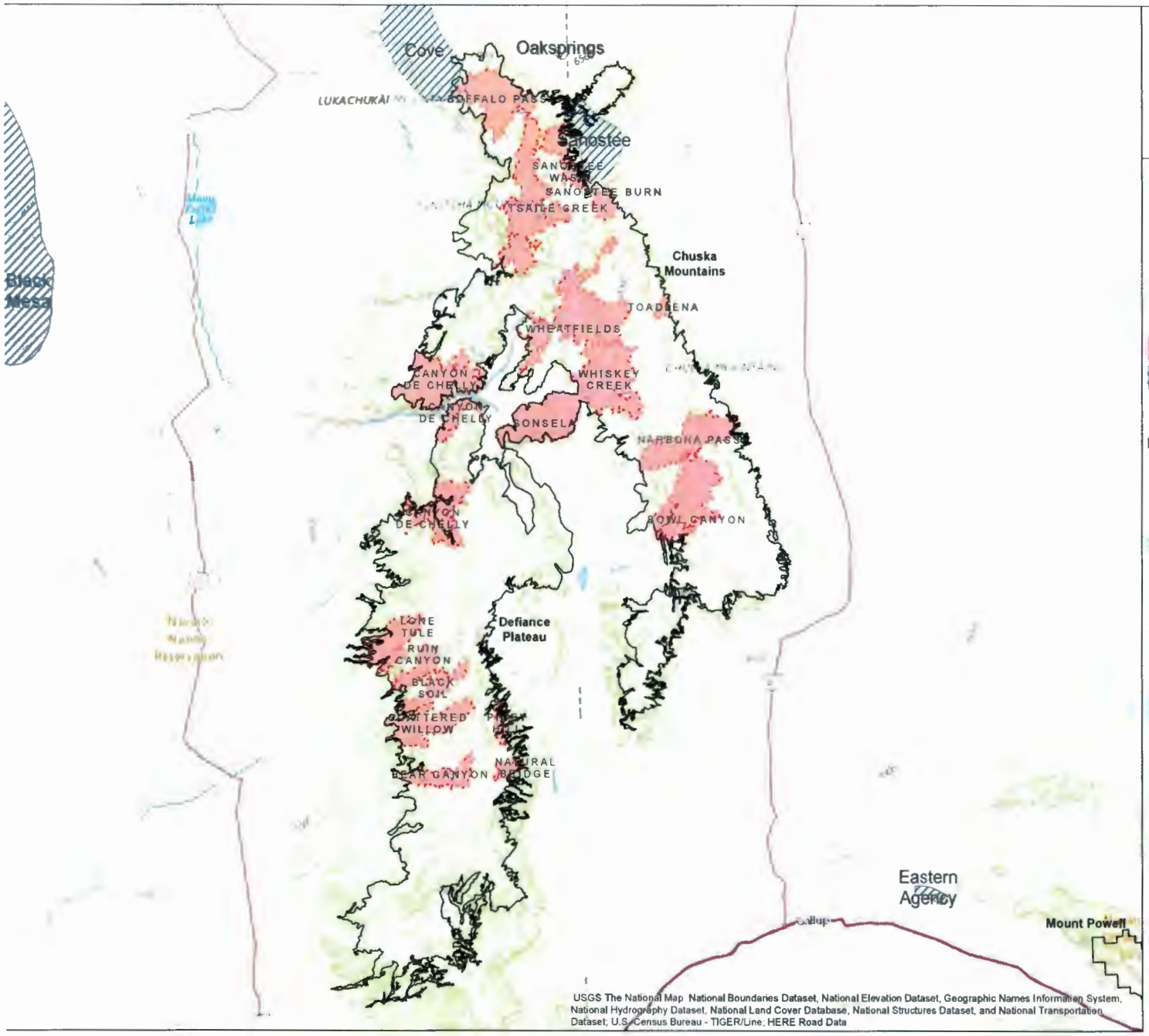
5.8 Forestland and Forest Resources Collaboration Chart

Primary Concerns	General Best Management Practices[63]	Opportunities for Integrated Mgmt.
Illegal cutting **Over-harvesting** **Preservation of culturally significant species** **Need for sawmill to enable commercial production** **Conflicts re: home-site and endangered species protection areas** **Erosion and sedimentation due to forest extraction practices** **Fuel and fire loading inventory** **Insect and Disease Identification and resource analysis** **Climate change related to forest stand type** **Prescribed fire as a resource tool**	• Based on the fact that there is currently no commercial harvesting in the managed forest areas, the following BMP's are focused on maintenance of this resource such as thinning and fire mgmt. versus detailed BMP's about active harvesting practices. • Establishment of SMA's for wetlands and riparian areas (see this section for more detailed BMP's) • Implement BMP's for thinning. Thinning is a silvicultural practice whereby some of the trees in a stand are removed in order to stimulate the growth of the remaining trees. Thinning redistributes nutrients and increases growth in the stand by increasing nutrient availability to the remaining trees. Thinning can restore ecosystem function(s) to degraded forest stands. Furthermore, thinning can help increase ecosystem resistance and resilience to disturbances like insects, disease and stand replacing wildland fires which can result in understory development, thus improving the forage for domestic animals, and providing habitat and food for wildlife. Thinning reduces the risk of uncharacteristic fire. • Implement appropriate slash management BMP's to control fire risks. • Implement appropriate reforestation methods and BMP's. • Identify resource need, create a planning document and implement phasing	Forestry Department Fish & Wildlife Dept. Water Resources Dept. Air Quality

Key resources:

http://www.emnrd.state.nm.us/SFD/ForestMgt/documents/ForestPracticesGuidelines2008.pdf

[63] http://www.emnrd.state.nm.us/SFD/ForestMgt/documents/ForestPracticesGuidelines2008.pdf



Map 5.0- Chuska Mountains/Defiance Plateau

Forestry Management Areas

NAVAJO FORESTLAND IRMP

LEGEND

Forest Management Areas

- Special Management Areas - 150,041 acres
- Problem Areas

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

- Interstate Highway
- Other Road
- Forest Study Area Boundary
- Lake or Reservoir
- Stream/River
- County Boundary
- State Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Forestry Department

0 2.75 5.5 11 16.5 22 Miles

6. Noxious Weeds and Invasive Species (Introduced)

6.1 Description

Noxious Weeds - A weed is any plant that interferes with the management objectives for a particular site, and noxious weed is "a plant species that is not indigenous to New Mexico and that has been targeted pursuant to the Noxious Weed Management Act for management or control because of its negative impact on the economy or the environment". An invasive weed is generally a nonnative aggressively growing plant that may or may not have a negative impact on the habitat it is invading. Invasive species have been known to spread at rates of about 5,000 acres per day in the West. Weeds have invaded approximately 17 million acres of public lands and they quadrupled their range from 1985 to 1995. This value does not include the rate of spread on non-federal lands, so the rate of spread is actually much greater. This section will refer to noxious weeds instead of invasive as that is the term defined by the New Mexico "Noxious Weed Management Act" (1998). On the Navajo Nation there are 46 noxious weed species identified as a priority for control. Noxious weeds may cause:

- Displaced native vegetation
- Damaged watersheds
- Increased soil erosion
- Reduced opportunities for land use
- Reduced recreational activities

Free Ranging Horses - Free-ranging, feral or wild horses (Equus caballus) occur throughout the arid regions of western North America.[64] Feral horses graze rangeland more intensively than other species, which can reduce forage available to native wildlife and domestic livestock, decrease vegetation amount and diversity, and impair water quality.[65]

6.1.1 Data

Noxious Weeds

- Bureau of Indian Affairs Navajo Regional Office 2009 Noxious Weed List. High Priority (A) weeds have a potential for widespread expansion and are weeds that the BIA and Navajo Nation consistent

[64] Wallace, Zach P., et al. "Survey of Free-Ranging Horses (Equus caballus) on the Navajo Nation Final Report." (2017).

[65] Beever E. A., and P. F. Brussard. 2000. Examining ecological consequences of feral horse grazing using exclosures. Western North American Naturalist 60:236–254.

request funding for treatment. Medium Priority (B) species are non-native noxious weeds that may occur in isolated patches. Emphasis for these weeds should be on immediate control, prevention of seed spread and eradication. Low Priority (C) species are normally widespread and well established, but are not a high priority due to limited weed funding. All weed should be managed using education, prevention, identification, monitoring and treatment.

High Priority – A Rating	
Bull thistle	*Cirsium vulgare*
Camelthorn	*Alhagi camelorum*
Canada thistle	*Cirsium arvense*
Dalmatian toadflax	*Linaria dalmatica*
Diffuse knapweed	*Centaurea diffusa*
Leafy spurge	*Euphorbia esula*
Musk thistle	*Carduus nutans*
Perennial pepperweed	*Lepidum latifolium*
Russian knapweed	*Acroptilon repens*
Russian olive	*Elaeagnus angustifolia*
Scotch thistle	*Onopordum acanthium*
Spotted knapweed	*Centaurea maculosa*
Tamarisk	*Tamarix spp.*
White top	*Cardaria draba*
Yellow starthistle	*Centaurea solstitialis*
Medium Priority - B Rating	
Field sandbur	*Cenchrus incertus*
Halogeton	*Halogeton glomeratus*
Low Priority – C Rating	
Cheatgrass	*Bromus tectorum*
Field bindweed	*Convolvulus arvensis*
Jointed goatgrass	*Aegilops cylindrical*
Puncturevine	*Tribulus terrestris*

Free Ranging Horses -

- "Observed 527 horse groups, comprising 4,290 horses, with average group size of 8.14 horses (range: 1–75). Estimated total of 38,223 horses of all ages occurred within the forestland during the survey period (90% confidence interval: 32,188 to 52,033), with 29,394 horses in open areas (90% confidence interval: 23,804 to 41,822) and 8,829 horses in forested areas (90% confidence interval: 5,955 to 13,513). Overall horse density was 0.570 horses/km2 (90% confidence interval: 0.480–0.776), with 0.619 horses/km2 in open areas (90% confidence interval: 0.502–0.881) and 0.450 horses/km2 in forested areas (90% confidence interval: 0.303–0.688). Detection probabilities were lower in forested areas ($: 0.426, 90% confidence interval: 0.326–0.491) than open areas ($: 0.608, 90% confidence interval: 0.508–0.646) and varied among observer seating positions. Additionally,

we observed 55 burros (Equus asinus) in 17 groups, with an average group size of 3.24 burros. Sample size of burros was not sufficient to estimate density in the forestland."[66]

6.1.2 Noxious Weeds and Invasive Species by Forestland

The Navajo Region will be conducting a Noxious Weed Inventory in fiscal year 2018 to identify any invasive species within the Commercial Forest.

6.2 Resource Context

Noxious Weeds on the Navajo Nation have increased in recent years. Noxious plants were introduced to the landscape from various activities, including: Road construction & maintenance Use of non-weed-free hay and feed, resulting in livestock transporting weed seeds to remote locations Infrastructure development (i.e., waterline, gas lines, and powerlines) Flowing streams, wildlife and the wind which contribute to seed dispersal A lack of grazing limits, which can put additional pressure on native vegetation, allowing noxious weeds to outcompete native plants.[67] "The Navajo Nation reports rapid encroachment of non-native noxious weeds that destroy rangelands Navajo people rely on.

The target noxious weeds treated to date on the Navajo Nation include:

- Tamarisk (Tamarix spp.)
- Russian olive (Elaeagnus angustifolia)
- Russian knapweed (Acroptilon repens)
- Camelthorn (Alhagi camelorum)
- Halogeton (Halogeton glomeratus)
- Musk thistle (Carduus nutans)

Free-Ranging Horses (Equus caballus) have existed in North America since the 15th century, when they were introduced by Spanish colonists. Several native horse species that once inhabited North America went extinct approximately 10,000 years ago, and all free-ranging horses currently populating the continent are untamed animals of domestic stock.[68]

Following the introduction of horses to North America in 1598, the Navajo people shifted from an agrarian society to a nomadic pastoralism. Overtime Navajo people gained more livestock and livestock densities increased. "By 1930, approximately 40,000 Navajos were grazing an estimated 67,500 horses, 575,000

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[66] Wallace, Zach P., et al. "Survey of Free-Ranging Horses (Equus caballus) on the Navajo Nation Final Report." (2017).

[67] Navajo Nation Integrated Weed Management Plan, Fred Phillips Consulting, Flagstaff, AZ. U.S. Department of Interior, Bureau of Indian Affairs, Navajo Region. April 2016

[68] Wallace, Zach P., et al. "Survey of Free-Ranging Horses (Equus caballus) on the Navajo Nation Final Report." (2017).

sheep, 187,000 goats, and 37,500 cattle on their approximately 70,000-km2 reservation[69]." Following the Dust Bowl, introduction of pickups and all-terrain vehicles, and the implementation of the system of District and Central Grazing Committees livestock numbers fell and horses became less of an everyday necessity. Over time some horses and burros escaped or were released, creating a population of feral animals. Horse and burro populations on public Bureau of Land Management (BLM) managed lands is currently estimated on-range wild horse and burro population, as of March 1, 2015, is 58,150, an 18 percent increase over the 2014 estimate of 49,209.[70]

6.2.1 Key Noxious Weed and Invasive Species Challenges

Noxious Weeds

The expansion of noxious weeds on the Navajo Nation has contributed to the decline of livestock forage production, native grassland community quality, wildlife habitat quality, and overall ecological health of the region. Noxious weeds have impacted every habitat on the Navajo Nation, which has affected the economic, historic and cultural livelihood of the Navajo people.

- Disturbed habitats provide a platform for the establishment of noxious weeds. Due to high rates of disturbance, weeds are frequently introduced along roads and right-of-ways from vehicles carrying seed or plant material, construction material, or garbage. These linear corridors provide a thoroughfare for rapid weed expansion to adjacent wild, agricultural or rangelands. Also, right-of-ways provide an access point for weed spread to riparian corridors from runoff or road crossings over waterways.

- Control of these invasive plants will help improve rangeland and agricultural land quality by improving the growth of native forbs and grasses to benefit subsistence ranching and farming activities, increase the native diversity of riparian trees and understory species in riparian corridors, protect water resources and water quality, prevent the spread of additional weed infestations to unaffected land and property, and maintain and improve wildlife habitat.

Free-ranging horses

Because of their unique combination of cecal digestion, an elongate head with flexible lips, and non-uniform use of the landscape, horses represent a unique disturbance agent in semi-arid ecosystems of the western United States. Consequently, it is inappropriate to assume that influences of horses on the structure, composition, function, and pattern of arid and semi-arid ecosystems will mirror influences of cattle or other artiodactyls[71]. Horses hold cultural significance to the Navajo people. Leland Grass a wild-horse advocate, horse trainer and cofounder of the advocacy group Diné for Wild Horses, ""Yes, of course.

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[69] R.W. Young, editor. 1955. The Navajo Yearbook of Planning in Action. U. S. Bureau of Indian

Affairs, Navajo Agency, Window Rock, Arizona, USA.

[70] https://www.blm.gov/or/news/files/WHBAdoptSch2016.pdf

[71] Beever, Erik. "Management Implications of the Ecology of Free-Roaming Horses in Semi-Arid Ecosystems of the Western United States." *Wildlife Society Bulletin (1973-2006)*, vol. 31, no. 3, 2003, pp. 887–895. *JSTOR*, JSTOR, www.jstor.org/stable/3784615.

Kneel down and pray. Tend to the horses, talk to them, pray with them and about them. Return to our teachings. Horses are the mirror image of our culture. The horses themselves are the solution.""

6.3 Policies, Programs and Regulatory Framework

Due to the varied nature of this topics and the potential treatment of noxious weeds and invasive species the policies, programs and regulatory framework are comprehensive and numerous.

- The Federal Land Policy and Management Act of 1976 (FLPMA; 43 U.S.C. 1712) - directs the BIA as a federal agency to develop resource management plans (RMPs)consistent with federal, state, and tribal laws and regulations.
- The Carlson-Foley Act of 1968 (P.L. 90-583) and the Noxious Weed Coordination and Plant Protection Act of 2000 (Public Law 106-224) requires the BIA to develop and coordinate noxious weed program to assist in the eradication and control of undesirable species as a federal agency.
- The Federal Noxious Weed Act of 1974 (7 U.S.C. 2814) established and funded undesirable plant management programs, implemented cooperative agreements with state and tribal agencies, and established integrated management systems to control. undesirable plant species. This regulation has been replaced with the Plant Protection Act mentioned above.
- The Noxious Weed Control and Eradication Act of2004 (P.L. 108-412) established a program to provide assistance through states to eligible_ weed management entities to control or eradicate harmful, non-native weeds on public and private lands.
- Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) the BIA will follow all safety and application instructions on the labels of herbicide and will always follow all best management practices associated with those chemicals.
- The Indian Self-Determination and Education Assistance Act (P.L. 93-638) allows the Secretaries of the Department of the Interior and Health, Education and Welfare to enter into contracts and provide grants directly to federally recognized tribes and gives the tribes' authority over the administration of funds.
- The American Indian Agricultural Resource Management Act of 1993 maintains the BIA's trust responsibility to help with self-determination, education, development and management to improve the quality of indian agricultural lands with compliance to tribal law. Including the development of land management plans that address the control and eradication of noxious weeds and undesirable vegetation.
- The Clean Air Act, as revised in 1990 would govern prescribed fire smoke emissions, and requires the USEPA, NNEPA, and state agencies carry out programs to assure attainment of the National Ambient Air Quality Standards (NAAQS).
- The Safe Drinking Water Act is designed to protect the quality of public drinking water and its sources. The Clean Water Act regulates discharges into waters of the United States, including wetlands. As authorized by the Clean Water ACT, the National Pollutant Discharge Elimination

System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

- The Endangered Species Act requires federal agencies to consult with U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) to ensure that proposed actions that are authorized, funded, or carried out are not likely to jeopardize the continued survival of listed species and do not result in adverse modification or destruction of critical habitat.
- The Agricultural Risk Protection Act of2000 (P.L.106-224) provides financial assistance to agricultural producers to help address resource conservation issues, including invasive species. Financial assistance programs are administered through the Natural Resources Conservation Service.
- The Native American Graves Protection and Repatriation Act (P.L. I 01-601, 25 U.S.C. 3001-3013) requires that the BIA consult with Native American tribes for any programs that encounter or have the potential to encounter human remains, funerary objects, or other cultural items.
- The National Historic Preservation Act of 1966 (P .L. 89-665) requires the BIA to work with state, tribal, and local governments to outline measures to preserve historic and archaeological sites. Section 106 of the law requires the BIA to assess the effect a project may have on such historic properties and how to minimize potential harm or damage to those properties.
- Archaeological Resources Protection Act (43 C.F.R. 7) requires that the BIA obtain permits from the Navajo Nation Historic Preservation Department for projects that require handling. removal, or excavation of archaeological resources on the Navajo Nation. Proper documentation of such resources is also required in coordination with NNHPD.
- Bureau of Indian Affairs Code of Federal Regulations (25 C.F.R) outlines the specific responsibilities of the Bureau of Indian Affairs to manage resources and tribal trust lands. Specifically, Parts 161, 166, and 167 outline BIA responsibilities for helping manage grazing permits and rangeland management responsibilities for the Navajo Nation,
- Navajo Partitioned Lands, and Eastern Navajo Agency include provisions for addressing natural resource management as part of maintaining rangeland quality.
- Department of the Interior Departmental Manual Part 609 directs the BIA to develop integrated pest management programs to control undesirable plans on lands, waters, or facilities under its jurisdiction as needed for resource/environmental protection and enhancement.
- Department of the Interior Departmental Manual Part 516 provides the BIA assistance and directions from the Department of the Interior to ensure compliance with USEPA and other federal environmental regulations and policies for proposed actions.
- Department of Interior's Departmental Manual Part 523 provides guidance to DOI agencies on climate change adaptation policies to implement, with regards to potential impacts.

- Navajo Nation Environmental Policy Act (4 N.N.C. 9) requires the BIA to abide by the Navajo Nation regulations and policies to minimize and/or remediate environmental damage within tribal trust lands.
- Navajo Nation Pesticide Act (4 N.N.C 3) regulates the use of pesticides on the Navajo Nation and requires that pesticide applicators be certified by the Navajo Nation and that the BIA maintain records of all projects using pesticides. These records are subject to review by the Navajo Nation EPA
- Navajo Nation Water Code (22 N.N.C. §§1101) outlines the Navajo Nation Division of Natural Resources responsibilities to regulate water use and permitting on the Navajo Nation and requires the BIA to carry out practices that protect and conserve water resources.
- Navajo Nation Safe Drinking Water Act (22 N.N.C §1115) protects water resources in the Navajo Nation and establishes wellhead protection areas to minimize the introduction of contaminants into drinking water supplies. This law requires the BIA to identify wellhead protection areas and employ measures to minimize impacts to water quality in these areas.
- Navajo Nation Aquatic Resource Protection Program requires the Navajo Nation EPA and Heritage Program to review and approve all projects that may impact wetlands, waters, and riparian areas of the Navajo Nation. This regulation requires a wetland study and review by the Navajo Nation for any projects that may alter or impact watershed resources on tribal trust lands.
- Navajo Nation Air Pollution Prevention and Control Act (4 N.N.C 11) regulates air quality standards within tribal trust lands and requires the BIA to prepare an air quality report for any action that may impact air quality within the region. The BIA will also be responsible for employing methods to minimize and/or mitigate potential impacts to air quality.
- Navajo Nation Agriculture and Livestock Regulations (3 N.N.C, 7 N.N.C, 17 N.N.C) provides the Navajo Nation the authority to manage agricultural and livestock permits and leases, as well as management of associated resources, such as noxious weed management. It also provides the Navajo Nation Department of Agriculture the authority to help enforce these regulations for land users, permittees, and agricultural users.
- Navajo Nation Conservation and Wildlife Regulations (23 N.N.C) authorizes the Navajo Nation to regulate hunting, fish and forestry operations within tribal trust lands.
- Navajo Nation Fish and Wildlife Regulations (17 N.N.C. 21) authorizes the Navajo Nation Department of Fish and Wildlife to identify and protect endangered species identified by both the U.S. Fish and Wildlife Service and the Navajo Nation Com1cil.
- Navajo Nation Cultural Resource Protection Act (19 N.N.C. 11) authorizes the
- Navajo Nation Archaeology Department and Historic Preservation Department to
- preserve the sacred, historic, and culturally significant places and items found on the Navajo Nation.

- Biological Resource Land Use Clearance Policies and Procedures (RCS-44-08)
- establishes land use policies for the Navajo Nation which detail permitted and permitted activities based on habitat suitability and use for Navajo Nation listed species.
- Golden and Bald Eagle Nest Protection Regulations (RCS-42-08) establishes
- protection and avoidance measures in and around Golden and Bald Eagle nesting sites as enforced by the Navajo Nation Department of Fish and Wildlife.
- Wild and Free-Roaming Horses and Burros Act of 1971 (Pub. 92–195), which established protections and population targets for feral horses and burros (Equus asinus) on lands managed by the U. S. Government. However, these regulations and associated population monitoring mandates do not apply to tribal lands, where relatively little is known about current abundance and management of feral horses.

6.4 Managing Agencies

The managing agency in this case is the BIA, specifically the Agricultural and Rangeland Development Branch. However, multiple Navajo Nation agencies have a huge part to play in the mitigation and control of invasive and noxious species.

6.4.1 Bureau of Indian Affairs, Navajo Regional Office

Mission Statement
The Bureau of Indian Affairs (BIA) Navajo Regional Office's mission is to enhance the quality of life, facilitate economic opportunity, carry out the responsibility to protect and improve the trust assets of the Navajo Nation and individual Indians.

Vision Statement/Goals
The Bureau of Indian Affairs (BIA) Navajo Region is committed to provide high quality services to our customers in a timely and professional manner; to have a challenging and dynamic organization that is flexible in addressing the changing needs of our customers; to have employees who are committed, knowledgeable and empowered; to strive for excellence while fostering cooperation, coordination, and consultation in support of Indian self-determination and tribal sovereignty.

Office Organization/Departments
See Appendix A

Agriculture and Rangeland Development Branch
"The primary function of the Noxious Weed Eradication program is to provide resource protection on trust lands in compliance with the American Indian Agriculture Resource Management Act, the Federal Noxious Weed Act, and the Federal Insecticide, Fungicide and Rodenticide Act. Noxious weeds degrade the land ecologically, and reduce the value of agricultural production from the land. Continued coordination and cooperation with private, state, and Federal landowners within the reservation boundaries and adjoining lands will eventually allow for the containment and control of weed populations. The Noxious Weed

Eradication program also provides education, direction and technical guidance to individual Indians, non-Indian farmers and ranchers, Indian Tribes and Alaska natives involved in controlling noxious weeds.[72]"

6.4.2 Supporting Agencies

Navajo Nation Department of Fish and Wildlife (NNDFW) - weed removal efforts necessitate evaluation by a qualified biologist to determine if habitat for Federal or Navajo Listed Endangered, Threatened, or Proposed species or migratory birds exists on the site.

Navajo Nation Historic Preservation Department (NNHPD) - historic preservation officer or archaeologist to determine if any historic or cultural artifacts are present on the site

Navajo Nation Environmental Protection Agency (NNEPA)

United States Army Corps of Engineers (Corps) - The Corps regulates activities on the nation's waters and is charged with protecting our nation's harbors and navigation channels from destruction and encroachment, and with restoring and maintaining environmental quality. Pursuant to Section 404 of the Clean Water Act, projects that occur along the riparian and wetland areas that impact jurisdictional waters require Corps permits. The Corps also has an obligation to ensure that permitted projects comply with NEPA, the Endangered Species Act (ESA), and the National Historic Preservation Act (NHPA). Weed projects that require mechanized removal of vegetation along riparian corridors or wetlands will require a Section 404 permit. The application for the permit should be submitted to the representative State Corps office (i.e. Arizona, New Mexico, or Utah).

6.5 Current Management Plans

Summary

Navajo Nation Integrated Weed Management Plan – Integrated and coordinated management plan which utilized methodical, science-based strategies to actively monitor and control invasive weeds. In conjunction with developing a weed management plan, NRO determined that compliance with the National Environmental Policy Act (NEPA) was necessary to facilitate discussions with the public regarding potential impacts of a weed management plan. In addition, completing one wholesale environmental compliance effort for integrated weed control would allow the BIA Noxious Weed Coordinators to streamline processes and help to elicit large-scale cooperative projects. (IWMP) helps identify weed species of concern; details weed removal strategies; and consolidate the best management practices available for weed control. Best management practices that have been limited in the past are now an integral component of NRO's weed management efforts, such as early detection and eradication, prevention, and education. This plan will encompass a 10-year period but will incorporate a plan review after five years. It is estimated that during the first five years of the project approximately 250,000 acres will be treated. Repeated treatments will be necessary for most species since seeds can be viable in soil for 10 or more years.

- Goals

[72] https://www.bia.gov/bia/ots/division-natural-resources/branch-agriculture-and-rangeland-development

- Develop the best control techniques described for the target weed species in a planned, coordinated, and economically feasible program to limit the impact and spread of noxious and invasive weeds.
- Identify and prevent the expansion of existing infestations of target weed species, and quickly prevent the spread of new high priority weed species in the project area.
- Coordinate weed removal efforts with adjacent land owners or managers to prevent the further spread of weed populations (i.e. State roads and Bureau of Land Management).
- Provide and promote economic opportunities to the Navajo people by improving rangeland productivity and potentially providing economic opportunities to remove invasive plant species.
- Develop a public education program focusing on weed identification, prevention and removal techniques for the local communities and non-profit organizations.

- Objectives/Projects
  - Priority areas include: Navajo Nation, BIA, state, and county roads; riparian areas; Navajo Agricultural Products Industry (NAPI) lands, Navajo Tribal Utility Authority (NTUA) right-of ways; designated farm lands, designated rangeland, and Navajo Nation Designated Community Development Areas.
    i. An organized approach to prioritize weed removal actions and sites is essential. While the Navajo Nation is a large land base, focused weed removal efforts in target areas will help prevent the spread of invasive species.
  - The management goal for Category A weeds is to prevent new infestations and eradicate existing infestations. For Category A species, emphasis will be placed on eradication, prevention, education, awareness, identification, monitoring, and treatment.
  - Category B invasive weed species are limited in range to portions of the Navajo Nation and the management goal is to contain the infestation and stop any further spread. For Category B species, emphasis will be placed on immediate control, prevention of seed spread and eradication.
  - Category C invasive weed species are widespread and well established in the Navajo Nation, and the management goal is to locally contain the infestation and monitor the population. Management of Category C species is determined at the local level, and is based on feasibility of control and level of infestation. For Category C species emphasis is placed on management, education, awareness, and identification/monitoring.

Future - Navajo Nation Wild Horse Management Plan – This plan has not been created but has been mentioned. There is great controversy surrounding the management and potential culling of horse populations.

6.6 Community Concerns

Community concerns in this area were rarely voiced in the Chapter Land Use Plans.

6.6.1 Concerns by Forestland

Defiance Plateau

- "Threats to community development: Weed Infestation[73]"

Chuska Mountains

- "Invasive species of trees (Tamarisk and Russian Olive) have taken over large amounts of land in the Canyon (Canyon de Chelly and surrounding canyon) floor – this prevents the Customary Users from being able to use the land for farming.[74]"

Navajo Mountain - N/A

Mount Powell - N/A

Carrizo Mountains - N/A

6.7 NOXIOUS Weeds and Invasive Species Collaboration Chart

Primary Concerns	General Best Management Practices[75]	Opportunities for Integrated Mgmt.
Displaced native vegetation Increased soil erosion Free-ranging horses	• Weeds: Wash tires, boots, and equipment before entering an infected site and before leaving to minimize spread of noxious weeds. • Weeds: Only use weed-free mulch or straw. • Weeds: Warn equipment operators to not drive through identifiable patches of noxious weeds that are in seed. • Free-ranging horses: The most promising fertility-control methods for free-ranging horses or burros are porcine zona pellucida (PZP) vaccines and GonaCon™ vaccine for females and chemical vasectomy for males.[76]	Forestry Department Fish & Wildlife Dept. Water Resources Dept.

[73] Kin Dah Lichii Chapter Comprehensive Strategic Planning Manual, Navajo Nation Fiscal Year 2011 & 2012 (Page 29)

[74] Community Based Comprehensive Land Use Plan, CH'ÍNÍLı'Chapter. Chinle, Arizona Including the Canyon Communities. Takahashi Associates Santa Fe, NM. Summer, 2006. Community Assessment - (Page 22)

[75] https://www.bia.gov/sites/bia.gov/files/assets/public/pdf/idc2-060709.pdf

[76] https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3796106.pdf

Key references:

https://www.bia.gov/regional-offices/navajo/navajo-nation-integrated-weed-management-plan

Southwest Exotic Plant Mapping Program (SWEMP)

7. Housing & Land Ownership

7.1 Resource Description

Navajo Nation lands are a combination of trust, fee and allotted lands, and include land leases, permits, executive orders and PLO lands. These lands are owned by multiple jurisdictions including federal, state, local, individual and Navajo owned lands. Lands can be leased by Navajos for economic and community development and individual home-site development. Land withdrawals are permitted to allow for local Chapter development, consistent with approved Community Land Use Plans, and for economic development purposes. Indian lands are often resembling checkerboards because of the fractured land ownership. Agricultural grazing districts, land withdrawals and home-site leases can further fragment lands.

The following list defines the different land types that exist on the Navajo Nation:

- Tribal Trust Land (Legal Title in U.S.A. Held in Trust for Tribe)
    - These lands generally include treaty lands, lands added and made a part of existing Indian Reservation.
    - Bureau of Indian Affairs has power to grant any interest in land, except to sell it, with the consent of the Tribe, and involves right-of- way, easements, ingress& egress, leases of all kinds
    - An Indian can about get almost anything in the way of Interest in land if they are an enrolled member and live on the reservation.
    - Lands added to the reservation may have reservation for minerals, gas & oil rights
- Executive Order Land
    - These lands generally include presidential withdrawn public domain land for use of an Indian Tribe.
    - Bureau of Indian Affairs has power to maintain and operate the land for the Indian Tribe. Its power to give interest in the land is found in the Order. These lands are basically for grazing purposes.

- Individual Indian Allotment (Legal Title in U.S.A. held in Trust for an individual Indian)
    - These lands were created in an effort to destroy tribal trust land to eventually make an Indian land owner a tax paying state citizen.
    - Bureau of Indian Affairs has pervasive power over this kind of land; tribe has no consent privilege. It can be lease to non-Indian or sell to the Tribe with the consent of the Individual Indian.
- State Land (Legal Title in the State Government)
    - These lands were given to the states by Act of Congress when the State entered the Union.
    - State government has exclusive power over these lands.
- Private Land (Legal Title in a person or Legal Entity)
    - These lands belong to Individual and are taxable. The individual (can be an Indian) has complete power over this kind of lands.
- Public Domain (Title in United States held not Trust)
    - This kind of land belongs to the United States and is administered by the Bureau of Land Management, which has power to give various interests in land according to rules and regulations.
- Administrative Reserve. (Title in United States, Convey into Trust Status)
    - These kinds of land belong to the United States for a specific and administrative use, like schools, etc. They are set aside by Executive Order or by Statue.
- Railroad Relinquished & Reconvened Lands. (Title in United States)
    - Santa Fe Railroad returned these kinds of land back to the United States so that eventually the Tribe will gain them in trust status. They are administered by Bureau of Indian Affairs for the use of the Tribe, like Executive Order lands. Bureau of Indian Affairs has power to give whatever Interest it can give in the land.
- Forest Land (Title in United States)
    - These lands are owned by the United States and administered by the Nation Forest service which has power to grant interest in the land pursuant to rules and regulations under the Department of Agriculture.

- Tribal Fee Land (Legal Title in the Navajo Nation)

- These lands are owned by the Navajo Nation and administered by the Navajo Nation and are taxable. The Navajo Nation has power over this kind of lands.
- Data - The Navajo Nation has 17,046,112.51 acres of land or 26, 634 square miles. It is by far the largest Indian reservation in the United States. It is almost exactly the same size as the state of West Virginia; it is slightly larger in land area, but slightly smaller if water area is included. Table 1 illustrates present land categories and acreage (not including local leases and withdrawn lands).

NAVAJO NATION LANDS & LEASES				
TYPE	ARIZONA	NEW MEXICO	UTAH	TOTAL
Navajo Nation Trust Land	10,159,562.82	2,795,503.26	1,223,933.96	14,179,000.04
Nation Fee	585,249.98	357,689.05	1,825.14	944,764.17
Individual Indian Allotment	81,963.81	671,203.50	9,741.80	762,909.11
State Lands Lease	270,927.73	122,556.25	0	393,483.98
US Forest Service Permit	174,000.00	0	0	174,000.00
Government E.O., PLO & School Tract Lands	0	91,838.99	5.99	91,844,98
New Lands	345,032.00	0	0	345,032.00
TOTAL	**11,616,736.34**	**4,193,869.28**	**1,235,506.89**	**17,046,112.51**

Land not included: 14 Indian Allotments, 1.159 acres surface; 319 acres of subsurface purchased CD-80-03; and land relinquishments made by HIS and/or BIA that did not go through NLD; and lands purchased by Navajo-Hopi Land Commission and any of the NN entities (NJA, Shopping Center, etc.)

Source: Navajo Land Department; Revised 3/13/2015

7.1.1 Land Status and Homesite Inventory by Forestland

Throughout the five forestland areas, land status varies with home-sites intermingled throughout the forestlands. There approximately 70 different allotments in the commercial forest estimated at over 10,000 acres.

- Defiance Plateau
- Chuska Mountains
- Navajo Mountain
- Mount Powell
- Carrizo Mountain

7.2 Resource Context

7.2.1 Key Housing and Land Ownership Challenges

- Sales of timber by allottees has to be authorized by 50 percent of the allotment heirs and requires a binding contract between allottees and the purchaser.

- Seasonal grazing is permitted throughout the commercial forest areas and over time has created additional land management/forest health concerns.
- As local Chapters look for opportunities for community and economic development, and its accompanying need for infrastructure, there are concerns associated with how these local land use decisions will affect forestland resources. Assistance with zoning and other planning tools to direct growth to appropriate areas is needed to prevent negative impacts on forestland resources.
- Updates to the existing home-site lease regulations has potential to reign in some of the challenges resource management professionals have seen throughout the forestlands. Primary among these updates, is the ability for the Forestry Department to review home-site lease applications that occur in the commercial forest area or woodlands, pursuant to – RCJY-142-92 (Moratorium of New Home-sites and Range Units within the Navajo Commercial Forest Area). The Forestry Department reviews the applications and determines if a proposed home-site will have a negative impact on the forest area and can specify requirements and conditions associated with the approval.
- Under RCJY-142-92, a moratorium on new range units and new infrastructure (utilities, roads) n the forestlands will also be in effect until a new Ten Year Forest Management Plan is created.

7.3 Policies Programs and Regulatory Framework

Summary -

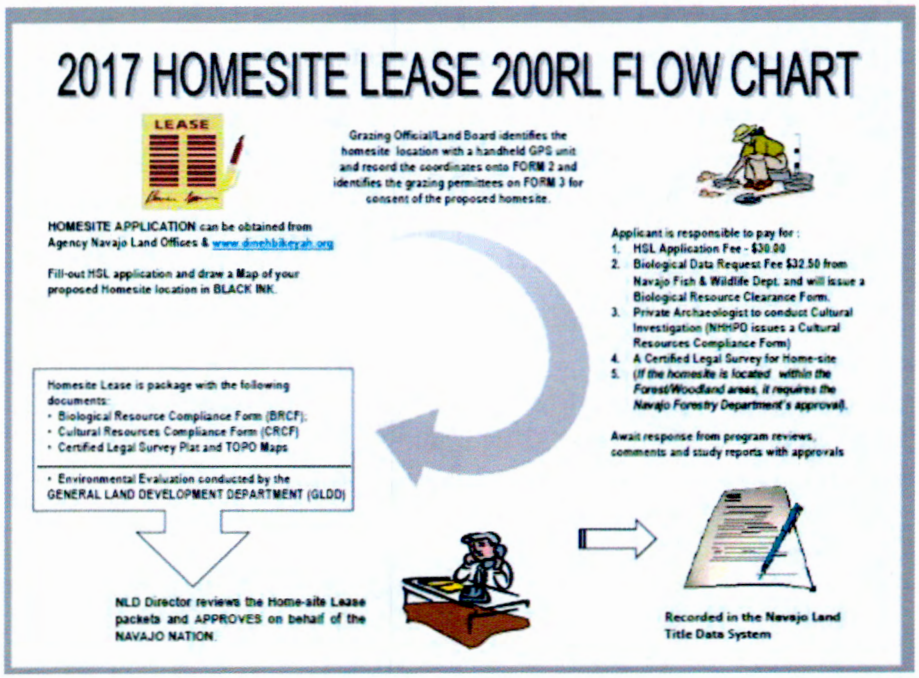
- General Allotment Act of 1887 (Dawes Act) -
- Navajo Nation Local Governance Act, Title Twenty Six (26), CAP-34-98 - A copy of the Local Governance Act is available on line and can be located here: http://www.nndcd.org/uploads/FileLinks/aed50fb739694983b14b401d60210308/7Title26_LGA.pdf The LGA grants governmental authority on local matters to the Nation's individual Chapters through an established certification process. There are two parts to LGA certification as stated in Section 101: Required adoption of a Five-Management System, and an optional Community-Based Land Use Plan.
    - Section 2004, Parts B, C, D and E of the LGA delineate the requirements of a Community-Based Land Use Plan. The law states that Chapters may prepare a Community- Based Land Use Plan for the community's future development. LGA Section 102(C) explains the procedural requirement for getting the Community-Based Land Use Plan approved by the appropriate Navajo Nation Council sub-committee. The Community- Based Land Use Plan serves as a guide for Chapters when they review land use development proposals and make decisions on the location of future developments and land use. The Community-Based Land Use Plan also provides a foundation for zoning ordinances.
    - The Local Governance Act also delegates governmental authority to Chapters with respect to local matters consistent with Navajo customary and traditional law. It defines the executive and legislative functions of the Chapter as well as the duties and responsibilities

of Chapter officials. It allows Chapters to make decisions over local matters including, among other provisions:

- The ability to acquire, sell or lease property of the Chapter.
- Enter into agreements for the provision of goods and services
- Enter into intergovernmental agreements with federal, state, tribal entities and/or their agencies, subject to the approval of the Intergovernmental Relations Committee of the Navajo Nation Council
- Land use plan to meet the changing needs of the community
- Acquire property by eminent domain, pursuant to Section 2005
- Zoning ordinances consistent with the Chapter's community based land use plan.
- Regulatory ordinances for governmental purposes, enforcement of which shall be by the Chapter, for the general health, safety and welfare of the Chapter membership, consistent with Navajo Nation law
- Local taxes pursuant to a local tax code developed by the Navajo Tax Commission and approved by the Navajo Nation Council
- Local fees based upon guidelines established by the Navajo Nation Council.
- Issue community bonds

- Homesite Lease Regulations, RDCO-74-16 - A copy of the Home Site Regulations 2016 is available on line and can be located here: http://www.dinehbikeyah.org/docs/homesite/Homesite_Lease_Regulations_2016.pdf The Navajo Nation offers homesite leases to enrolled Navajo members to promote home ownership and to secure tribal housing. Homesite regulations were recently updated and approved by the Council in October of 2016. Homesite leases are generally limited to one acre or less of tribal trust or fee land, excluding withdrawals of land for residential subdivisions and other types of withdrawals. The lease requires an annual rental fee of $12.00. Leases are granted for a period of 75 years.
    - Homesite applications require:
        - Certificate of Indian blood
        - Archaeological clearance
        - Cultural resource compliance form
        - Land Board official verified homesite location
        - Field Clearance certification form clearing grazing permittees

- Land Survey Plat
- Biological clearance
- Environmental Review
- Forestry Compliance Letter

- Additional Provisions address long standing concerns over homesite lease abandonment, modification or termination of leases, default, compliance and enforcement.
- Section 15 outlines responsibilities of the local Land Board and Grazing officials to ensure there are not conflicts with the proposed location and withdrawn areas, local land use plans, forestland areas, irrigation, farming projects, near highways, or livestock watering areas.
- 

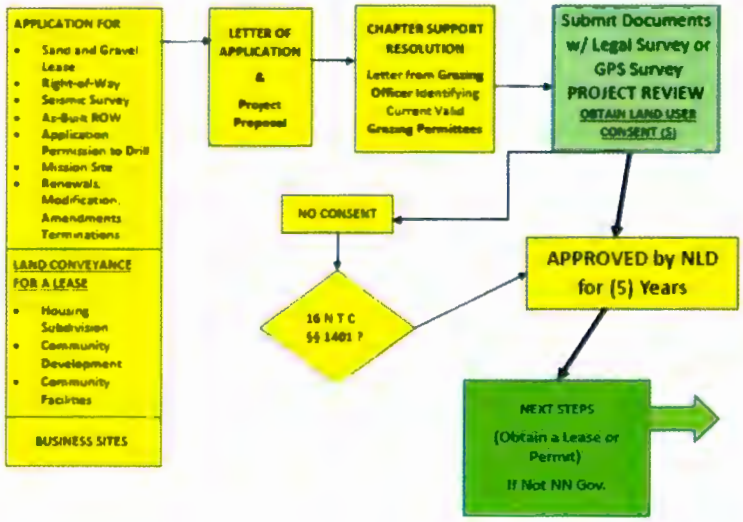
- <u>Moratorium of New Homesites & Range Units within the Navajo Commercial Forest Area – RCJY-142-92</u> -

- <u>Department of Lands Land Withdrawal Authority & Regulations RDCJN-33-15</u> - Complete details on the Land Withdrawal Process and the Resolution is available on line and can be located here: http://www.dinehbikeyah.org/docs/projectReview/Land-Withdraw-Designation-Regulations.pdf In 2015 Council approved changes to the Land Withdrawal Act in an attempt to streamline the approval process, provide regulatory clarity and delegating approval authority to the Land Department. The purpose of a Land Withdrawal Designation is to designate an area of land for future development after ensuring that the rights of grazing permittees, who are in compliance with their grazing permits, are properly addressed; and to prevent any subsequent claims to the land;

and to ensure that the affected Chapter supports the Land Withdrawal Designation and use of the land. These regulations apply to all Land Withdrawal Designations on the Navajo Nation.

- The following is the procedures to acquire a Land Withdrawal- Every individual, chapter, or entity desiring a Land Withdrawal Designation needs to submit an application to the Navajo Land Department (NLD) which should include the following information:
    - A letter of application or cover letter
    - A proposal for the planned use of the land
    - A legal surveyor GPS land description indicating the location.
    - An entity requesting a Land Withdrawal Designation shall then submit their proposal to the Chapter to obtain a Resolution of Support.
    - Once the Chapter Resolution of Support is passed by the affected Chapter, return the signed Resolution of Support to the NLD.
- The NLD will acquire the necessary consent from all grazing permittees holding a valid grazing permit with an interest in the land as applicable. Consent will include infrastructure that supports the development and no additional consents are necessary. In the event the grazing permittees will not consent, but the proposed project is in the best interest of the community and the Navajo Nation; the appropriate authorities may undertake eminent domain as allowed
- All Land Withdrawals shall be issued for a term of no more than five (5) years, with the possibility of extension of the term every five years thereafter, so long as the Designation Holder is not in violation of any provision set forth in these Regulations. The term shall be determined by NLD on a case-by-case basis.

Land Withdraw for Designation



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7.4 Managing Agencies

7.4.1 Navajo Land Department

The Navajo Land Department has the responsibility for administering the homesite lease application process and the land withdrawal application process.

Mission Statement - "To provide quality customer service by utilizing technology, legal authority, cultural awareness, and continuous education, to insure proper optimum use of real property for all to benefit."

Vision Statement/Goals - "Acquire, Record, Regulate, Value, and Preserve Our Sacred Navajo Lands (Diné Bí Kéyah)"

Department Organization

- General Land Development Department
- GIS Group
- Map Section
- Homesites Section
- Title, Records & Land Acquisition Program

Department Organization Chart

Contact Information

- P.O. Box 2249 Window Rock, AZ 86515
- Phone: (928) 871-6401
- Fax: (928) 871-7039
- http://www.dinehbikeyah.org/

7.5 Current Management Plans

A comprehensive management plan does not exist. The Land Department manages land changes and lease agreements through the laws and policies discussed in section 7.3.

Current management priorities related to the land status and management:

- Implementation of update Homesite Regulations for 2016.
- Working with Chapters to help introduce them to planning tools like zoning and organizing growth areas to better plan for infrastructure development and extensions.

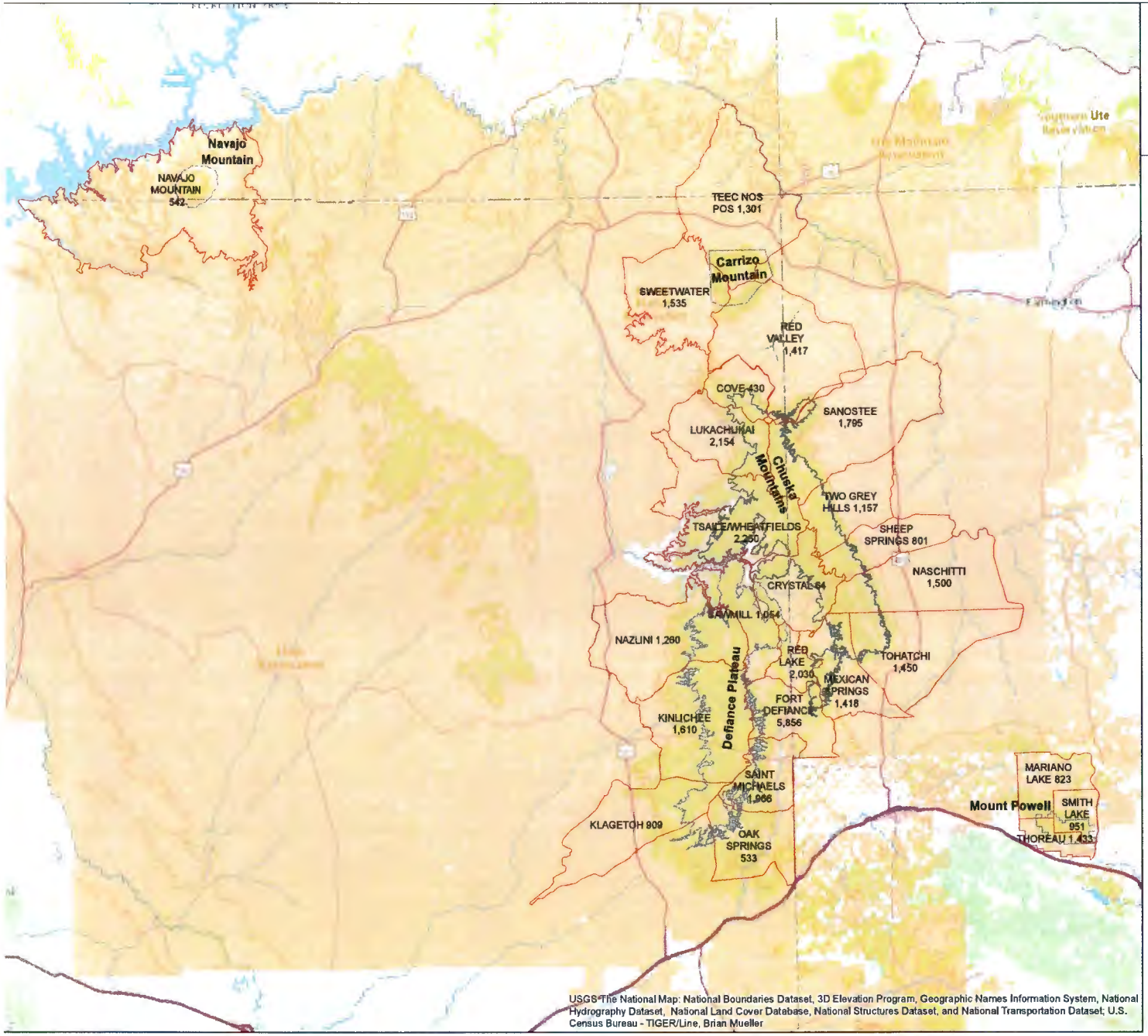
- Need to develop more consistent application of rules such as zoning to determine where to allow homesites to protect sensitive habitats and infrastructure extensions.

7.6 Community Concerns

- Access roads leading to homesites fragments landscape, poor condition and need maintenance
- Homesites are abandoned and dilapidated, moratorium made it difficult to do repairs or keep up homesites
- Concern about remote homesites in forest areas and impacts to forest, wildlife
- Homesites are no longer "rustic cabins" but turning into elaborate homes
- Concern about extending infrastructure to homesites in remote locations
- Concern over land withdrawal process, is cumbersome and is limiting local Chapters from settling boundary issues and developing areas
- Uncertainty about CLUPs future development area and impacts to forestland/natural areas

7.7 External Resource Department Concerns

  - Infrastructure development in forestland areas
  - Roads fragmenting forestlands, wildlife habitat
  - Maintenance responsibility for access roads
  - Unregulated and lack of enforcement around seasonal grazing of forestland and forest health impacts



Map 7.1 - Forest Study Area

Total Population By Chapter

NAVAJO FORESTLAND IRMP

LEGEND

Total Population By Chapter for Forest Study Areas

- Chapter Boundary / Population

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (BOR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local
- Private or Unknown

General Reference

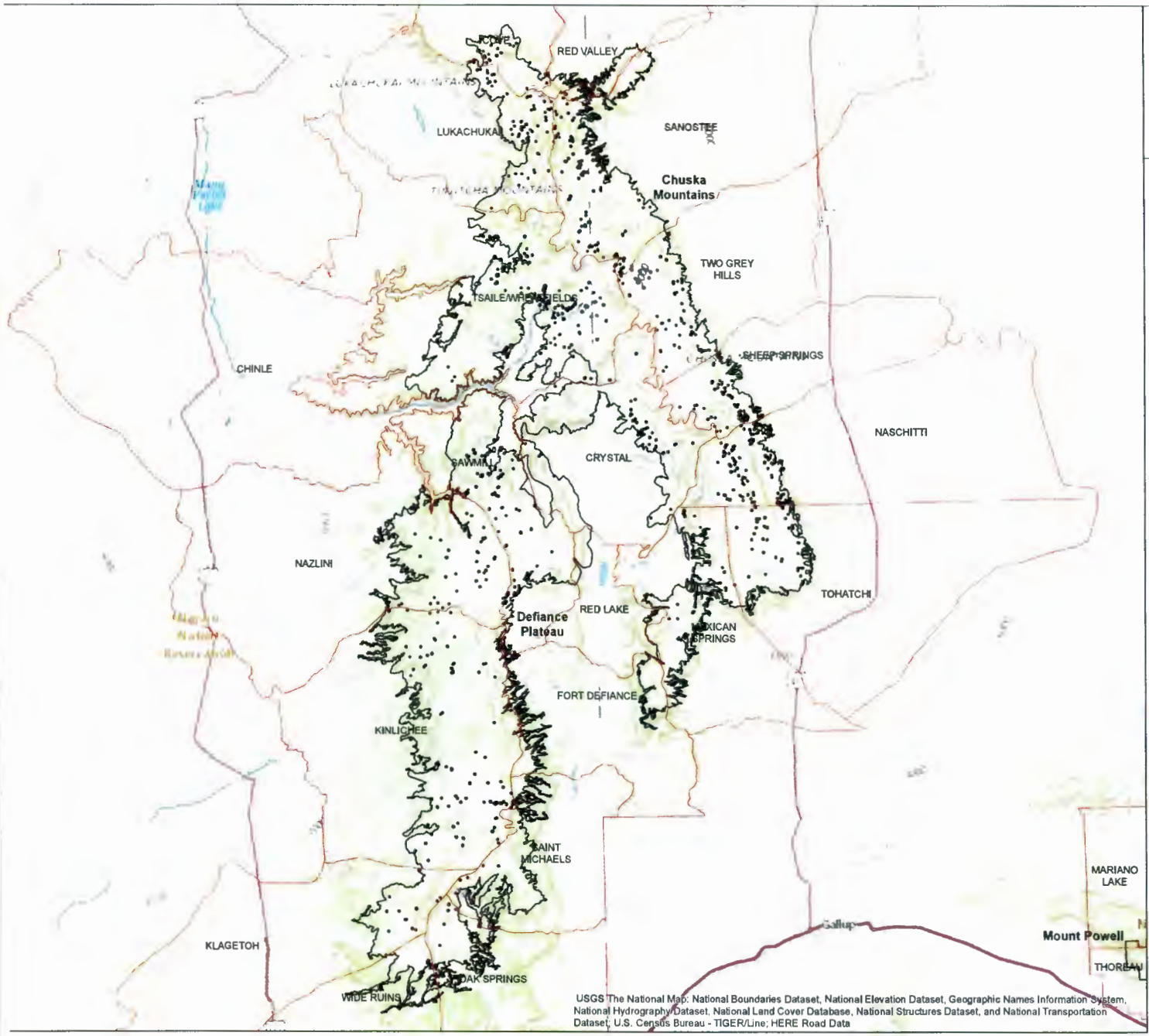
- Interstate Highway
- Other Road
- Forest Study Area Boundary
- Lake or Reservoir
- Stream/River
- County Boundary
- State Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Forestry Department

0 5 10 20 30 40 Miles

N W E S



Map 7.0

Residential Homesites

NAVAJO FORESTLAND IRMP

LEGEND

Residential Homesites (Chuska/Defiance Plateau)

- Residential Homesites - 1,498

Land Ownership

Department Of Defense (DOD)	Bureau of Reclamation (USBR)
Bureau of Land Management (BLM)	Bureau of Indian Affairs (BIA)
National Park Service (NPS)	Other Federal
US Forest Service (USFS)	State
US Fish and Wildlife (USFW)	Local

General Reference

- Interstate Highway
- Other Road
- Forest Study Area Boundary
- Lake or Reservoir
- Stream/River
- County Boundary
- State Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Forestry Department

0 2.5 5 10 15 20 Miles

N W E S

8. Recreation Resources

8.1 Description

Recreational uses of an area include any type of outdoor activity in which area residents, visitors, or tourists may participate. Such activities may include hiking, fishing, hunting, biking, climbing, boating and cultural tourism. Recreational opportunities and resources can be a very important component of an area's economy and the lifestyle of its residents. Recreational resources analyzed in this chapter are assets pertaining to the physical geography of the Navajo Nation. Recreational resources have been organized into the following categories with similar uses grouped in parentheses: trails (pedestrian hikes, mountain bike trails, off highway vehicle and atv trails, scenic drives); historic and cultural attractions (historic monuments, parks, and cultural sites); scenic points (vistas, lookouts, and overlooks); climbing and canyoneering sites; parks (also including conservation areas, preserves, and refuges); fishing and hunting; boating; campgrounds and picnic areas; and community amenities (golf courses, recreation centers, ballfields, and rodeo grounds). A particular resource may provide several recreational opportunities; a resource organized under trail may offer hiking as well as picnicking at the trail terminus.[77]

8.1.1 Data

Available Type of Data/Resource Inventory Method

- List of most popular recreation areas:
    - Antelope Canyon
    - Antelope Point Marina
    - Bisti Badlands
    - Canyon De Chelly
    - Church Rock
    - Coal Mine Canyon
    - Dinosaur Tracks
    - Four Corners Tribal Park
    - Grand Falls
    - Lake Powell Navajo Tribal Park
    - Little Colorado River Tribal Park
    - Marble Canyon
    - Monument Valley and Monument Valley Tribal Park
    - Rainbow Bridge

[77] Blumenfeld, J. "EPA Comments on the Final Environmental Impact Statement (EIS) for the Guam and CNMI Military Relocation." (2010).

- San Juan River
- Shiprock
- Wheatfields Lake
- Window Rock

Information that would be useful:

- Locations, sizes, quality of parks, monuments, campgrounds, trail etc.
- Permit prices/structure
- Supporting infrastructure, visitors centers, road with conditions, convenience stores, gas, lodging
- Community health and recreation
- Tourism data - visitor numbers

8.1.2 Recreation Inventory by Forestland

Bowl Canyon Recreation Area is the only park within the Commercial Forest managed by Navajo Parks and Recreation Department. The park consists of Asaayi Lake and Camp Asaayi, Asaayi Lake has fishing, camping and picnicking (day use). Camp Asaayi is for organized groups where they can have meetings, games, hiking and other outdoor activities. Asaayi Lake is open for day use but no fishing. Camp Asaayi is closed due to ongoing renovation work.

- Defiance Plateau
- Chuska Mountains
- Navajo Mountain
- Mount Powell
- Carrizo Mountains

8.2 CONTEXT

With over 17 million acres, the Navajo Nation encompasses the entire northeast quarter of the state of Arizona, and spills over into New Mexico and Utah. Vast areas of pristine wilderness, majestic canyons, high mountain meadows, dry deserts, flatlands and blue skies characterize the land of the Navajo people. "The Navajo Country of the American Southwest has long attracted tourists, not only for its spectacular landscapes but also because of its cultural attractions. These include prehistoric Anasazi (Ancestral Puebloan) ruins, historic trading posts, and other buildings, as well as visible manifestations of Navajo culture, including traditional dwellings and costumes. In addition, Navajo handicrafts are a long-standing attraction.[78]"

[78] Jett, Stephen C. "Culture and tourism in the Navajo country." Journal of Cultural Geography 11.1 (1990): 85-107.

The Navajo Nation is endowed with many geographies suitable for recreation. Recreation fulfills two important roles. First establishment and improvement of recreation resources can be an economic driver encouraging tourism, job growth and stimulating local economies. Second, community recreation contributed to greater community health offering opportunities for exercise, teamwork, exposure to fresh air and nature and community pride and engagement. There are various levels of recreation resource infrastructure within the Navajo Nation. The forestland areas in particular offer unique opportunities for tourism due to their scenic value, wildlife and fisheries, habitats and terrain.

8.2.1 Key Recreation Challenges

- Vandalism
- Cultural Sensitivity - Non-exploitative applications of cultural resources
- Human and financial Resources - planning and development constraints, lack of funding
- Some Navajo people report unauthorized photographing of individuals and other losses of privacy; range damage by off-road vehicles; and other inappropriate behavior by tourists, including occasional theft.[79]

8.3 Policies, Programs and Regulatory Framework

The Navajo Nation is comprised of essentially private lands, therefore all non-Navajo visitors must abide by and comply with the laws, regulations and policies promulgated by the Navajo Nation government, including those governing Navajo parks, monuments and recreation areas.

- Permit and Permit Process
    - Permits are required for all non-Navajo people visiting tribal parks and lands wishing to engage in recreational pursuits like hiking and camping or planning on filming or photographing for commercial purposes. Permits can be purchased through the Navajo Nation's Park website: navajonationparks.org or by writing to one of the Park's field office.
    - In addition, the following rules bust be followed by visitors to the Navajo Nation:
        - In accordance with the Resources Committee Land Use Policies, a camping fee will be charged per person, per night. In addition, a backcountry use permit is required for hiking.
        - Stay on designated trails and routes. Cutting switch backs damages trails and causes erosion and destruction of soil composition. It can take 100 years for soil and vegetation to recover from human impact.
        - A permit is required for fishing any lakes or streams, and also for hunting for game on land under the jurisdiction of the Navajo Nation. Permits, fees, and dates can be obtained from Fish & Wildlife Department: PO Box 1480, Window Rock, AZ 86515. Or call 928-871-6451.

[79] Jett, Stephen C. "Culture and tourism in the Navajo country." Journal of Cultural Geography 11.1 (1990): 85-107.

- Respect the privacy and customs of the Navajo people. Do not wander across residential areas or disturb property. Obtain permission before taking pictures of the Navajo people.
- Whatever your pack into the wilderness, you must carry out. Nothing should be left buried or burned. Substances such as food scraps and garbage will take years to decompose. Also, wildfires can be started by burning trash.
- Pets are allowed ONLY if on a leash at all times. The backcountry is open range for livestock.
- Photographs or video taken for commercial use is prohibited unless accompanied by a valid permit issued by Navajo Parks & Recreation or Navajo Office of Broadcasting Services.
- Navajo Tribal Code Title 17, Section 1451, prohibits the use of firearms.
- The Navajo Nation is not responsible for any injuries, accidents, or thefts of personal property during your visit.
- Fires are permitted only in grills, fireplaces, or similar control devices. No open ground fires. There is always a danger of wildfires.
- Do not disturb or remove animals, plants, rocks or artifacts. Tribal Antiquity and federal laws are in effect. Special permits are required from the Navajo Minerals Department and Natural Heritage Program to collect rocks or plants.
- Consumption and/or possession of alcoholic beverages or illegal drugs are prohibited.
- DO NOT desecrate Navajo lands and violate the trust of Navajo people by discarding cremated human remains on tribal property.

- Title 19 – Parks and Monument[80]
  - "All areas of scenic beauty and scientific interest which require preservation shall be reserved as Navajo parks, monuments, or ruins, to be managed by the Navajo Nation with the cooperation of other agencies." This regulation deals with the autonomy of Navajo Nation Parks from the US Government and Department of the interior. It also outline appropriate uses of park and monument lands, definitions for those uses and permit structures and fees.
- Title 5, Section 2501[81] – Tour and Guide Service Act, outlines the permit process and operation of guided and touring services within the Navajo Nation.

[80] http://www.navajonationcouncil.org/
[81] http://www.navajonationcouncil.org/

8.4 Managing Agencies

8.4.1 Navajo Nation Parks and Recreation Department

The Navajo Parks and Recreation Department was established in 1964 and remains one of the oldest programs in the Navajo Nation government. It is responsible for managing the Tribal Park System. It faces tremendous challenges to accomplish its mandate to manage, protect and preserve these special areas because of the growing Navajo population, the need to promote economic and social opportunity for the people, and the huge number of visitors who come to see, learn and experience the wonders of the Navajo Nation

Mission Statement: The Mission of the Navajo Parks and Recreation Department is to protect, preserve and manage tribal parks, monuments and recreation areas for the perpetual enjoyment and benefit of the Navajo Nation – the spectacular landscapes, buttes, canyons, clean air, diversity of plants and wildlife, and areas of beauty and solitude.

Vision Statement/Goals: Continue its presence on the Navajo Nation as the trustee of special lands held for the common benefit of all Navajo people

- Perform and carry out its role with due regard and respect for Navajo traditional values and customs;
- Listen and try to understand all perspectives and diverse points of view;
- Promote Navajo beliefs and values to the outside world;
- Strive for excellence, creativity and initiative in its operations;
- Treat all individuals with acceptance, integrity and respect; and
- Create enduring partnerships to foster conservation and preservation using innovative and traditional approaches."[82]

Department Organization - The Department is a combination of the following sections: Administrative Support Staff, Planning/Technical Staff, Construction/Maintenance Program, Parks Program

8.4.2 Supporting Agencies

NN Department of Fish and Wildlife – Manages fishing areas and campgrounds

NN Department of Forestry – Manages picnic areas in commercial forests

8.5 Current Management Plans

The only management plan provided and located for this report is the Join Management Plan for the Canyon de Chelly Area.

[82] http://navajonationparks.org/about-us/

Joint Management Plan for the Canyon de Chelly area - To be completed by June 2020, a Joint Management Plan among the Navajo Nation, National Park Service, and Bureau of Indian Affairs is much needed iPrimaryn order to ensure that the natural and cultural resources of the Canyon are protected and to ensure that the protection of those resources is accomplished in a manner that allows for economic vitality.

- 2016 Canyon de Chelly Vision Statement[83] - "To respectfully share stewardship of Canyon values, and to protect and preserve its beauty, resources, and culture for the future - hózhǫ dooleeł."
    - Share: It was recognized that this is a shared resource and all stakeholders share a responsibility in managing and caring for the
    - Canyon.
    - Stewardship: Participants wanted to acknowledge that those involved are stewards of the Canyon, which implies an obligation that will be passed onto future generations. As such, we are now setting the example for those generations.
    - Canyon Values: Canyon Values reflect the uniqueness of Canyon de Chelly for the Navajo
    - Nation and beyond. Maintaining the values entrenched in Canyon life and respect and understanding of those values outside of the Canyon is important to recognize as strategic plans advance.
    - Protect: There is much to be guarded against, including mismanagement of traditional practices, such as overgrazing and erosion, but also things outside of anyone's immediate control, such as climate change.
    - Preserve: Preservation of the Canyon was a priority for all.
    - Resources: The Canyon is replete with known and possibly unknown resources. From the multiple archeological sites, to fertile soils, to irrigation, to wildlife, and more, there is a valuable chain of resource material that, taken together, resolve into the elements that make Canyon de Chelly unique.
    - Culture: The history, people, patterns, and place comprise a culture that belongs to Canyon de Chelly. Developing a strategy for the future management that preserves these elements is vital to those involved in formulating the Vision Statement.
    - Future: All of this is intended for the future of the Canyon to allow for change, while retaining as much of Canyon de Chelly's place in the Navajo tradition as much as possible.
    - hózhǫ́ dooleeł: "It will be beautiful again" is a recognition of the Navajo language within the Vision as well as an intention of the spirit imbued in the Vision Statement and the Canyon itself.

[83] Canyon de Chelly: A Vision for Tomorrow, The Antero Group. Chicago, IL. august 2016

8.6 Community Concerns

Generally, recreation concerns fall into two broad categories with some overlapping desires; recreation which benefits the health of the community and recreation opportunities which encourage tourism.

"For the Navajo community it (open land) is also the energy and life source of the people, a jewel to be examined and carefully carved. This is an ideal opportunity for the Chapter to lay the foundations of protecting the jewel and deciding on their own definition of community health.[84]"

8.6.1 Concerns by Forestland

Defiance Plateau - Some recreation facilities exist such as trails, camping, fishing and hunting, ball fields and school playgrounds. The communities of the forestland would like to see expanded recreation facilities for the community and to attract tourists.

- In particular chapters near Canyon de Chelly National Monument would like to increase recreation opportunities, maintain the existing recreation infrastructure and viewpoints. "Sawmill has a tremendous amount of natural land and beauty and is by far its greatest resource. The Northern portion of the Chapter is a draw for tourism through hunting and sightseeing.... Tourism also will benefit by the accessibility to Canyon de Chelly from the north areas of the Chapter.[85]"

Chuska Mountains - "Because of the community's incredible natural beauty, the community recognizes the importance of preserving areas of special significance from development. The community also recognizes the potential to attract tourists by offering them the opportunity to enjoy the magnificent scenery the area has to offer. By preserving areas as open space, the community will preserve this valuable resource, while also respecting the natural beauty and importance of the natural land.[86]"

- The communities within the forestland report that open space is not an official designation in many areas and most chapters lack any recreation facilities. However, there is concern about management and enforcement of recreation opportunities, especially when it comes to trash and refuse.

- The communities of the forestland have identified numerous scenic areas of immense natural beauty and cultural attractions. Identified throughout the CLUPs provided by the respective communities are opportunities for hunting and fishing, outdoor recreation such as camping hiking and biking, and areas for community parks, sports fields, rodeo grounds and recreation centers. In particular chapters near Canyon de Chelly National Monument would like to increase recreation opportunities, maintain the existing recreation infrastructure and viewpoints. "Sawmill has a tremendous amount of natural land and beauty and is by far its greatest resource. The Northern

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[84] Crystal Chaper Community Based Land Use Plan. Prepared by Planners Ink. Santa Fe, NM with Red Mountain Engineering. June, 2003. (Page 42)

[85] Sawmill Chapter Community Based Land Use Plan. By Atkins Benham. NAHASDA Land Use Planning Project Number 31-2000-1. (Page 2-1)

[86] Cover Chapter K'aabiishii Nasdl'ah Community-Based Land Use Plan. Cove, AZ. JJ Clacks & Company. Fort Wingate, NM and Navak Environmental, Inc. Tuscon, AZ. March 2002. (Page 36)

portion of the Chapter is a draw for tourism through hunting and sightseeing.... Tourism also will benefit by the accessibility to Canyon de Chelly from the north areas of the Chapter.[87]"

Navajo Mountain - The community believes there are incredible opportunities for tourism due to the chapter's proximity to Lake Powell and Rainbow Bridge National Monument.

Mount Powell - Fitness and health amenities were identified as community concerns throughout the forestland. Open space and recreation opportunities exist. Open space is used for grazing; forested areas could be used for outdoor recreation and commercial adventure recreation business opportunities. In Mariano Lake Chapter sports and rodeo arenas are present and need improvements.[88]

Carrizo Mountain

- Promote an expansion of community amenities including creating a fitness/wellness center.
- Promote economic development through tourism and recreation. Examples are visitor amenities and hotels/camping, outdoor activities, eco-tourism, and view areas/historic markers.
    - "Provide areas for recreational facilities (youth recreational center, park, golf course, batting cages, picnic areas) Hiking/ biking areas, 4x4, Jeep trails / tours, Rock climbing, Jeep canyon tours, Hunting areas, Air Shows, Sky Diving.[89]"

8.7 External Resource Department Concerns

- Increased recreational use of streams can lead to destruction of riparian vegetation. Excessive road traffic can compact soils leading to increased levels of erosion, impacting spawning habitat and growth.
- The management of forestland is critical to the operation of Bowl Canyon Recreation Area by providing pristine water for the lake. Poor quality runoff of water to the lake results in damage to the fish habitat resulting in poor or no fishing opportunity. Lack of fishing results in low usage of the lake recreation facilities resulting in drop in revenues to help maintain the area. Most users of the Camp also come to Bowl Canyon for fishing and if there is no fishing they go elsewhere, e.g. Wheatfields Lake.
- "The Navajo Nation is home to several national parks and monuments including Canyon De Chelly, Chaco Canyon, Hubbell Trading Post, Navajo National Monument and Rainbow Bridge. The NDPR manages seven Tribal Parks, including Monument Valley and Asaayi Recreation Area. Other nearby attractions include the Glen Canyon Recreation Area and Grand Canyon National Park which share boundaries with the Navajo Nation. Many of these sites are shown in Figure 3.4. The annual tourism revenue in the Four Corners Area exceeds

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[87] Sawmill Chapter Community Based Land Use Plan. By Atkins Benham. NAHASDA Land Use Planning Project Number 31-2000-1. (Page 2-1)

[88] Mariano Lake CLUP, 5 Existing Land Use and Goals. (Page 10)

[89] Beclabito Chapter Community-Based Land Use Plan. Beclabito Chapter, Shiprock,NM and JJ Clacs and Company Fort Wingate, NM. December, 2011 (Page 66)

$660 million. Many of the parks have reservoirs within their boundaries. The NDPR operates and maintains the campgrounds near the lakes. The NDPR reports that campgrounds and recreational facilities near reservoirs like Asaayi are booked solid from March through October. The Navajo Nation charges of $5 per person per day for the use of these facilities. Drought related closures or declines in visitation impact this income. The Monument Valley Park is the only park that requires hauling potable water. During the 1996 drought, the NFD restricted open fires to designated campground areas."[90]

[90] Navajo Nation Drought Contingency Plan, 2003. NN Dept. of Water Resources.

9. Wetlands and Riparian Areas

9.1 Description

In the Western United States, wetlands comprise less than 1 percent of the overall land area. Wetlands and riparian areas are among the most productive and valuable natural resources and should be managed and protected to the greatest extent possible. Wetlands and riparian areas are typically found at the interface of terrestrial ecosystems, such as upland forests and grasslands, and aquatic systems including rivers, streams, lakes and oceans. Wetland and riparian areas occur along natural watercourses and next to constructed water bodies such as ditches, canals, ponds, and reservoirs. They can also found in isolated areas, where the nearby aquatic system is a groundwater aquifer or in areas where surface hydrological conditions allow for them to develop over time, such as natural drainages. These types of wetlands are commonly referred to as isolated wetlands. Riparian areas are lands that exist along and adjacent to wetlands where a wetland ecosystem transitions into an upland ecosystem [See figure below]. Wetlands have many distinguishing features, the most notable of which are the presence of standing water for some period of time during the growing season, a term commonly referred to as inundation.

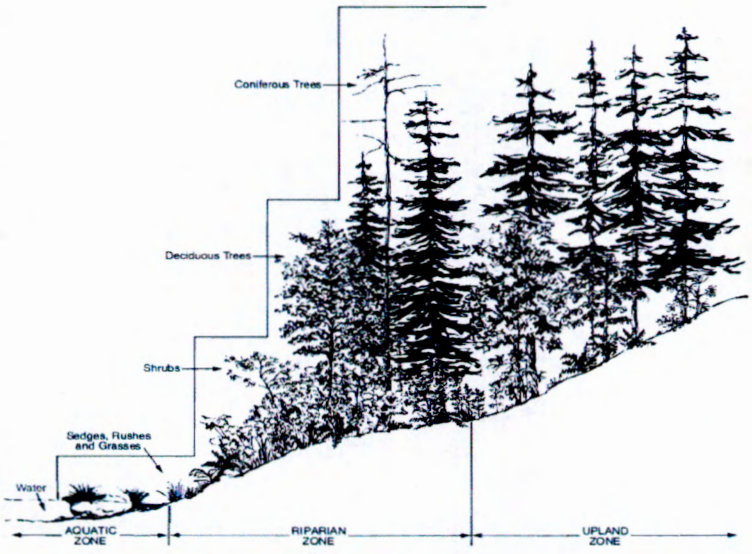

Figure 2.—Riparian zones have vegetation that requires large amounts of free or unbound water and are transitional between aquatic and upland zones.

Wetlands have unique soil conditions, organisms and vegetation that has adapted to or is tolerant of saturated soils. Wetlands and riparian areas are commonly found in floodplains and along stream banks. Riparian areas differ slightly from wetlands in soil condition, vegetation and overall ecological composition.

Soils in natural riparian areas typically consists of stratified sediments of varying textures that are subject to intermittent flooding or fluctuating water tables that may reach the surface. The duration of soil wetness depends on the water levels of the adjacent water body.

Riparian areas are the major providers of habitat for endangered and threatened species in the western desert areas. Because of their variation across the country, riparian areas function in different ways. In spite of their differences, all riparian areas wetlands possess some similar ecological characteristics such as energy flow, nutrient cycling, water cycling, hydrologic function, and plant and animal population. Wetlands and riparian areas are unique ecosystems because of their hydrologic conditions and their role between terrestrial and aquatic systems. These functions give riparian areas unique values relative to the surrounding landscape.

Wetland vegetation, including riparian forest, is the most productive community in New Mexico and Arizona and the forestlands. Eighty percent of all vertebrates use riparian areas for at least half their life cycles; more than half of these are totally dependent on riparian areas Some species are endemic to specific wetland vegetation types. Rocky Mountain deciduous woodland is a riparian forest characterized by tall, winter-deciduous broadleaf trees restricted to stream banks and the periphery of lakes and ponds. Species restricted to the woodlands are western screech owl (Megascops kennicottii), yellow-billed cuckoo (Coccyzus americanus), southwestern willow flycatcher (Empidonax traillii extimus), canyon tree frog (Hyla arenicolor), and Woodhouse's toad (Anaxyrus woodhousii).[91]

Wetlands are classified on the basis of hydrology, vegetation, and soils. Wetland classifications and type can vary from region to region. Wetland classifications for each of the five (5) forestlands are described below in the resource inventory by forestland section. The dominant wetland types for the forestlands include:

- Riverine - Includes all wetlands and deep-water habitats contained within a channel.
- Freshwater Pond - Wetlands that form in and around a pond or lake.
- Freshwater Emergent - Wetlands that are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens.

According to National Wetlands Institute data, there are approximately 29,547 acres of wetlands and riparian areas located within the five (5) forestlands, which is equal to 2.4 percent of the total land in the five (5) forestlands. Typical wetlands types that are likely to occur within the forestlands could include freshwater marshes in and around ponds, lakes, reservoirs, springs, seeps, farm ponds and slow-moving watercourses. Bald eagles are found in northern Arizona near lakes and streams (Lowe 1964). Beaver occur along permanent streams and raccoon along Little Colorado River. Many shorebirds and waterfowl are restricted to these habitats for breeding or wintering habitat (Brown 1985). These habitat types are also important stopovers for migrating birds during spring and fall. Other species restricted to these habitats are northern leopard frog, terrestrial garter snake and muskrat.

Open water wetland habitat within the Navajo Nation includes ponds, lakes and reservoirs generally with vegetation surrounding them. Fish occur in each of these habitats and each species is restricted to specific environmental features (Lowe 1964; Alden et al. 1999). Colorado chub, Colorado squawfish and Bluehead sucker are found in cold water drainages of the Colorado River. Speckled dace occur above 2,000 meters in creeks and rivers. Black bullhead can be found in warm water such as stock tanks, ponds and ditches. In

[91] FBFA Integrated Resource Management Plan. Bureau of Indian Affairs, Navajo Region and The Navajo Nation. October 2016. (Page 43)

Arizona, many non-native fish species were introduced to open water habitats during the 20th century. Today, only a few isolated mountain streams contain only native fish species. Non-native fish populations are now more numerous than native because they are repeatedly reintroduced into recreation areas, they outcompete native fish for food, and they are veracious predators of native fish and amphibians.[92]

Why Protect Water Quality in Forest Areas?

- Human and animal communities depend on good quality water for their livelihoods. Damage to streams and increased sedimentation degrade water quality and aquatic habitat. Sediment is fine particles of soil, sand, and pebbles that may be carried by ephemeral, intermittent, or perennial stream channels and later deposited when the flow slows or stops, conceivably in an eddy or where a stream enters a lake or pond. Sediment laden water is unsuitable for human consumption, recreational purposes, and many industrial applications. Downstream users of water also incur costs, including reduction in reservoir and irrigation ditch capacity and damage to irrigation pumps. Important water quality considerations in addition to sediment levels are conductivity, dissolved oxygen (DO), pH, turbidity, total suspended solids (TSS), and temperature. Poor harvesting methods can affect all of these factors, thus impacting aquatic habitat and overall water quality.[93]

9.1.1 Data

Data from the National Wetlands Institute (NWI) was utilized for analysis of wetland and riparian resources within the five (5) forestlands.

9.1.2 Riparian Areas by Forestland[94]

- Defiance Plateau - There are approximately 5,800 total acres of mapped wetlands within the Defiance Plateau. Wetland types and total acreage for the Defiance Plateau forestland are shown in 9.1 below.

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[92] FBFA Integrated Resource Management Plan.Bureau of Indian Affairs, Navajo Region and The Navajo Nation. October 2016. (Page 43 - 44)

[93] http://www.emnrd.state.nm.us/SFD/ForestMgt/documents/ForestPracticesGuidelines2008.pdf

[94]

Table 9.1 - Defiance Plateau Wetlands Inventory Summary

Wetland Type and Acreage	Cowardin	General Description
Freshwater Emergent (4.4 ac)	Palustrine emergent	Herbaceous marsh, fen, swale and wet meadow
Freshwater Pond (63.5 ac)	Palustrine unconsolidated bottom, Palustrine aquatic bed	An inland body of standing water that is smaller than a lake
Riverine (5,732 ac)	Riverine wetland and deep water	Wetlands that are located within a channel
Total - 5,800 acres		

The dominate wetland type within the Defiance Plateau is Riverine wetlands which are found adjacent to and within creeks, streams, washes and natural drainages throughout the forestland. Riverine wetlands and their associated riparian areas provide critical habitat for wildlife and fish within the forestland.

- Chuska Mountains - There are approximately 18,730 acres of mapped wetlands within the Chuska Mountains forestland. Wetland types and total acreage for the Chuska Mountains forestland is shown in table 9.2 below.

Table 9.2 - Chuska Mountain Wetlands Inventory Summary

Wetland Type and Acreage	Cowardin	General Description
Freshwater Emergent (3,488 ac)	Palustrine emergent	Herbaceous marsh, fen, swale and wet meadow
Freshwater Pond (289 ac)	Palustrine unconsolidated bottom, Palustrine aquatic bed	An inland body of standing water that is smaller than a lake
Riverine (14,207 ac)	Riverine wetland and deep water	Wetlands that are located within a channel
Freshwater Forested/Shrub Wetland (3.2 ac)	Palustrine forested and/or Paustrine shrub	Woody wetlands;; forested swamp, shrub bog
Lake (744 ac)	Lacustrine deepwater and associated wetlands	Lake or reservoir basin
Total - 18,730 acres		

The total acreage of wetlands located within the Chuska Mountains is greater than all other forestlands combined. There are five (5) different wetland types located in the Chuska Mountains.

Navajo Mountain - There are approximately 941 total acres of mapped wetlands within the Navajo Mountain forestland. Wetland types and total acreage for the Navajo Mountain forestland is shown in table 9.3 below.

Table 9.3 - Navajo Mountain Wetlands Inventory Summary

Wetland Type and Acreage	Cowardin	General Description
Riverine (941 ac)	Riverine wetland and deep water	Wetlands that are located within a channel
Total - 941 acres		

- Mount Powell - There are approximately 776 total acres of mapped wetlands within the Mount Powell forestland. Wetland types and total acreage for the Mount Powell forestland is shown in table 9.4 below.

Table 9.4 - Carrizo Mountain Wetlands Inventory Summary

Wetland Type and Acreage	Cowardin	General Description
Riverine (775 ac)	Riverine wetland and deep water	River or stream channel
Freshwater Pond (0.9 ac)	Palustrine unconsolidated bottom, Palustrine aquatic bed	An inland body of standing water that is smaller than a lake
Total - 776 acres		

- Carrizo Mountains - There are approximately 3,300 total acres of mapped wetlands within the Carrizo Mountain forestland. Wetland types and total acreage for the Carrizo forestland is shown in table 9.5 below.

Table 9.5 - Navajo Mountain Wetlands Inventory Summary

Wetland Type and Acreage	Cowardin	General Description
Riverine (3,294 ac)	Riverine wetland and deep water	River or stream channel
Freshwater Pond (6.4 ac)	Palustrine unconsolidated bottom, Palustrine aquatic bed	An inland body of standing water that is smaller than a lake
Total - 3300 acres		

9.2 Context

9.2.1 Key Wetland and Riparian Concerns

9.3 Policies, Programs and Regulatory Framework

Navajo Nation Aquatic Resource Protection Program requires the Navajo Nation EPA and Heritage Program to review and approve all projects that may impact wetlands, waters, and riparian areas of the Navajo Nation. This regulation requires a wetland study and review by the Navajo Nation for any projects that may alter or impact watershed resources on tribal trust lands.

9.4 Community Concerns

9.4.1 Concerns by Forestland

Defiance Plateau (specific wetland mgmt concerns for Defiance Plateau not identified in this study).

Chuska Mountains

- "The riparian and wetland system in the Ch'óshgai Mountains make up a rare and sensitive environment with great importance to Diné Bikéyah, as the system serves as a major source of the water recharging the aquifers used by the surrounding Chapters. The Navajo Forest environmental impact statement notes that in some places this system is in poor condition due to: grazing activities, poor road design, improper road drainage and lack of road maintenance."[95]

Navajo Mountain (specific wetland mgmt. concerns for Defiance Plateau not identified in this study).

Mount Powell

- "Both natural and man-made wetlands are present within the chapter boundary, according to the U.S. Fish and Wildlife Service, National Wetlands Inventory. These are all relatively small, mostly man-made, and only retain moisture for short periods of time. Smith Lake is a man-made lake. Due to the buildup of silt over the years, the lake is shallow and wide, with a resulting rapid loss of

[95] Nakaii bito'í Comprehensive Land Use Plan (Page 17)

water to evaporation. As such, it only holds water for short periods of time before drying up completely.[96]"

Carrizo Mountains (specific wetland mgmt. concerns for Defiance Plateau not identified in this study).

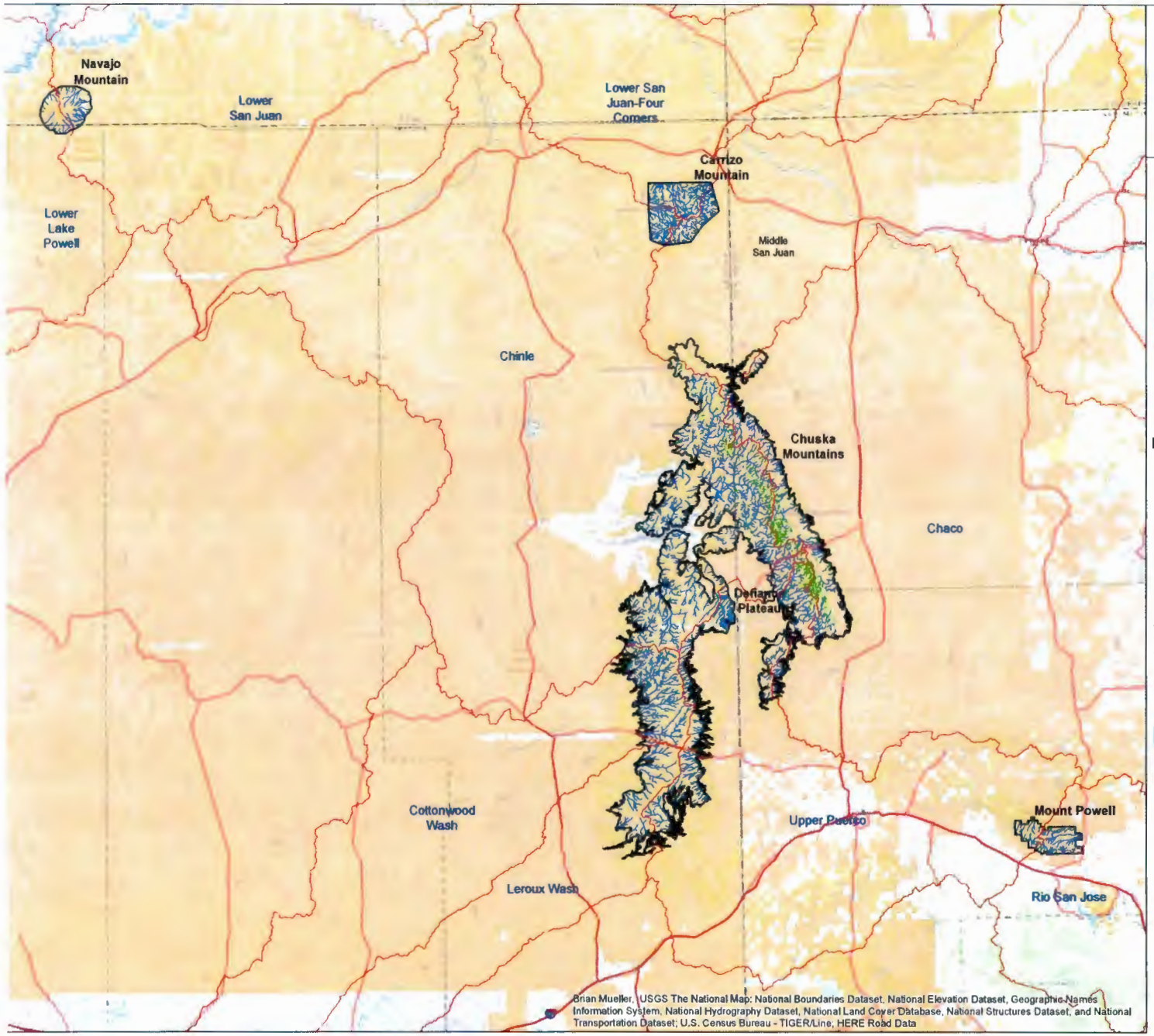
9.5 Wetlands & Riparian Areas (SMA's - Streamside Mgmt. Areas) Collaboration Chart

Primary Concerns	General Best Management Practices[97], [98]	Opportunities for Integrated Mgmt.
Habitat loss and degradation from grazing, poor road design, sedimentation and recreational uses	• No landings, roads or skid-trails should be located in a wetland. Most are not allowed in a riparian area depending on length of use and alternate practices approved by the Forestry Division. Equipment use should be limited in wetlands or areas of temporary saturated soils during periods of snowmelt, freezing and thawing. • Designate streamside management areas to provide stream shading, soil stabilization, sediment and water filtering effects, and wildlife habitat. • The SMA encompasses a strip at least 50 feet wide measured from the ordinary (yearly average) high-water mark or definable bank of a pond or lake, or on each side of the stream or river. The width of the SMA may extend beyond the 50 feet to include riparian areas along the stream bottom and to provide additional protection in areas of steep slopes and erodible soils.	Department of Agriculture Department of Forestry Department of Water Resources Fish & Wildlife Dept.

[96] Community Land Use Plan for the Smith Lake Chapter, Final Report. Prepared by, Architectural Research Consultants, Incorporated and Smith Lake Chapter Community Land Use Planning Committee. July 2005. (Page d-5)

[97] https://www.fs.fed.us/biology/watershed/BMP.html

[98] http://www.emnrd.state.nm.us/SFD/ForestMgt/documents/ForestPracticesGuidelines2008.pdf



Map 9.0 - Forest Study Area

Wetland Resource Inventory

NAVAJO FORESTLAND IRMP

LEGEND

Wetland Type/Total Acreage (Entire Forest Study Area)

- Riverine Wetlands - 24,949 acres
- Pond / Lake Wetlands - 1,104 acres
- Freshwater Emegent - 3,493 acres
- Freshwater Forest Shrub - 3.2 acres

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

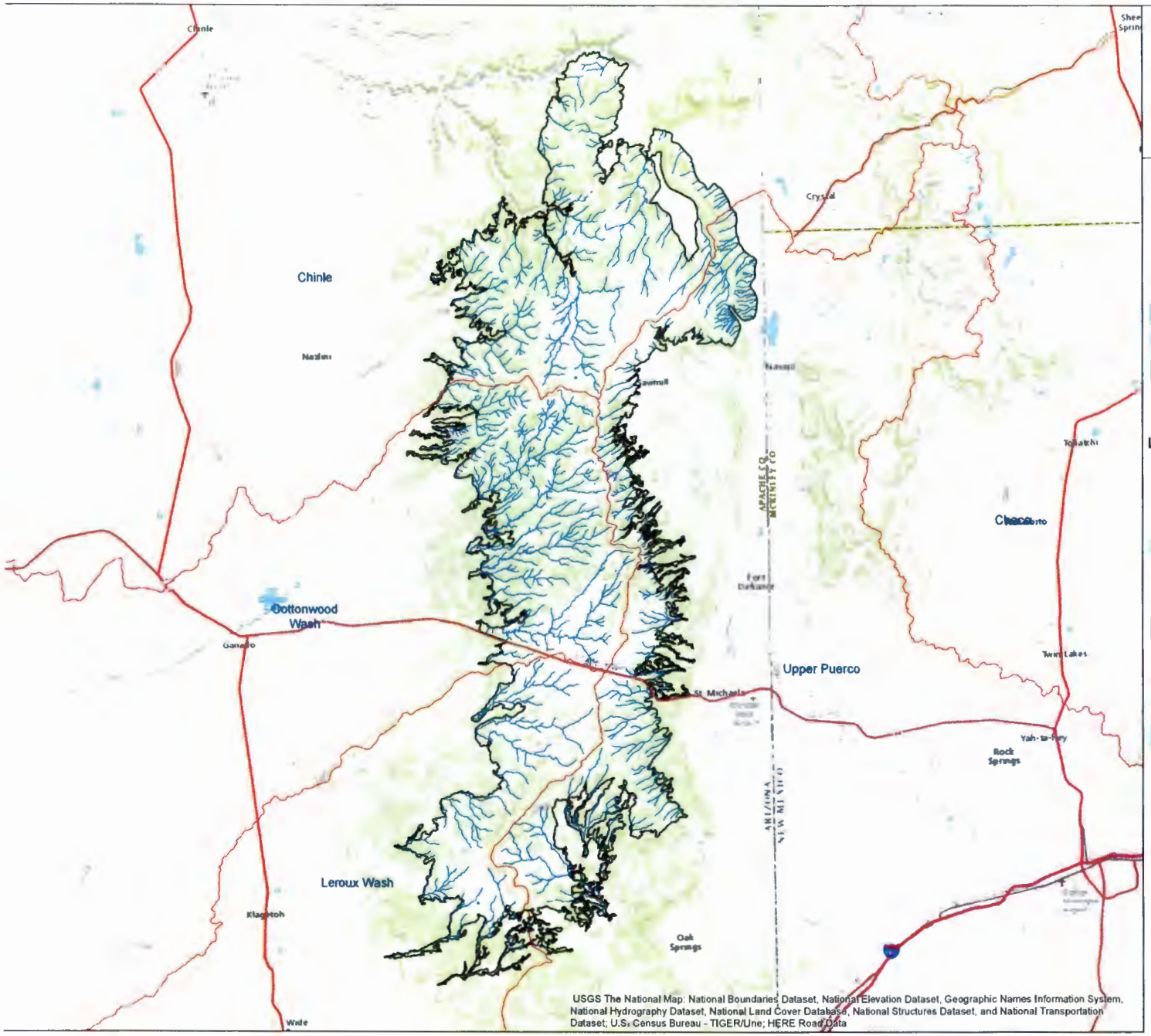
General Reference

- Forest Study Area Boundary
- Subregional Watershed Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: USFWS - National Wetlands Institute Mapping Data. USGS Hydrological Data

0 5 10 20 30 40 Miles



Map 9.1 - Defiance Plateau

Wetland Resource Inventory

NAVAJO FORESTLAND IRMP

LEGEND

Wetland Type/Total Acreage (Defiance Plateau)

- Riverine Wetlands - 5,732 acres
- Pond / Lake Wetlands - 63.5 acres
- Freshwater Emergent Wetlands - 4.4 acres

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

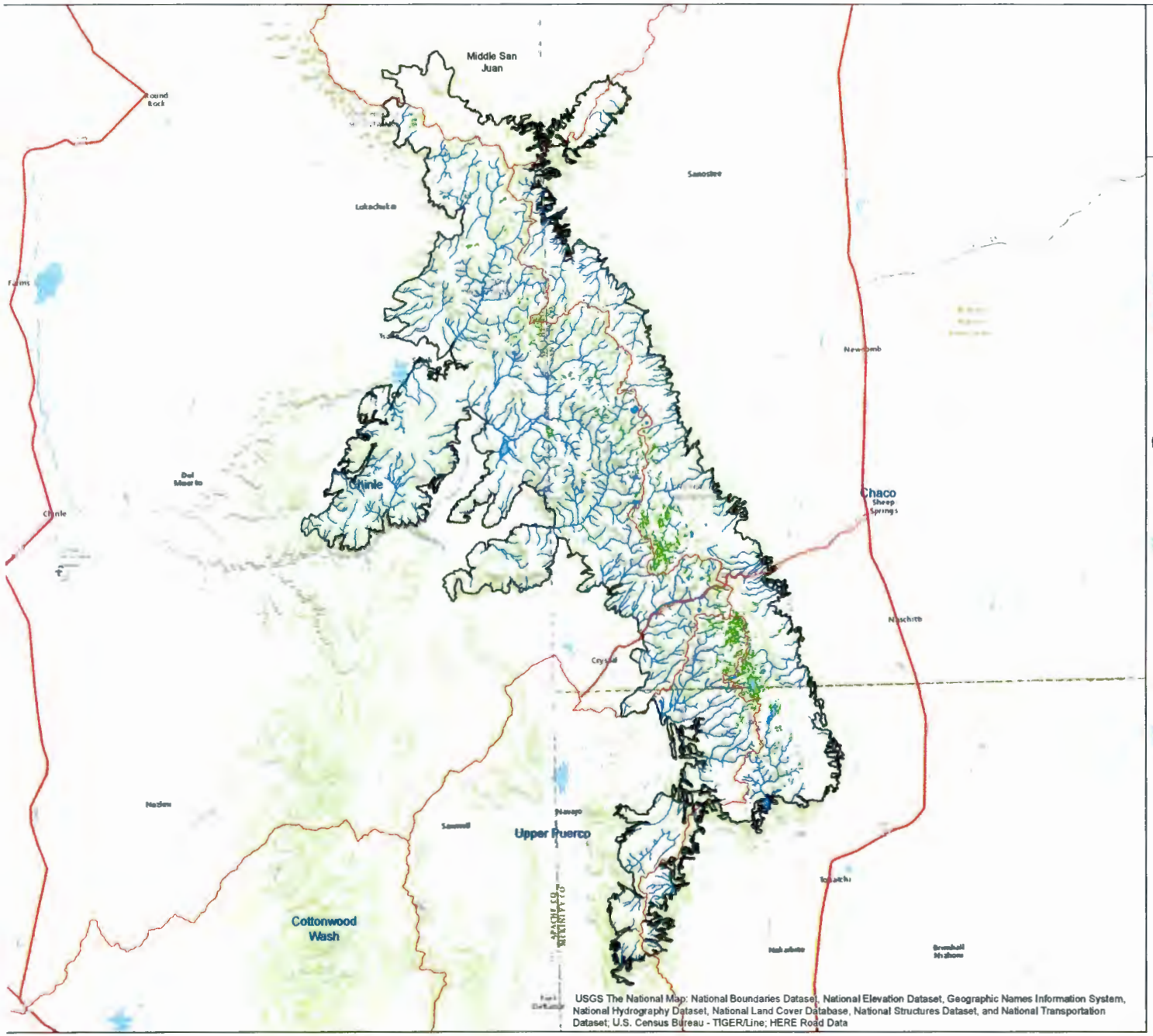
- Defiance Plateau Study Area Boundary
- Subregional Watershed Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: USFWS - National Wetlands Institute Mapping Data. USGS Hydrological Data

0 1.75 3.5 7 10.5 14 Miles

N W E S



Map 9.2 - Chuska Mountains

Wetland Resource Inventory

NAVAJO FORESTLAND IRMP

LEGEND

Wetland Type/Total Acreage (Chuska Mountains)

- Riverine Wetlands - 14,207 acres
- Pond / Lake Wetlands - 1033 acres
- Freshwater Emegent - 3,488 acres
- Freshwater Forest Shrub - 3.2 acres

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

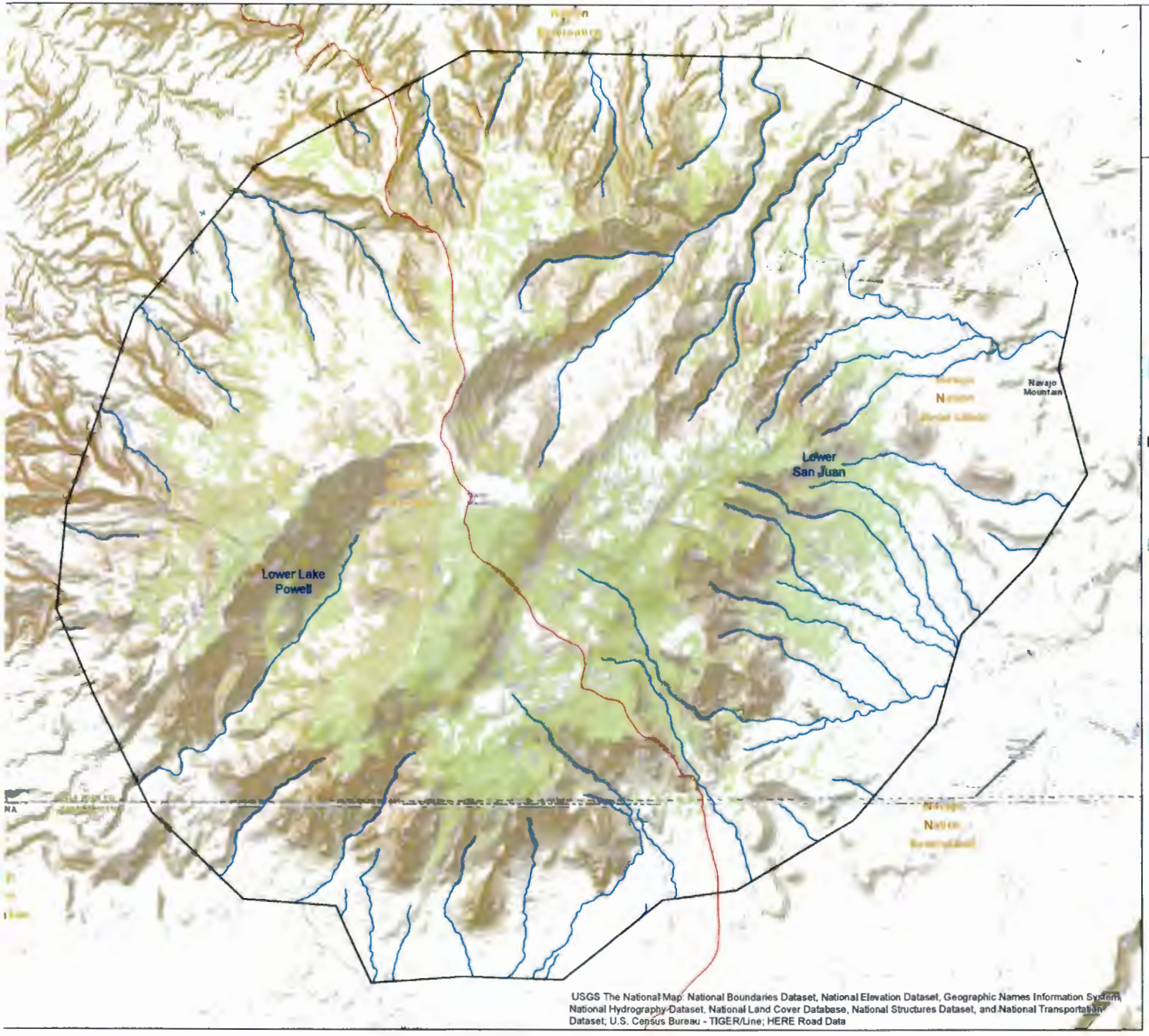
- Chuska Mountains Study Area Boundary
- Subregional Watershed Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: USFWS - National Wetlands Institute Mapping Data. USGS Hydrological Data

0 2 4 8 12 16 Miles

N W E S



Map 9.3 - Navajo Mountain

Wetland Resource Inventory

NAVAJO FORESTLAND IRMP

LEGEND

Wetland Type/Total Acreage (Navajo Mountain)

- Riverine Wetlands - 941 acres

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

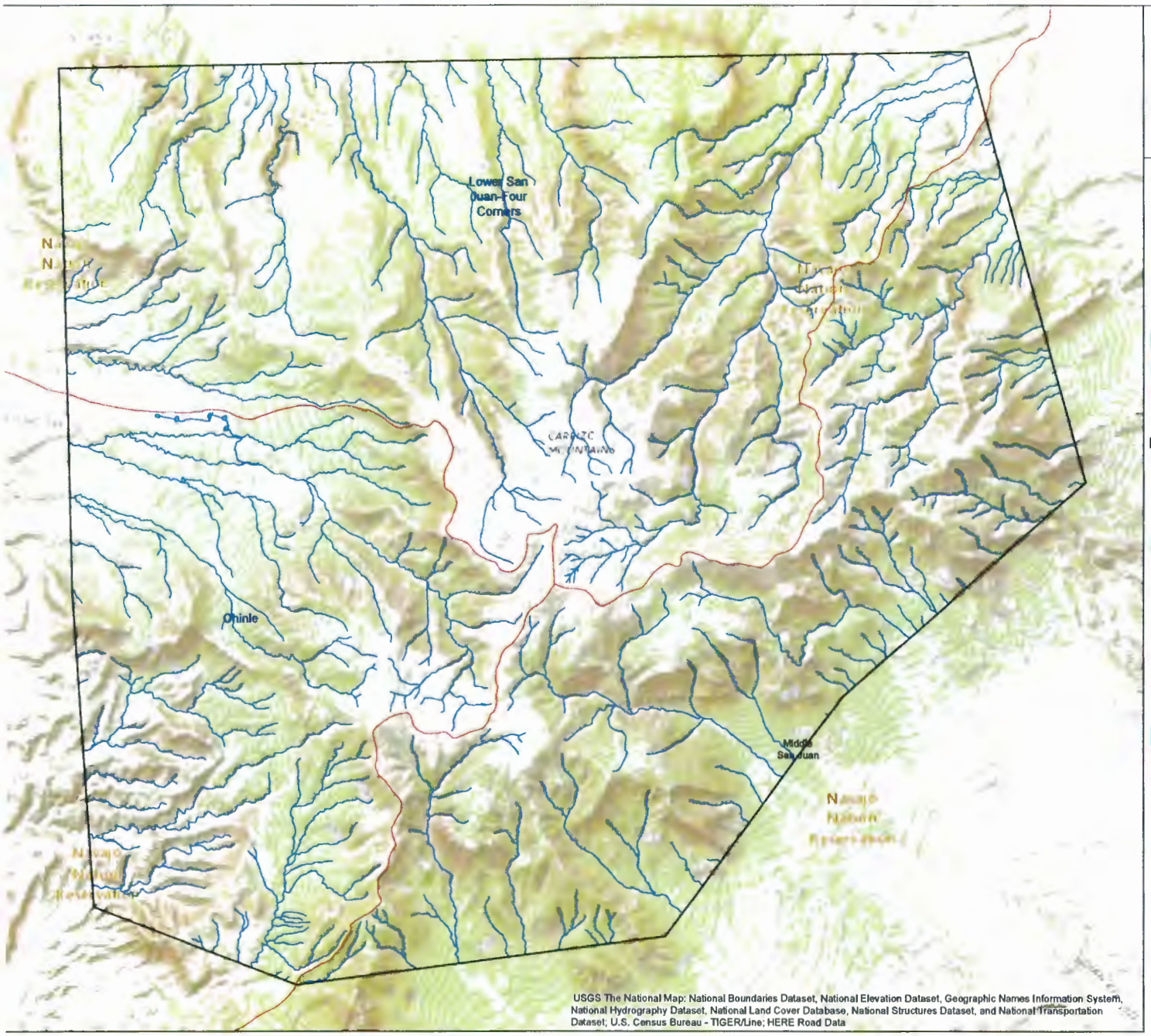
General Reference

- Navajo Mountain Study Area Boundary
- Subregional Watershed Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: USFWS - National Wetlands Institute Mapping Data. USGS Hydrological Data

0 0.25 0.5 1 1.5 2 Miles



Map 9.4 - Carrizo Mountain

Wetland Resource Inventory

NAVAJO FORESTLAND IRMP

LEGEND

Wetland Type/Total Acreage (Carrizo Mountain)

- Riverine Wetlands - 775 acres
- Pond / Lake Wetlands - 0.9 acres

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

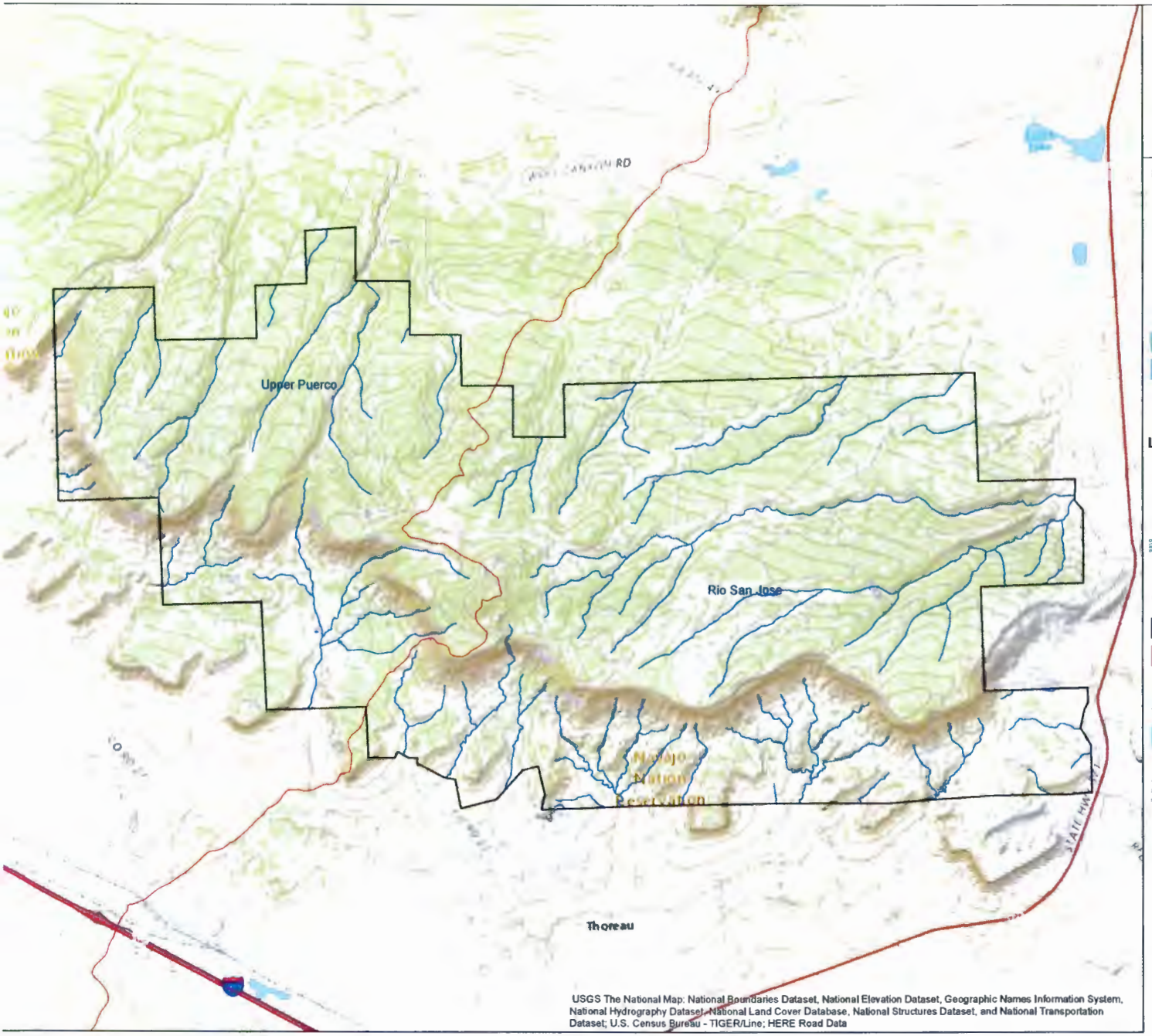
General Reference

- Carrizo Mountain Study Area Boundary
- Subregional Watershed Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: USFWS - National Wetlands Institute Mapping Data. USGS Hydrological Data

0 0.35 0.7 1.4 2.1 2.8 Miles



Map 9.5 - Mount Powell

Wetland Resource Inventory

NAVAJO FORESTLAND IRMP

LEGEND

Wetland Type/Total Acreage (Mount Powell)

- Riverine Wetlands - 3,294 acres
- Pond / Lake Wetlands - 6.4 acres

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

- Mount Powell Study Area Boundary
- Subregional Watershed Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: USFWS - National Wetlands Institute Mapping Data. USGS Hydrological Data

0 0.325 0.65 1.3 1.95 2.6 Miles

10. Forest Roads

10.1 Description

In the Navajo Nation roads are the most critical type of transportation infrastructure. In total, there are 14,221 miles of roads all across the Navajo Nation. Of these roads, approximately 6,000 miles are BIA roads, 1,644.8 miles are state highways, 1,689.8 miles are county routes, and 4,891.9 miles are owned and maintained by the Navajo Nation. The Arizona, Utah, and New Mexico Departments of Transportation treatment area along interstates is approximately 300 feet from the center of the road and on state highways is between 50-100ft from the center of the road or to the right-of-way fence. Right-of-way fences line all of the ADOT, UDOT, and NMDOT roads to delineate the easement.

10.1.1 Data

Available Type of Data/Resource Inventory Method

- Inventory -
    - The major interstates and U.S. Highways include: Interstate 40, U.S. Highways 64, 89, 89A, 191, 163, 160, 491, and State Routes 2, 40, 44, 53, 57, 64, 77, 87, 98, 99, 134, 197, 262, 264, 371, 506, 564, 566, 7900, and 7900.

10.1.2 Roads by Forestland

- Defiance Plateau - There are approximately 876 miles of roads located within the Defiance Plateau study area. Of these roads, the majority of them are dirt roads (864 miles). There are 102 miles of BIA roads and 7 miles of state highway in the study are. A map showing road types is included in Appendix A, Forest Study Area Transportation Resources.
- Chuska Mountains - There are approximately 1,133 miles of roads located within the Chuska Mountain forest study area. Of these roads the majority are county dirt roads (1100 miles), the rest of the roads within the study area are asphalt including 10 miles of state highway. There are a total of 190 miles of BIA roads within the study area. A map showing road types is included in Appendix A, Forest Study Area Transportation Resources.
- Navajo Mountain - Road data not found.
- Mount Powell - Road data not found.
- Carrizo Mountains - Road data not found.

10.2 Context

Historic and Cultural Uses and Applications

10.2.1 Key Road Concerns

Management and planning of roads is needed to avoid habitat fragmentation, erosion, adverse water quality impacts, and equitable accessibility.

- Legacy Roads and Environmental Impacts
- Habitat Fragmentation
- Erosion
- Water Quality Impacts
- Equality and Access to transportation Networks

Forest roads are the primary source of erosion on a timber harvest operation, causing up to 90 percent of the problem. This disproportionate share is attributable to 1) complete removal of vegetation and ground cover; 2) increased slope gradients on the cut and fills slopes; 3) loose fill materials; 4) concentration of surface runoff; 5) interception of subsurface flow by the cut slopes; and 6) compaction of the road surface. Hence, roads demand great deal of attention to minimize erosion and sedimentation.[99]

10.3 Policies, Programs and Regulatory Framework

Summary

- NDOT - programs and policies, regulations

10.4 Managing Agencies

The agencies responsible for the roads include: Navajo Nation Department of Transportation (NNDOT, 16,900 miles); Bureau of Indian Affairs Department of Transportation (BIADOT, 6,700 miles); Counties (2,000 miles); Arizona Department of Transportation (ADOT, 840 miles), Utah Department of Transportation (UDOT, 103 miles), and New Mexico Department of Transportation (NMDOT, 821 miles).[100]

10.4.1 Navajo Nation Department of Transportation

The Navajo Division of Transportation (Navajo DOT or NDOT) is an executive branch division of the Navajo Nation government. NDOT develops and maintains roads, bridges, and airports on the Navajo Nation. As an organization, NDOT is composed of the executive office and five departments: Planning, Project Management, Roads Maintenance, Highway Safety, and Airports Management.

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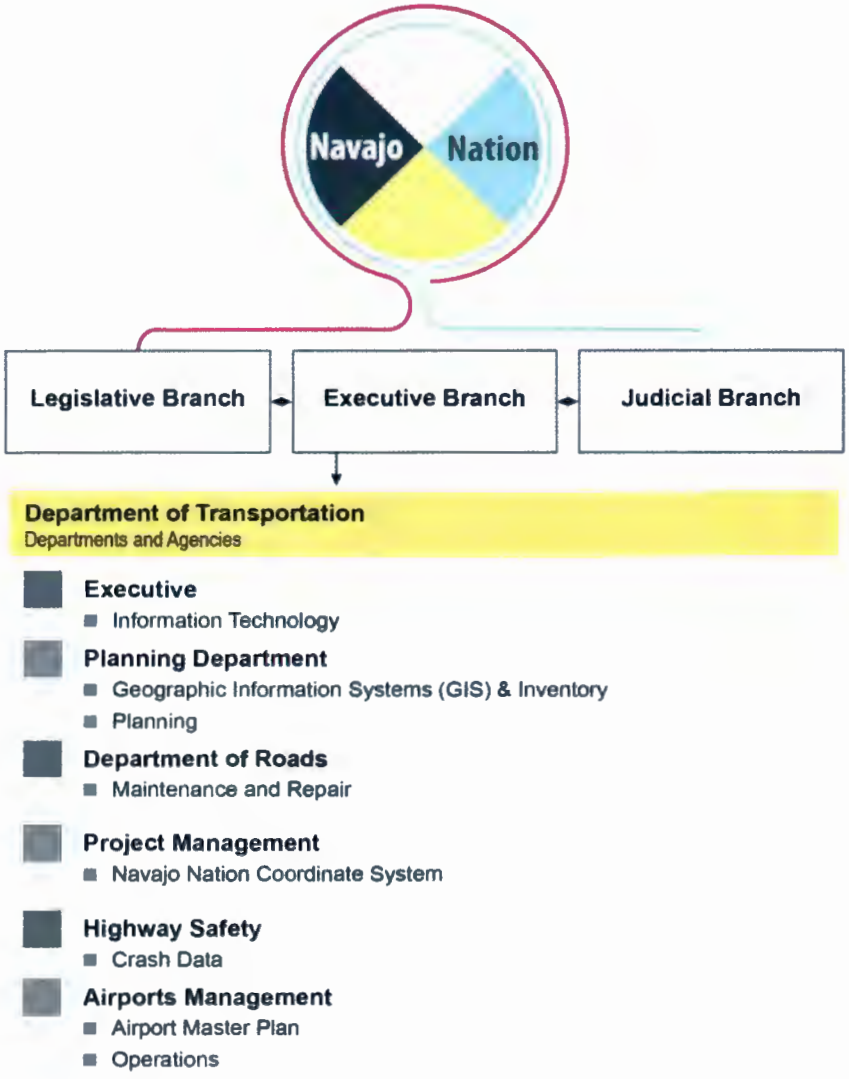
[99] http://www.emnrd.state.nm.us/SFD/ForestMgt/documents/ForestPracticesGuidelines2008.pdf

[100] Navajo Nation Integrated Weed Management Plan, Fred Phillips Consulting, Flagstaff, AZ. U.S. Department of Interior, Bureau of Indian Affairs, Navajo Region. April 2016

Navajo Nation Department of Transportation



[101]

[101] Adapted from http://www.navajodot.org/Departments.aspx and http://navajoairports.com/program-overview

Contact information:
Phone: (505) 371-8300/8301
contact@navajodot.org
Departments:

1. Executive
2. Planning Department
3. Department of Roads
4. Project Management
5. Highway Safety

- TRANSPORTATION PLANNING
  - The Navajo DOT Transportation Planning Section is funded through a P.L. 93-638 contract with the BIA Navajo Region Division of Transportation. Under federal law, the Indian Reservation Roads Program (IRRP) allows 2% of its road construction funds to be used for tribal transportation planning. Work by the Section includes updates to the Navajo Nation Long Range Transportation Plan (NNLRTP) every five years. The NNLRTP provides comprehensive analysis to address roads and other transportation needs to meet development needs of the Navajo Nation. Another planning tool prepared by the Section, updated annually, is the Navajo Nation Tribal Transportation Improvement Program usually referred to as TTIP. An important part of the planning process includes public hearings on transportation projects usually held at Chapter houses in partnership with other transportation stakeholders. The Section coordinates with state and regional planning organizations for project funds including those programmed through the State Tribal Transportation Improvement Program (STIP). They also do road safety planning and safety assessments (RSA), and provide assistance to the annual road inventory. Planners are stationed at each of the five Navajo Agencies and Window Rock.
- DEPARTMENT OF ROADS
  - The Road Department is the largest and most visible component of Navajo DOT; many use it to gauge the Division's efforts in Chapter communities. Our road crews who work daily in Chapter communities use the experience and contact with people to recommend improvements in the field. Our objective to locate maintenance yards in local communities will bring services closer to families and improve cost effectiveness, reliability, and response time to situations.
  - The Department has primary responsibility for maintenance of dirt roads owned by the Navajo Nation. As necessary, they assist non-Navajo road maintenance entities usually during declared emergencies from snows or floods. They replace, install or clean out culverts and cattle guards; grade roads and improve drainage; repair pot holes and right of way fences; and, improve roads with sub-base road materials.

10.5 Current Management Plans

2016 Navajo Nation Long Range Transportation Plan

- Objectives - A multi-year planning process to research, draft and develop a path forward for multimodal transportation investment within the Navajo Nation.
- Goals
  - Take Care of the System
    - The system is in great need of repair and maintenance. Focus on the greatest needs first – those with high traffic volumes, safety issues and are of the highest functional classification.
    - Maintain and share data with the communities and stakeholders for informed decision making.
    - Conducting maintenance activities on roads and bridges is a cost effective way to save money rather than waiting until reconstruction is warranted.
    - Create funding "pools" for separate bridge, safety and roadway funds.
  - Enhance Existing Partnerships and Create New Partnerships
    - Many transportation programs are funded with money that is not Navajo Division of Transportation funds.
    - Over the past few years, NDOT has partnered with many Chapter, local counties, Navajo Divisions, state and federal agencies to assist with roadway maintenance, improve roadway safety, make highway improvements, and conduct planning studies. These partnerships are very important to NDOT. The creation of projects that further multiple organizations' goals allows for limited funding to be stretched further.
    - Available funding programs are very important to improve partnerships with other funding agencies is important to provide transportation choices, improve safety and upgrade our roads.
    - Private industry is also an important partner to consider as economic development opportunities occur.
  - Maximize Transportation Investment Effectiveness
    - Every dollar that is invested in the transportation system is a long-term investment, regardless of if it is maintaining or upgrading an existing road or building a new one. Trade-offs exist with every decision– whether to construct a new paved roadway ($2.0 million per mile), gravel a dirt roadway ($400,000 per mile), maintaining gravel roads ($2,000 per mile), blade dirt roads ($700/mile) or fix a bridge that is in need of repair.
    - The funding that is available is minimal, and is not expected to increase; however, traffic demands from communities will increase. Every effort must be made to reflect that money being spent on roadways is meaningful, long lasting and the improvements will be maintained after they are constructed.

- Transportation spending should be strategic in order to have the greatest positive impact towards achieving local and regional goals.
- The little amount of available funding is so important, therefore every dollar spent is a choice and a trade-off. Making sure there is an understanding of those trade-offs is very important.

- Enhance Safety
  - Transportation safety is at the forefront of the NDOT transportation program. The Nation must have a safe transportation system for all roadway users and decrease the number of fatality and serious injury crashes.
  - There has been a significant push at the federal level to invest in safety, and NDOT has been able to obtain several grants to assist in helping with this important goal.
  - Transportation spending should try to improve the safety for roadway users.
  - It is important to reduce the potential for fatal and serious injury crashes.
  - Safety/crash information should be shared across agencies to enhance the likelihood for more state and federal safety funding.
  - Improving transportation safety can be implemented through investing in the 4-E's (engineering, education, enforcement and emergency services).
- Create Connections
  - It is that opportunities are provided for the citizens to travel within the communities they live in, and travel to other communities within and outside of Navajo Nation.
  - All communities need connectivity to surrounding activity centers for school, government, work, shopping, groceries and commerce.
  - There are connections outside of Navajo Nation that could enhance the quality of life for many. These connections are important to provide and maintain.
  - The transportation systems (Greyhound bus, airports, Amtrak, etc...) are important to connect with to enable travel beyond Navajo Nation and the surrounding communities.
- Provide Options
  - Approximately 40% of the residents have income levels below poverty so a transportation system that provides options other than the automobile is important.
  - NDOT investments must provide safe options for those that cannot afford to drive their own car.
  - Safe options for all that travel is critical for the success of our community.
  - Navajo citizens and visitors should be able to safely walk, ride a bicycle or take transit if desired.

- Promote Economic Development
  - Transportation spending for new roads should relate to new jobs and economic development.
  - New development should try to locate where existing transportation systems exists.

10.6 Community Concerns

10.6.1 Concerns by Forestland

Defiance Plateau (Specific feedback on these forest roads not identified in this study).

Chuska Mountain - road conditions were cited as being poor and in need of better maintenance and planning.

Navajo Mountain - The condition of the major road coming into Navajo Mountain is poor and deters access and economic development.

Mount Powell (Specific feedback on these forest roads not identified in this study).

Carrizo Mountain (Specific feedback on these forest roads not identified in this study).

10.7 Summary of External Resource Department Concerns and Objectives

- Within the Navajo Nation government structure, there are several Divisions and Departments that can work together with the Division of Transportation to further the goals of the Nation.
- The construction of buildings, roads, and other developmental activities, if not properly mitigated, can expose soil surfaces to increased erosion. This creates the potential for increased turbidity and pollution discharging into lakes/streams. Increased pollution and deposition can impact fish growth, fish survival, stream habitat, fish passage, and reproduction
- Roads are a primary contributor to the introduction of noxious weed populations on the Navajo Nation, and serve as a priority area for weed treatment.[102]
- For instance, the Division of Community Development has the responsibility of establishing and maintaining the 16 Administrative Service Centers. These Service Centers are staffed with a Planner, who should have direct and frequent contact with the NDOT Planning staff within each Agency.

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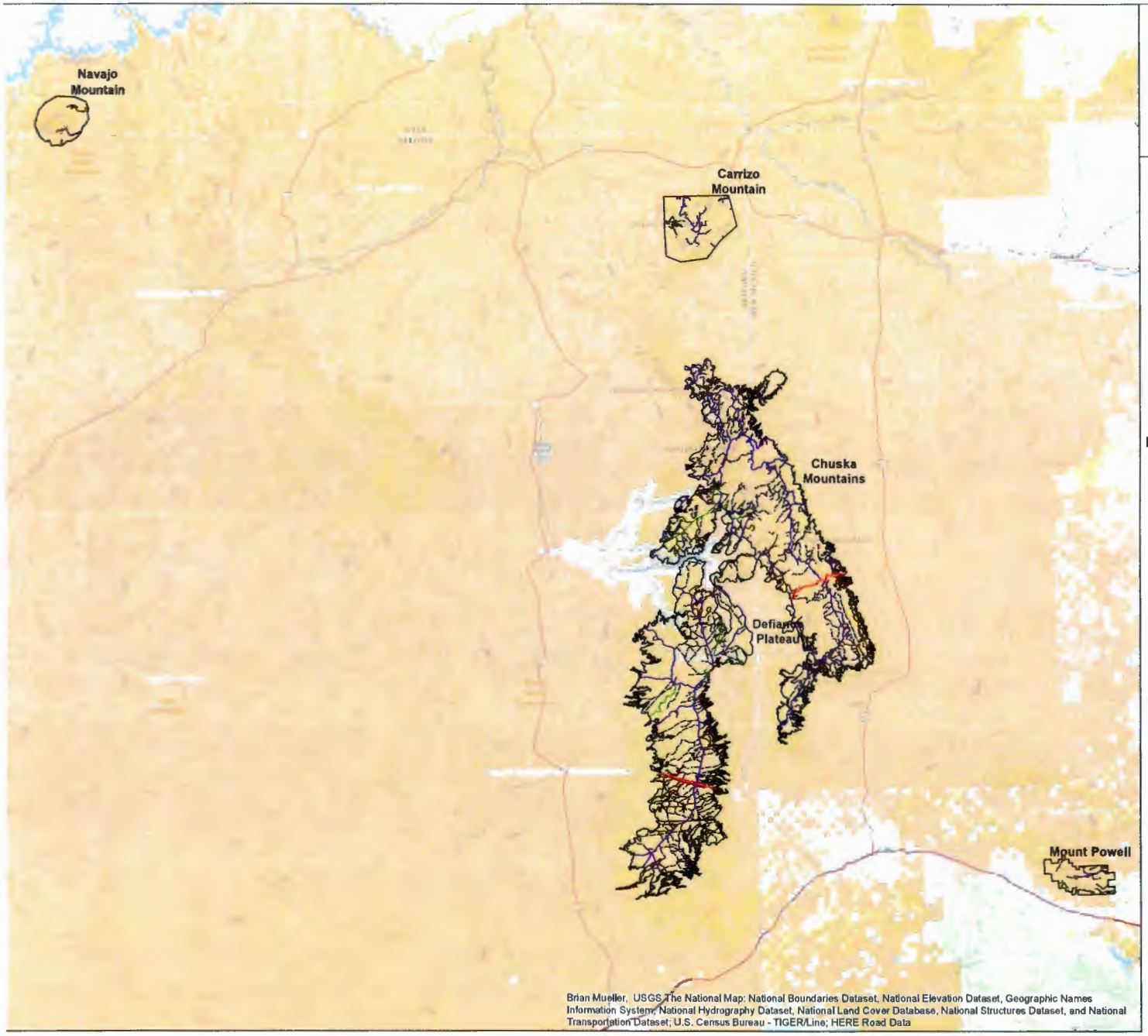
[102] Navajo Nation Integrated Weed Management Plan, Fred Phillips Consulting, Flagstaff, AZ. U.S. Department of Interior, Bureau of Indian Affairs, Navajo Region. April 2016

10.8 Forest Roads Collaboration Chart

Primary Concerns	General Best Management Practices[103]	Opportunities for Integrated Mgmt.
Erosion, **and subsequent sedimentation and degradation of fisheries**	• Properly design roads and drainage facilities to prevent potential water quality problems before construction starts. • Minimize the number of roads constructed in a watershed through comprehensive planning, recognizing intermingled ownership, and future uses. • Fit the road to the landscape. This entails altering natural drainage patterns as little as possible by following contours and minimizing cuts, fill, and stream crossings. Utilize natural road building locations away from streams. • Avoid problem areas such as flood zones, narrow canyon bottoms, wet areas and highly erodible or unstable soils. Do not locate roads on slopes more than 60 percent. • Locate roads outside of the SMA, well away from streams, both perennial and intermittent, maintaining a buffer strip of undisturbed soil and vegetation between the road and stream for maximum protection of water quality. • Keep the road grade to a minimum, usually less than 10 percent. This can be exceeded for short distances where necessary. An easy grade prevents runoff from building up erosive force and also provides for safer and more efficient travel. • Prevent the concentration of water on the road by designing adequate drainage features. Some suggested drainage methods are in-sloping and out-sloping the road surface, and installation of grade dips and cross drains. • When a stream crossing is necessary, locate the site on a stable, straight portion of the stream. The approach to the crossing should be at a minimal grade and a right angle to the stream.	Forestry Department Fish & Wildlife Dept. Water Resources Dept. Land Dept. Recreation Dept. NNDOT

[103] http://www.emnrd.state.nm.us/SFD/ForestMgt/documents/ForestPracticesGuidelines2008.pdf



Map 10.0 - Forest Study Areas

Forest Road Inventory

NAVAJO FORESTLANDS IRMP

LEGEND

Forest Study Area Roads / Total Miles

- Major Highway - 18.1 miles
- County Road - 35.2 miles
- Tribal Road - 185.4 miles
- BIA Road - 312.2 miles
- Other Road - 2,150.6 miles

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

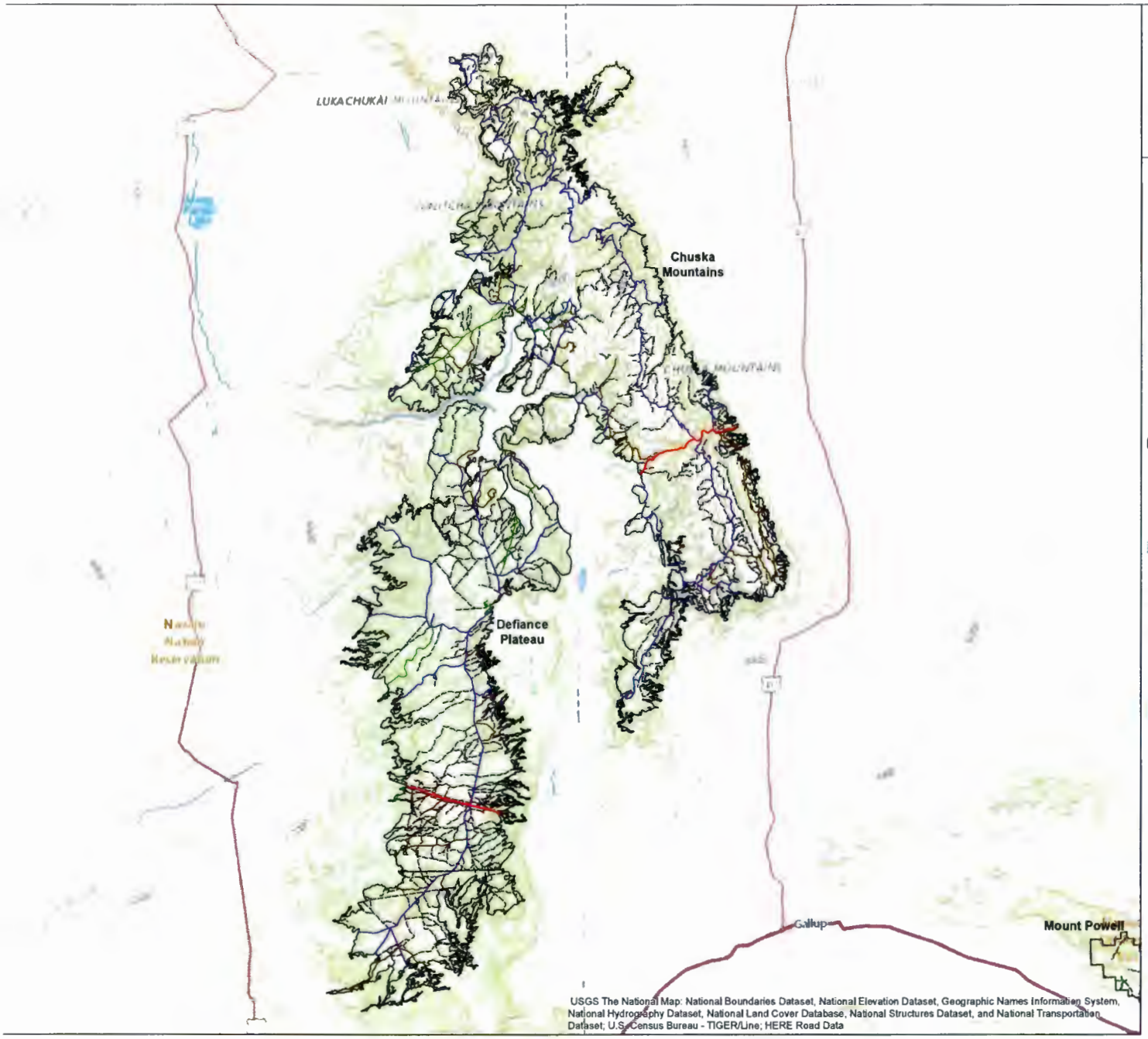
- Interstate Highway
- Other Road
- Forest Study Area Boundary
- Lake or Reservoir
- Stream/River
- County Boundary
- State Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Forestry Department

0 5 10 20 30 40 Miles

N W E S



Map 10.1- Chuska Mountains Defiance Plateau

Forest Road Inventory

NAVAJO FORESTLANDS IRMP

LEGEND

Forest Study Area Roads / Total Miles

- Major Highway - 18.1 miles
- County Road - 32.8 miles
- Tribal Road - 181.2 miles
- BIA Road - 293 miles
- Other Road - 2,000 miles

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

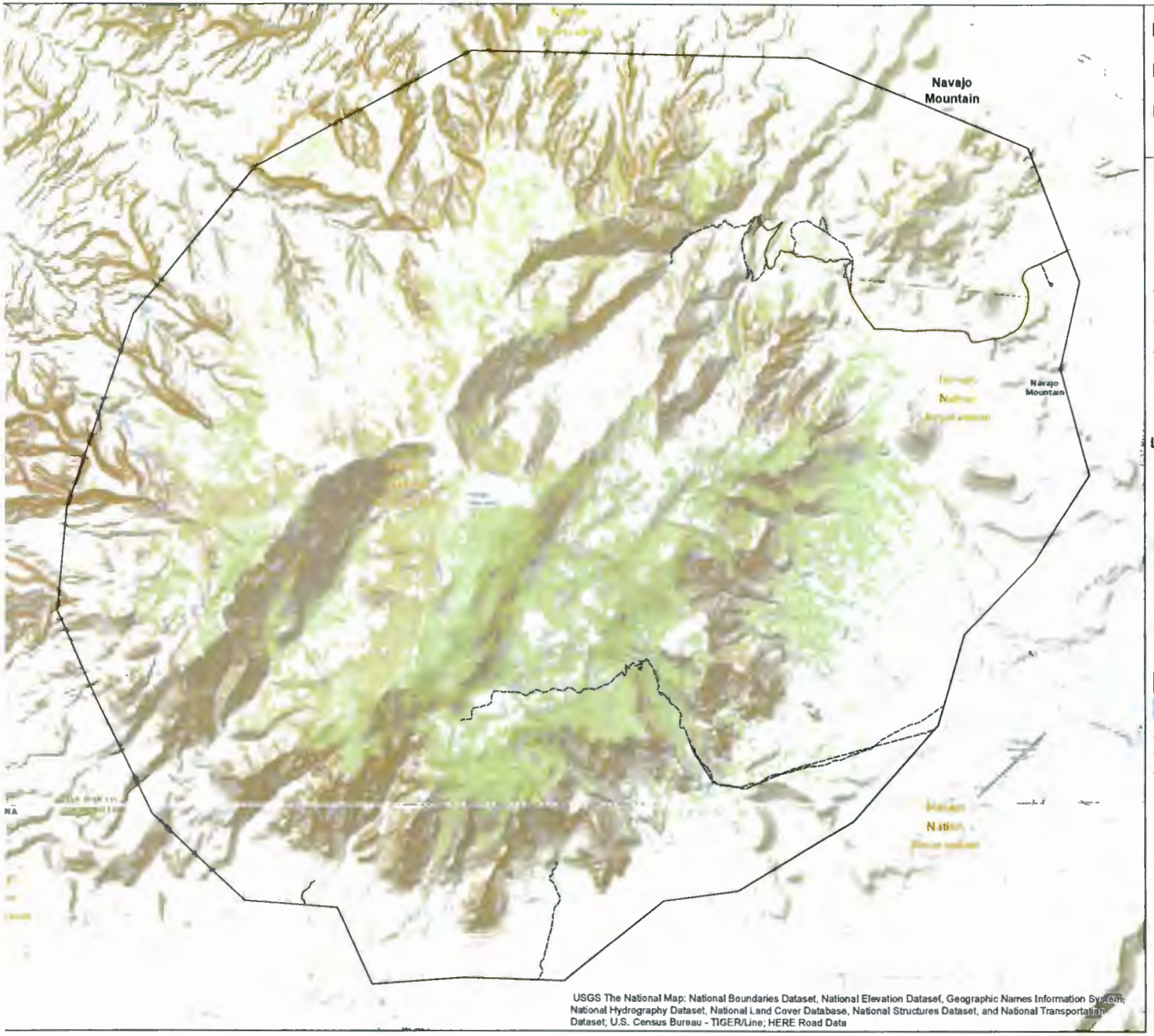
General Reference

- Interstate Highway
- Other Road
- Forest Study Area Boundary
- Lake or Reservoir
- Stream/River
- County Boundary
- State Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Forestry Department

0 2.75 5.5 11 16.5 22 Miles



Map 10.2 - Navajo Mountain

Forest Road Inventory

NAVAJO FORESTLANDS IRMP

LEGEND

Forest Study Area Roads / Total Miles

- Major Highway - N/A
- County Road - N/A
- Tribal Road - 4.2 miles
- BIA Road - N/A
- Other Road - 18.3 miles

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

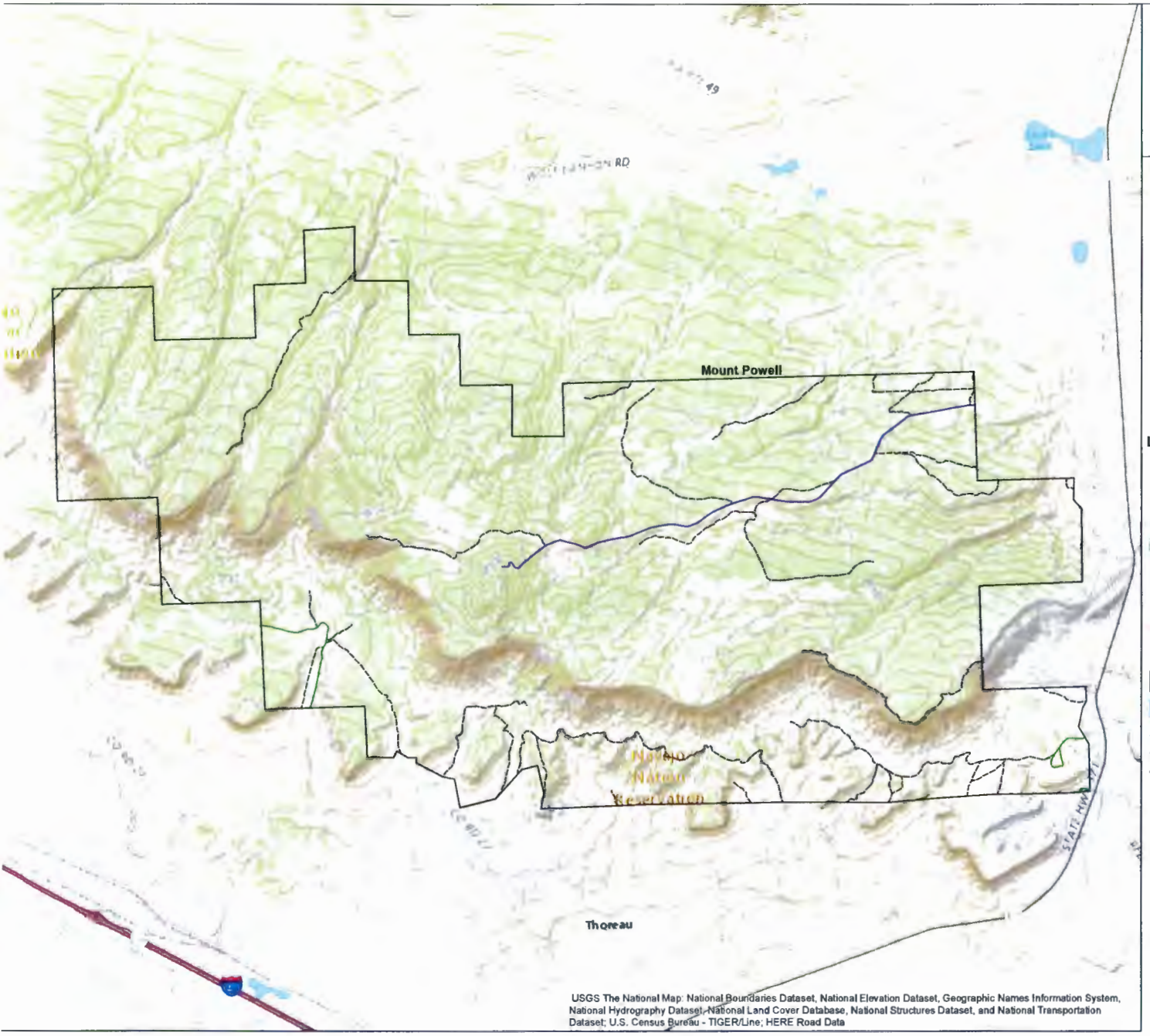
- Interstate Highway
- Other Road
- Forest Study Area Boundary
- Lake or Reservoir
- Stream/River
- County Boundary
- State Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Forestry Department

0 0.25 0.5 1 1.5 2 Miles

N W E S



Map 10.4 - Mount Powell

Forest Road Inventory

NAVAJO FORESTLANDS IRMP

LEGEND

Forest Study Area Roads / Total Miles

- Major Highway - N/A
- County Road - 2.4 miles
- Tribal Road - N/A
- BIA Road - 5.1 miles
- Other Road - 64.3 miles

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

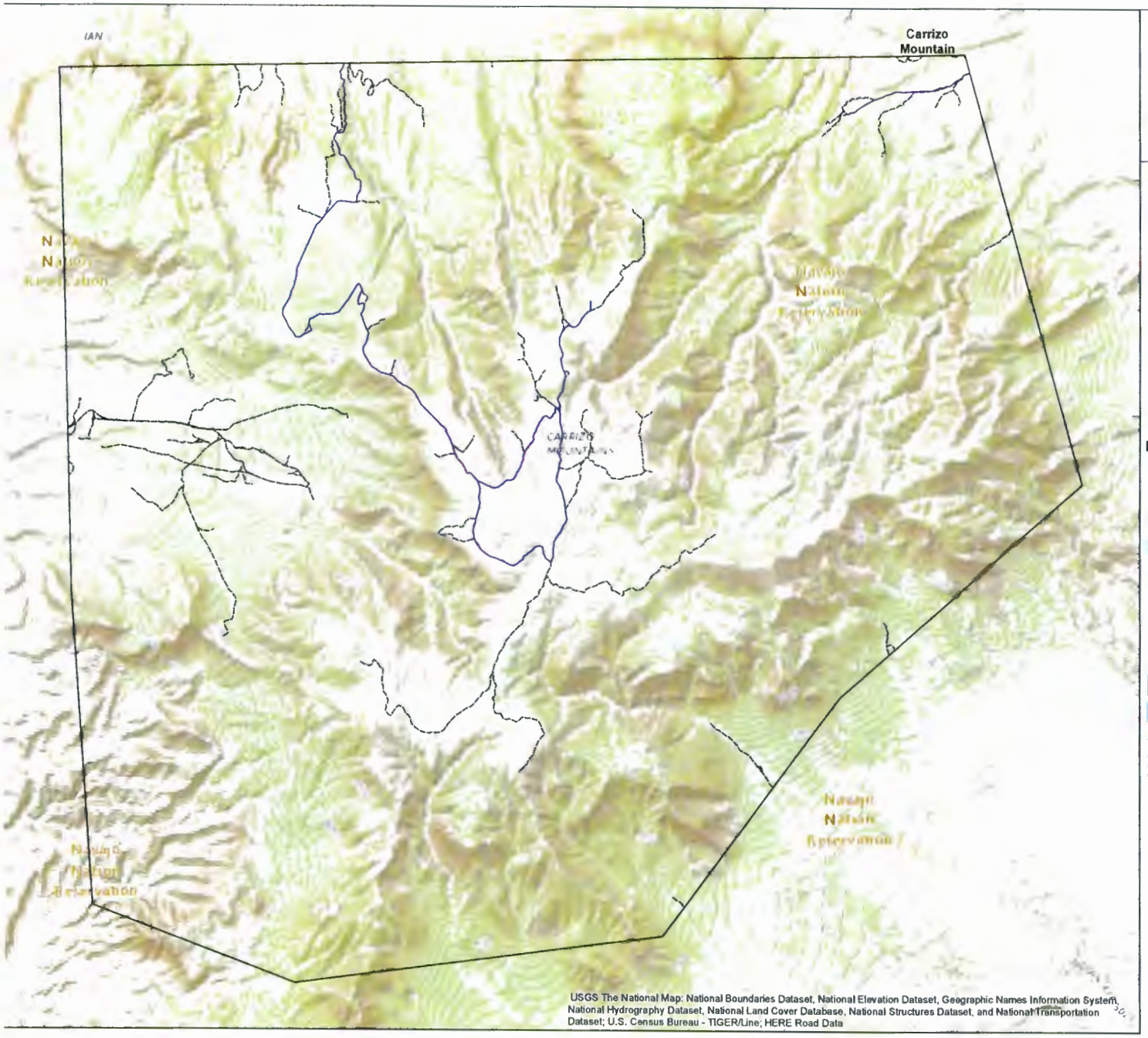
General Reference

- Interstate Highway
- Other Road
- Forest Study Area Boundary
- Lake or Reservoir
- Stream/River
- County Boundary
- State Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Forestry Department

0 0.325 0.65 1.3 1.95 2.6 Miles



Map 10.3 - Carrizo Mountain

Forest Road Inventory

NAVAJO FORESTLANDS IRMP

LEGEND

Forest Study Area Roads / Total Miles

- Major Highway - N/A
- County Road - N/A
- Tribal Road - N/A
- BIA Road - 14.2 miles
- Other Road - 67.5 miles

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

- Interstate Highway
- Other Road
- Forest Study Area Boundary
- Lake or Reservoir
- Stream/River
- County Boundary
- State Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Forestry Department

0 0.35 0.7 1.4 2.1 2.8 Miles

N W E S

11. Socioeconomics & Human Resources

11.1 Resource Description

Socioeconomic factors of a population describe the quality of life of a society and can encompass many factors, such as, population and its distribution, housing, industry and employment. The Navajo Nation, as a sovereign nation, is a unique community of a singular demographic.

11.1.1 Data

Understanding basic demographic and economic information about a community allows for a thorough analysis of what constraints may exist for resource management decisions within forestlands areas, as well as, provide context for impact analysis. Population data for the resource was obtained through the Navajo Nation Division of Economic Development website.

- The forestlands areas are home to approximately one-fourth of the population on the Navajo Nation. One-fourth of the children and elderly populations of the entire Navajo Nation also reside in the forestlands areas. PAGE INTENTIONALLY LEFT BLANK

- One-fourth of the total housing units of the Navajo Nation are also within the Chapters of the forestlands area. The housing units within the forestlands have a slightly higher occupation rate (66% for the Navajo Nation, 74% for the forestland area chapters). It was noted in some of the Community Land Use Plans that the homes used for summer camps are counted as unoccupied.

- Not all housing within the Navajo Nation's forestlands have access to utilities; estimates from individual Chapters range from 50 to 80%. Electricity is the most common utility. Water access is less common with some residents having to transport water to their homes. Heat sources are either through firewood gathered in the forestlands or purchased, or propane. Homes, chapter facilities and commercial businesses either run on septic systems, lagoons or have outhouses. Transfer stations for trash disposal are not available in all Chapters.

	Navajo Nation	Forestlands Area Chapters	% of Forestlands to Total
Total Population	173,667	40,017	23%
Population Under Age 18	55,246	13,140	24%
Population Age 65 and Over	15,580	4,081	26%
Median Age	28.5	20.9 - 49.1	

	Navajo Nation	Forestlands Area Chapters	% of Forestlands to Total
Number of Housing Units	67,113	16,866	25%
Number of Occupied Housing	44,008	12,447	28%
% of Houses Occupied	66%	74%	

- Industry/Employment data was gathered from the individual Chapter Community Land Use Plan, community feedback, and the Navajo Nation Department of Natural Resources. Within the forestlands areas, existing and former (and therefore, potential) industries include:
    - Cattle/sheep grazing: both permitted and non-permitted grazing, people move between summer and winter grazing areas
    - Farming: lands designated for farming not entirely used because of reduced water supply from drought conditions; some dry-farming occurs though education of method is needed/desired
    - Closed sawmill: At one time, employed 600 people; currently, a few individuals have small, portable sawmills
    - Gravel pits: For construction and maintenance of roads
    - Navajo Nation government: Government center in Window Rock and Fort Defiance
    - Chapter government: Chapter leadership and administration, Chapter Houses, senior centers, community centers
    - Education:
        - Head Start and Elementary schools are available in most chapters, High Schools are fewer and may be shared by communities;
        - Navajo Technical University: Forestlands locations in Crownpoint, NM and Teec Nos Pos, AZ; Programs include Certificates, Associate, Bachelors and Masters Degrees
        - Diné College in Tsaile and Window Rock, AZ and Crownpoint, NM; Programs include Certificates, Associate and Bachelor Degrees
    - Coal mines – Some mines have closed or are in the process of closing (check mineral resources section)

- Retail: Grocery stores in major towns, mini-marts, gas stations, trading posts
- Arts and Crafts: Traditional Weaving (rugs), Jewelry
- Health clinic
- Limited amounts of tourism: Trading posts, recreation (trails, camping, fishing)
- Former fish hatchery near Toadlena
- Residents commute to Gallup, Shiprock for jobs

- forestlands - One-third of the forestlands population is under Age 18; one-tenth is Age 65 and over. This leaves 57% as working age adults. The most populated of the forestland areas is the Defiance Plateau. Twelve Chapters are totally or partially within the boundaries of the Defiance Plateau. The least populated forestlands area is Navajo Mountain with only one isolated Chapter. A demographic anomaly occurs in the Chuska Mountain area. Although it only has 30.4% of the forestlands total population, the area has a slightly disproportionately high percentage of the elderly population at 35.4%. In contrast, the Defiance Plateau has 53.1% of the forestlands area population with only 47.0% of the elderly population. As seen in the comparison of all the forestlands areas vs. the Navajo Nation, the comparison of total population to a specific age demographic should be similar.

	2010 Total Population	Pop<18	Pop65+	% of Total	% of Total Pop <18	% of Total Pop 65+
Carrizo Mountain	2,836	880	325	7.1%	6.7%	8.0%
Chuska Mountain	12,180	3,645	1,443	30.4%	27.7%	35.4%
Defiance Plateau	21,252	7,334	1,919	53.1%	55.8%	47.0%
Mount Powell	3,207	1,101	312	8.0%	8.4%	7.6%
Navajo Mountain	542	180	82	1.4%	1.4%	2.0%
Grand Total	40,017	13,140	4,081			

- The percentage of housing units that are occupied ranges from 72.7% in the Defiance Plateau to 75.9% in Mount Powell. Housing quality and quantity has become an issue within the Navajo Nation forestlands areas as the Division of Natural Resources works to control housing in the forestlands areas.

	Housing Units	Occupied Housing	% Occupied
Carrizo Mountain	1,180	884	74.9%
Chuska Mountain	5,716	4,271	74.7%
Defiance Plateau	8,453	6,147	72.7%
Mount Powell	1,256	953	75.9%
Navajo Mountain	261	192	73.6%
Grand Total	16,866	12,447	73.8%

- Unique Features within the forestlands area: The forestlands areas within the Navajo Nation are home to several resources that are not available otherwise. These unique features include:
    - Navajo Nation Government Center at Window Rock & Fort Defiance
    - Rug Weavers in Toadlena and surrounding area
    - Areas of cultural significance
    - Sacred Mountains
    - Sandstone formations in Window Rock
    - Canyon de Chelly
    - Anasazi sites
    - Historic buildings in Fort Defiance (includes hospital)
    - Rainbow Bridge National Monument
    - Pinon nut harvesting
    - Catfish in Red Lake Reservoir
    - Summer sheep / cattle camps
    - Geothermal mineral springs near Tohatchi

11.2.1 Key Socioeconomic Challenges

11.3 Policies, Programs and Regulatory Framework

Summary -

Homesite Lease Regulations-2016

Local Governance Act Title 26

11.4 Overview of Managing Agencies

11.4.2 Supporting Agencies

Demographic data from the U.S. Census were extracted for use by the Navajo Nation Division of Economic Development at the Nation and Chapter levels.

11.5 Current Management Plans

During the early 2000s, Chapters were encouraged under the Local Governance Act Title 16 to develop Community Land Use Plans (CLUP). The plans were designed for housing and economic development uses. The plans and priorities extracted from the CLUPs for Chapters within the forestlands include opportunities within:

- Water resources
    - Access to quality water for people and animals
    - Water lines to individual houses
    - Drainage to prevent flooding and for erosion control
    - Well and dam repair
- Housing
    - Prefer scattered housing development design for privacy but will consider clustered homes
    - 1 acre allotment per house
    - New homes are needed
    - Repairs to existing homes are needed
    - Homesite Leasing issues resolved
    - New home development areas include park space
- Recreational Opportunities
    - Hiking trails developed and maintained
    - Areas for horseback riding
    - Dredging and stocking of fishing lakes
    - Access to Continental Divide Trail
    - Campgrounds

    - Picnic areas
    - Outdoor recreation areas
- Agriculture development
    - Local 4-H Chapters
    - Local fairs
    - Greenhouses for plant seedlings
    - Navajo pony breeding
    - Maintenance of open rangeland for livestock and wildlife grazing
    - Irrigation for the expansion of farming
    - Dry farming education
- Economic development: Development to serve the immediate needs of Chapter residents and create jobs; other development for tourist attraction
    - Gas station / truck stop
    - Grocery store
    - Lumberyard
    - Laundromat
    - Feed store
    - Post offices
    - Roads maintained and graveled; Road maintenance plan created and followed
    - Trading post
    - Sawmill
    - Trash transfer stations
    - Hotels and restaurants for tourists
    - Casino
- Forest resources
    - Forest sustained as working forest (provide forest products)

    - Replanting of harvested areas
    - Forest management for long term sustainability
- Fish & Wildlife resources
    - Wildlife preservation areas
    - Dredging and stocking of fishing lakes
    - Preservation of wildlife travel corridors
    - Habitat restoration
    - Reestablish turkeys and other once existent wildlife
- Cultural resources
    - Preserve cultural sites
    - Preserve language

11.6 External Resource Department Concerns

- Housing: Home construction within the forestlands areas has been occurring without the required permits. Subsequently, home owners request land leases and utility hookups. Scattered home sites have a greater adverse effect and policy has been targeting the development of clustered homes within designated areas.
- Roads: The creation of roads to home sites by resident's further fragments wildlife habitats, impedes wildlife movement injures or destroys native vegetation, and may negatively impact cultural sites.

12: Visual Resources & Viewsheds

12.1 Description

Environmental aesthetic values are categorized as visual resources. Visual resources are comprised of an area's important or unique public viewsheds, or natural or built resources. "The aesthetic value of an area is a measure of its visual character and quality, combined with the viewer response to the area (Federal Highway Administration 1988). Scenic quality can best be described as the overall impression that an individual viewer retains after driving through, walking through, or flying over an area (U.S. Bureau of Land Management 1980)." "Natural and artificial landscape features contribute to the visual character of an area or view. Visual character is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. The perception of visual character can vary significantly seasonally and even hourly, as weather, light, shadow, and elements that compose the viewshed change. The basic components used to describe visual character for most visual assessments are the elements of form, line, color, and texture of the landscape features. Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns. Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, as well as in natural settings. Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape. Visual quality is evaluated on the basis of the relative degree of vividness, intactness, and unity, as modified by its visual sensitivity. High-quality views are highly vivid, are relatively intact, and exhibit a high degree of visual unity." [104] Viewsheds are areas within a specific geography that have the opportunity to view a visual resource.

12.1.1 Data

The Navajo Nation, BIA, and Office of Surface Mining Reclamation and Enforcement currently do not have established methodologies for the inventory of visual resources on tribal trust lands. Information types which would be useful are:

- Viewshed locations and subjects
- Quality and state of viewsheds
- Threats to viewsheds
- Components of visual resources in forestlands
- Viewing distances
- Predominant landforms

[104] https://www.co.shasta.ca.us/docs/libraries/resource-management-docs/hatchet-ridge/Ch_3-01_Aesthetics.pdf?sfvrsn=0

- Predominant land uses
- List of overlooks and locations
- List of historic trails and landmarks
    - Trail of the Ancients

List of scenic Byways in the Navajo Nation:

- Fredonia - Vermilion Cliffs Scenic Road, Along Rt. 89A, Length: 82.0 mi
- Diné Biítah "Among the People" Scenic Road, Along Rt. 12 & 64 , Length: 103 miles
- Naat'tsis'aan (Navajo Mountain), Scenic Road U.S. 98, Length: 68 miles
- Kayenta-Monument Valley Scenic Road, Along Rt. 163, Length: 27.7 mi
- Tse'nikani (Flat Mesa Rock) Scenic Road, Along Rt. 191, Length: 48 miles
- Historic Route 66

12.1.2 Views by Forestland:

- Defiance Plateau – N/A
- Chuska Mountains – N/A
- Navajo Mountain – N/A
- Mount Powell - "The Smith Lake Chapter is located in the middle of mesas and at the base of Mount Powell. The area is very scenic with redrock cliffs and pine-covered forests." Areas of interest include, Smith Lake, Mount Powell, and the Continental Divide Scenic Trail.[105]
- Carrizo Mountains – N/A

12.2 CONTEXT

"Walk in beauty" is a phrase often quoted as representing the essence of Navajo philosophy. Beauty is a central idea in Navajo thinking, but it means far more than outward appearance: it means order, harmony, blessedness, pleasantness, everything that is good, everything that is favorable to mankind, this being the overall goal to which everyone and everything should strive.

12.2.1 Key Viewshed Concerns

- Litter and illegal dumping

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[105] Community Land Use Plan for the Smith Lake Chapter, Final Report. Prepared by, Architectural Research Consultants, Incorporated and Smith Lake Chapter Community Land Use Planning Committee.

July 2005. (Page b-24-25)

- Vandalism
- Maintenance
- Lack of Oversight

12.3 Policies, Programs and Regulatory Framework

Summary -

- Intermodal Surface Transportation Efficiency Act of 1991 and reauthorized in 1998 under the Transportation Equity Act for the 21st Century - Establishes the National Scenic Byways Program under the U.S. Secretary of Transportation. Recognizing certain roads as National Scenic Byways or All-American Roads based on 6 intrinsic qualities: archaeological, cultural, historical, natural, recreational and scenic.
- ARS 41-512 through ARS 41-518 - Provides for the establishment of Parkways, Historic and Scenic Roads.

12.4 Managing Agencies

12.4.1 Primary

There is not a primary agency tasked with preserving, identifying, protecting and promoting Navajo viewsheds and visual resources.

12.4.4 Supporting Agencies

Byway Rest Area Task Force

NDOT

Navajo Nation Department of Forestry

Navajo Nation Parks Department

Navajo Tourism Department

Federal Highway Administration's (FHWA) National Scenic Byways Program

12.5 Current Management Plans and Priorities

1996 Navajo Scenic Byway Designation Plan

12.6 Community Concerns

12.6.1 Concerns by Forestland

Many chapters' CLUPs identify areas of immense natural beauty as opportunities for tourism. These areas are also addressed as inherently valuable - making up part of the fabric and identity of the communities.

Defiance Plateau - Natural areas of beauty are seen as good areas to encourage tourism. Areas of specific interest are Canyon De Chelly NAtional Monument and its close canyons.

- "Haphazard community development patterns diminish the scenic quality. Vacant trailers are abandoned throughout the community, homes are built in the foreground of scenic areas, heavy equipment storage is located adjacent to occupied homes, and attractive development is surrounded with unsightly fencing.[106]"

Chuska Mountains - The Chuska Mountain forestland is home to many visual resources and viewsheds. The area contains several major peaks, spectacular cliffs, grand red sandstone formations, volcanic knobs and buttes, scenic grazing plains, canyons and bluffs. The Todilto Park area contains well known rock formations including Cleopatra's Needle, Venus' Needle, and Beelzebub.[107] Natural Arch and Mexican Cry Canyon are also within chapters within the forestland. Nearby attractions include Mesa Verde National Park, Four Corners National Monument, Aztec National Monument, and Canyon de Chelly National Monument.

Navajo Mountain - has incredible beauty and close access to Lake Powell and Rainbow Bridge National Monument

Mount Powell – N/A

Carrizo Mountains - "Amidst a grand view of red sandstone formations, surrounded by mountains to the west, and interspersing of volcanic knobs and buttes among grazing plains, and canyons.[108]"

12.7 External Resource Department Concerns

- Agricultural Lands are valued for their scenic quality related to historic and cultural use.

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[106] Fort Defiance Chapter Community-Based Land Use Plan – Comprehensive Report (Page 10-11)

[107] Nakaii bito'í Comprehensive Land Use Plan (Page 6)

[108] Community Land Use Plan, Red Valley. LSR Innovations, Research and Planning. May 08,2002 and February 27, 2004. (Componenet 1 Page 8)

13. WATER RESOURCES

13.1 RESOURCE DESCRIPTION

Water is fundamental to life and public health, and has a significant economic and cultural significance. Water resource management includes managing water quality and quantity and is critical in preserving and protecting water for consumption, industry and agriculture. Water resources includes lakes, reservoirs, streams, rivers, and aquifers. http://www.fao.org/docrep/005/y4473e/y4473e06.htm

Watersheds and Rivers - The Navajo Nation lies within three major watersheds: The Colorado River, the Rio Grande and the Gila River. Of these major watersheds the notable sub-watersheds are the San Juan River and the Little Colorado River that make up 4/5 of the entire reservation. The Navajo Nation is located on the Colorado Plateau and fully within the Colorado River Watershed. The reservation is bounded by the San Juan River to the north, the Little Colorado River to the south, and the main stem of the Colorado River to the west. Average rainfall is 16–27 inches at high elevations and 7–11 inches in the lower lying desert. The Navajo Nation has claims to water from the Upper Colorado River basin, the Lower Colorado River basin and the Rio Grande basin. "Major rivers include the San Juan River, the Colorado River, and the Little Colorado. The Nation also has claims to a series of ephemeral washes that flow within the reservation boundaries."[109]

Climate and Precipitation - "The climate of the Navajo Nation is semi-arid. Periods of little or no rain, which would be considered droughts in most other regions of the United States, are normal on the Navajo Nation. The Navajo people have survived and made their livelihood in this climate for hundreds of years. But, when drought occurs and precipitation falls below the already low averages, the impacts are significant."[110]

Aquifers - The Nation also relies on groundwater from the Coconino Aquifer, the Dakota Aquifer, the Navajo Aquifer, and several others. Ground water varies in quality and many areas struggle with water pollution from historic mining operations – including uranium extraction – and naturally occurring arsenic.

Water Infrastructure - Limited infrastructure exists to provide domestic and commercial water. Many residents are forced to buy bottled water or travel many miles to sources of running water.

13.1.1 Data

Available Type of Data/Resource Inventory Method

- Watershed Locations - National Wetlands Institute Watershed Data
- Water Resources - Lakes, Streams, Reservoirs - Lakes and reservoir data provided by

[109] Navajo Nation Dept. of Water Res., Draft Water Resource Development Strategy for the Navajo Nation 8 (July 2011).

[110] Navajo Nation Drought Contingency Plan, 2003. NN Dept. of Water Resources.

Not Available but would be useful Type of Data/Resource Inventory Method

- Irrigation Infrastructure and water usage data
- Water resource type, i.e. stream, river, creek, pond, reservoir, etc.
- Water depth records for ponds, reservoirs, lakes

13.1.2 Water Resources by Forestland

- Defiance Plateau - The Defiance Plateau forestland is situated within the following sub regional watersheds:
    - Chilne
    - Upper Puerco
    - Cottonwood Wash
    - Leroux Wash

Water resources in the Defiance Plateau forest study area include lakes, reservoirs, ponds, streams and intermittent washes. There are a total of 111 mapped bodies of water including lakes, ponds, and reservoirs within the forestland. Some of the notable lakes in the forestland include Hidden Lake, Antelope Lake, and Fluted Rock Lake. There are a total of 4,493,882 linear feet of creeks, streams and intermittent washes within the forestland including Black Soil Wash, Kinlichee Creek, Nazlini Creek. Total counts for water resources in the Defiance Plateau forestland are shown in table 13.1 below and are shown on map 13, forestland Water Resources Map.

Table 13.1 Defiance Plateau Forestland Water Resource Inventory

Water Resource Type	Total Count	Water Body (Acre ft.) Creeks, Streams Washes (Linear ft.)
Waterbody (Pond, Reservoirs, Lakes)	111	N/A*
Rivers, streams, washes	1636	4,493,882 linear feet

*No data available

- Chuska Mountains - Chuska Mountain forestland is situated within the following subregional watersheds:
    - Chilne
    - Upper Puerco
    - Chaco

Water resources within the Chuska Mountain forest study area include lakes, reservoirs, ponds, streams, and intermittent washes. There are a total of 900 mapped bodies of water including lakes, ponds and reservoirs. Some of the notable lakes in the forestland include Wheatfields Lake, Long Lake, Whiskey Lake, Todlena Lake and Big Lake. There are a total of 5,214,495 linear feet of mapped creeks, streams and intermittent washes

within the forestland including Agua Sal Creek, Tseanzti Creek, Little Water Creek, Naschitti Wash, Tsali Creek, Palisade Creek, Oak Creek and Wheatfields Creek. Total counts for water resources in the Chuska Mountain forestland are shown in table 13.2 below and are shown on map 13, Forest Study Area Water Resources Map.

Table 13.2 Chuska Mountain Forestland Water Resource Inventory

Water Resource Type	Total	Water Body (Acre ft.) Creeks, Streams, Washes (Linear ft.)
Waterbody (Pond, Reservoirs, Lakes)	901	N/A*
Rivers, creeks, streams, washes	2,343	5,214,495 linear feet

*No data available

Depressions at the crest of the Chuskas collect snowmelt, providing water for Navajo stock animals, wildlife, agriculture and fish. Recent decades are characterized by declining snow water equivalent (SWE) in snowpack of northeastern Arizona. At the same time, tribal members report that surface waters supporting agricultural practices and community resources on the Navajo Nation have begun to go dry from extended drought. [111].

- Navajo Mountain - Navajo Mountain forestland is situated within the following subregional watersheds:
    - Lower Lake Powell
    - Lower San Juan

Water resources within Navajo Mountain forest study area includes lakes, reservoirs, ponds, streams, and intermittent washes. The USGS hydrology layer utilized for analysis does not show any bodies of water within the Navajo Mountain forest study area. There is a total of 354,952 linear feet of mapped creeks, streams and intermittent washes within the forestland including Cha Creek, Bridge Creek, Redbud Creek and Desha Creek. Total counts for water resources in the Navajo Mountain forestland are shown in table 13.3 below and are shown on map 13, Forest Study Area Water Resources Map.

Table 13.3 Navajo Mountain Forestland Water Resource Inventory

Water Resource Type	Total	Water Body (Acre ft.) Creeks, Streams, Washes (Linear ft.)
Waterbody (Pond, Reservoirs, Lakes)	N/A	N/A*
Creeks, Streams, Washes	69	354,952 linear feet

*No data available

[111] Brice, Becky. Paleo-climatic Indicators of Surface Water Resources in the Chuska Mountains, Navajo Nation. 2017

- Mt. Powell - Mount Powell forestland is situated within the following sub regional watersheds:
    - Upper Puerco
    - Rio San Jose

Water resources within Mount Powell forest study area includes lakes, reservoirs, ponds, rivers, streams, and intermittent washes. The USGS hydrology layer utilized for analysis shows only two (2) bodies of water within the Mount Powell forest study area. There is a total of 128,286 linear feet of mapped rivers, creeks, streams and intermittent washes within the forestland study area including the South Fork Puerco River. Total counts for water resources in the Navajo Mountain forestland are shown in table 13.4 below and are shown on map 13, Forest Study Area Water Resources Map.

Table 13.4 Mount Powell Forestland Water Resource Inventory

Water Resource Type	Total	Water Body (Acre ft.) Creeks, Streams, Washes (Linear ft.)
Waterbody (Pond, Reservoirs, Lakes)	2	N/A*
Rivers, Creeks, Streams, Washes	37	128,286 linear feet

*No data available

- Carrizo Mountains - The Carrizo Mountains forestland is situated within the following sub regional watersheds:
    - Middle San Juan
    - Lower San Juan-Four Corners
    - Chilne

Water resources within Carrizo Mountain forest study area includes lakes, reservoirs, ponds, streams, and intermittent washes. The USGS hydrology layer utilized for analysis shows only two (6) bodies of water within the Mount Powell forest study area. There is a total of 1,466,284 linear feet of mapped rivers, creeks, streams and intermittent washes within the forestland study area including Pine Wash, Blackhorse Creek, Blackrock Wash, Tsitah Wash, Horse Mesa Creek and Dry Farm Wash. Total counts for water resources in the Carrizo Mountain forestland are shown in table 13.5 below and are shown on map 13, Forest Study Area Water Resources Map.

Table 13.5 Carrizo Mountain forestland Water Resource Inventory

Water Resource Type	Total	Water Body (Acre ft.) Creeks, Streams, Washes (Linear ft.)
Waterbody (Pond, reservoir, Lakes)	6	N/A*
Rivers, Creeks, Streams, Washes	764	1,466,284 linear feet

*No data available

13.2 CONTEXT

Water uses include agriculture and irrigation, animal husbandry and livestock operations, domestic applications, spiritual practices and ecological needs such as sustaining fisheries, wildlife and ecosystem health. Future and current uses of water include the previously stated and include but are not limited to agriculture, grazing operations, water marketing, infrastructure improvements and industrial and mining uses.

13.2.1 Key Water Resource Concerns

"When tribes were confined to reservations, water became vital to their survival there. Some were no longer able to roam and hunt over vast areas; others were restricted in their traditional fishing opportunities. They had to make the most of reservations where much of the land was barren and dry, and where water for fishing or crop irrigation was scarce. It is clear that for centuries Indians have had their essential needs sustained by the waters available to them. And it is also clear that the future of Indian reservations as permanent homelands depends on water. Indian economic survival today depends on having enough water for irrigation, industry and domestic use; on having water clean enough to sustain fisheries and spiritual needs; and, indeed, on having the ability to sell water to non-Indians for off-reservation uses."[112]

- Water Rights - The protracted political and legal struggle to secure water rights for the Navajo Nation dates back to the early 20th century, when the Colorado River Compact formed and divided all water rights among the seven Colorado River States, not recognizing or awarding any rights to the Navajo Nation. Tribal water rights advocates point to the Winters decision of 1908, which predates the Colorado River Compact, to support the Navajo's legal case for reclaiming extensive water rights. While the complete history of Tribal water rights is beyond the scope of this IRMP, it is very relevant to note the complexity and contentious nature of this painful history that continues to deprive the Navajo Nation of its most vital natural resource.

- Water Infrastructure - "The Navajo Nation has severe water infrastructure deficiencies that impact the health, economy, and welfare of the Navajo people. The lack of adequate domestic and municipal water is the greatest water resource problem facing the Navajo Nation. Given the limited tribal resources, and the limited federal budgets and authorizations, the water resource problems will become increasingly acute, intensifying the poor socioeconomic conditions on the Navajo reservation."[113]

    - "The lack of water infrastructure, lack of economic development, and sustained poverty on the Navajo Nation are connected. The low per capita water use is part of a larger pattern reflecting a lower economic standard of living compared to the non-Indian communities in the region. The fact that the mean income of Navajo families is below the poverty line can be attributed, in large part, to the lack of water infrastructure within the Reservation. Drought response on the Navajo Nation is not a luxury, drought costs local residents their livelihoods."[114]

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[112] David H. Getches, Management and Marketing of Indian Water: From Conflict to Pragmatism. University of Colorado Law Review, Winter 1988. 58 U. Colo. L. Rev. 515, at 516.

[113] http://www.nndwr.navajo-nsn.gov/

[114] Navajo Nation Drought Contingency Plan, 2003. NN Dept. of Water Resources.

- Planning - "One of the water development challenges on the Navajo Reservation is that resolution of problems requires the coordination of multiple agencies and private resources. In addition, the population has limited economic resources that make large capital investments difficult and the widely dispersed population results in large distances between water sources and water users. Although the Navajo Nation has adopted a Drought Plan and conducts numerous planning activities, additional regional water planning, investigation of a regional conveyance system, improving water service to domestic water haulers and water conservation and reuse were identified as needs. (NDWR, 2002) In addition to the aforementioned issues, the Hopi and Navajo are concerned about the impact to their water supply by Peabody Western Coal Company (PWCC) extracting N-aquifer water for coal mining activities at the Black Mesa Project."[115]

- Water Consumption - "The total municipal water consumption on the reservation is approximately 12,000 acre-feet annually. Per capita water use on the reservation ranges between 10 and 100 gallons per day depending upon the water system and the availability of the water supply. By comparison, the average per capita use for 80 neighboring non-Indian communities in the Western United States is 190 gallons per day. Assuming the on-reservation water users achieve parity with the neighboring non-Indian communities, the on-reservation municipal water demand will increase to an average per capita water use of 160 gallons per day and exceed 89,000 acre-feet by the year 2040."[116]

- Access, Quality and Expense -
    - Water Haulers. "Many of the homes on the Navajo Reservation do not have direct access to a public water system. The households without direct access to water are assumed to be hauling water. During drought the population that hauls domestic water is at the greatest risk. During drought they travel greater distances to find public water systems that can provide water, or they utilize non-potable water sources. These water haulers also create additional demands on the public water systems that maintain public water taps. The Chapters with the greatest percentage of water haulers are at greater risk from drought."[117]
    - "According to the United States Census 2000, approximately 30 percent of the Navajo homes were without complete plumbing facilities and complete kitchens. The NDWR estimates that approximately 30 percent of the households on the reservation are without direct access to public water systems and haul water long distances to provide water for their families. In 2006 Dornbusch and Associates evaluated the cost of water hauling on the Navajo reservation. This evaluation included costs for water hauling equipment, vehicles, and the opportunity cost of time. Families, which haul water for domestic purposes, spend the equivalent of $43,000 per acre-foot of water compared with $600 per acre-foot for typical suburban water users in the region. This Navajo water hauling cost is $133 per thousand gallons. This water is among the most expensive in the United States for a sector of the population that is among the poorest. These water haulers often rely on non-potable water sources such as stock tanks for drinking water. Those that do have running water depend on public water supply systems that are deteriorating and are struggling to

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115 http://www.azwater.gov/azdwr/StatewidePlanning/WaterAtlas/EasternPlateau/PlanningAreaOverview/WaterResourceIssues_Tribal.htm

116 Draft Water Resource Development Strategy for the Navajo Nation. NN Dept. of Water Resources, 2011.

117 Navajo Nation Drought Contingency Plan, 2003. NN Dept. of Water Resources.

generate adequate revenues for maintenance. Many of these water systems have exceeded the maximum sustainable withdrawal capacity of their source aquifers, have poor water quality, and are susceptible to drought."[118]

- Economic growth and Public Health - Water Resources as a significant limiting factor to economic growth and contributor to public health crises: "The lack of a reliable and affordable potable water supply stifles economic growth throughout the reservation. It also contributes to a high incidence of disease and infection attributable to waterborne contaminants. This chronic condition places large financial burdens on federal programs that treat diseases and illnesses that could be prevented if adequate safe water supplies were available. In a report to Congress by the Comptroller General, it was noted that reservation families living in homes with unsatisfactory environmental conditions (e.g., inadequate drinking water) placed four times the demand on Indian Health Service primary health care systems as those with satisfactory conditions. In 2006 EcoSystems Inc. reported Indian Health Service data showing correlations between the percent of in home sanitation facilities and the post neonatal mortality rates per live births, and the gastro-enteric mortality rates."

- Emigration - "These (poor water resource) conditions have contributed to emigration from the Navajo Reservation. Between 1990 and 2000 the Navajo population on the Reservation and Trust Land increased by 21.6 percent, while the population outside of these areas increased by 53.2 percent. Without reducing the emigration, by 2012 more than half of the Navajo people may be living off of the Navajo Reservation. And by 2020 more than half of the Navajo population will be living away from the Navajo Reservation and Trust Land."[119] Current emigration data was not found for this IRMP, but it is generally understood that this trend continues due to a range of factors that include economic well-being and public-health issues, which water resource issues contribute to.

13.3 Policies, Programs and Regulatory Framework

Three important code and management strategy documents provide a comprehensive overview of Navajo Nation water resources management for the purposes of this IRMP. These are; The 1984 Navajo Nation Water Code, the 2003 Navajo Nation Drought Contingency Plan and the 2011 Water Resource Development Strategy for the Navajo Nation. In addition the EPA Surface Water Quality Standards for the Navajo Nation can be found here: https://www.epa.gov/sites/production/files/2014-12/documents/navajo-tribe.pdf

Navajo Nation Water Code. This is the 1984 water code legislation that defines NN waters, and outlines policy and governance for the resource, including permitting, enforcement and administration practices.[120] Overview:

- "In 1983, the Navajo Nation Council, recognizing the importance of water resources to the Navajo Nation, established the Department of Water Resources Management. All water functions were placed under this Department to effectively plan, manage and protect this valuable resource, The Water Resources Management Department is charged with implementing and enforcing the Navajo Nation Water Code. The Code provides the Navajo Nation the framework for exercising jurisdictional authority over actions affecting its water resources, providing technical support for

[118] Draft Water Resource Development Strategy for the Navajo Nation. NN Dept. of Water Resources, 2011.

[119] Draft Water Resource Development Strategy for the Navajo Nation. NN Dept. of Water Resources, 2011.

[120] http://www.watercode.navajo-nsn.gov/IMAGES/Water%20Code--Old.pdf

Navajo Nation water rights, protecting the Navajo Nation water resources through the implementation of sound management policies, developing a comprehensive computerized water resources GIS/database, and quantifying all water resources within Navajo territorial jurisdiction."[121]

- The Navajo Nation Council passed a comprehensive Water Code in 1984. The Code is applicable to "all the waters of the Navajo Nation," which include all surface and groundwater. The Code further declares that "... [I]t shall be unlawful for any person ... to ... make any use of ... water within the territorial jurisdiction of the Navajo Nation unless ... this Code [has] been complied with. No right to use water, from whatever sources, shall be recognized, except use rights obtained under and subject to this code. [Title 22 N.N.C. § 1102.][122]
- The Water Code contains the following important General Policy Provision which gives broad authority to the Resources Committee and Director of the Division of Natural Resources to guide policy and enforcement. This is relevant to this IRMP because it outlines a Code-supported path towards integrated resource management.
    - Whenever practicable, actions taken should benefit the Navajo Nation and the members of the Navajo Nation and further the objective for which the Navajo Nation was created: to provide a permanent home and abiding place for the members of the Navajo Tribe of Indians, both now and in the future. Alternatives to existing and proposed uses are to be considered whenever practicable in order to achieve this goal. Included in those alternatives shall be the option to restrict or prohibit entirely any further use of water for the benefit of the Navajo Nation.
- The Code establishes that priority of (water) uses shall be considered in the order in which they are listed below. This is an important consideration when prioritizing econ. Development projects across the Forestlands and when determining the stand-up costs and resource needs of those projects.
    - Domestic and Municipal Uses
    - Stock Watering Uses
    - Agricultural Uses
    - Instream Needs, for Fish, Wildlife Conservation and Recreational Uses
    - Economic Development Uses including Industrial and Power Uses
    - Other Uses
- Application, Review and Approvals Process diagram or description (if different for each of the five forestlands, explain)

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[121] "Water Organizations in a Changing West" Teresa M. Showa, Department of Water Resources Management, Navajo Nation, Natural Resources Law Center University of Colorado School of Law Boulder, Colorado June 14-16, 1993

[122] http://www.watercode.navajo-nsn.gov/

- There are currently two main permit application forms approved by the Division of Natural Resources. They include the Water Use Permit application form and the Well Drilling Permit application form. At present, all non-emergency and long-term water uses and all water well drilling activities are regulated under the above-two application forms. However, for special and certain short-term water uses—such as importing water onto the Nation from outside sources—an "Import" permit may be employed, at the discretion of the TCOB Water Code Section.[123]

- Private well development: there is a twelve step approvals process for drilling a private well on Navajo Nation Trust Lands, found here: http://www.watercode.navajo-nsn.gov/private_well_development.html

Navajo Nation Drought Contingency Plan (2003). [124] This plan is a collaboration between Reclamation, the B.I.A., the NNDNR and the NDEM. Overview:

- "This Contingency Plan has several broad goals. On one level the Contingency Plan is a "how to" handbook for individuals and Chapters to address drought. It contains useful information for connecting specific categories of water users with specific resources. It describes which programs should be contacted and when. And, it describes the types of information needed to assist various sectors of water use. This plan encourages the Chapters to plan prior to, and respond during, droughts. For instance, Chapters may need assistance to get water hauled to stricken areas, or to help individuals qualify for supplemental feed programs. On another level this Contingency Plan is intended to help tribal and federal programs respond effectively. The broad objectives of the Navajo Nation Drought Contingency Plan 2002 are to:
    - Provide an effective and systematic means of assessing drought conditions
    - Develop mitigation actions and programs to reduce risk in advance of drought
    - Develop response options that minimize hardships during drought
- Specific objectives of the drought plan are to:
    - Collect, analyze and disseminate drought related information in a timely manner
    - Establish criteria for declaring drought and triggering mitigation and response activities
    - Describe the organization structure and the responsibilities of programs with respect to drought
    - Prepare and inventory of state and federal programs and provide action recommendations
    - Identify drought prone areas and vulnerable sectors
    - Identify mitigation actions
    - Provide a mechanism to ensure a timely and accurate assessment of drought impacts"[125]

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[123] http://www.watercode.navajo-nsn.gov/Permit_application_forms.html

[124] http://drought.unl.edu/archive/plans/drought/tribal/NavajoNation_2003.pdf

[125] Navajo Nation Drought Contingency Plan, 2003. NN Dept. of Water Resources.

Water Resource Development Strategy for the Navajo Nation (2011). Overview:

- "The Navajo Nation has severe water infrastructure deficiencies that impact the health, economy, and welfare of the Navajo people. The lack of adequate domestic and municipal water is the greatest water resource problem facing the Navajo Nation. Given the limited tribal resources, and the limited federal budgets and authorizations, the water resource problems will become increasingly acute, intensifying the poor socioeconomic conditions on the Navajo reservation. The broad goals of this Water Resources Development Strategy for the Navajo Nation (Strategy Document) are to: describe current and projected water requirements, identify water resource infrastructure deficiencies, and present a strategy for addressing the deficiencies."[126]

13.4 Managing Agencies

The primary department is the Navajo Nation Department of Water Resources.

13.4.1 The Navajo Nation Department of Water Resources (NDWR)

Mission Statement: Responsibility to manage the Navajo Nation water resources for the benefit of present and future generations to sustain long term socio-economic development while protecting the nation's sovereignty over its water. To look forward, beyond today, to anticipate ways to advance the mission and continue to adapt the mission in response to changing opportunities, keeping the Department at the forefront of water industry developments.

Vision Statement/Goals - Stewardship of Navajo Nation's water resources are one of the primary concerns The intent is to promote the management, development, and beneficial use of the Nation's water resources to secure maximum economic future, social prosperity, the sustainability of the rural communities, balance the water needs for present and future generations and to enhance the quality of life for the Navajo Nation members.

Agency Organization/Departments - The NN Department of Water Resources website identifies three sub-departments, and the Safety of Dams Program:

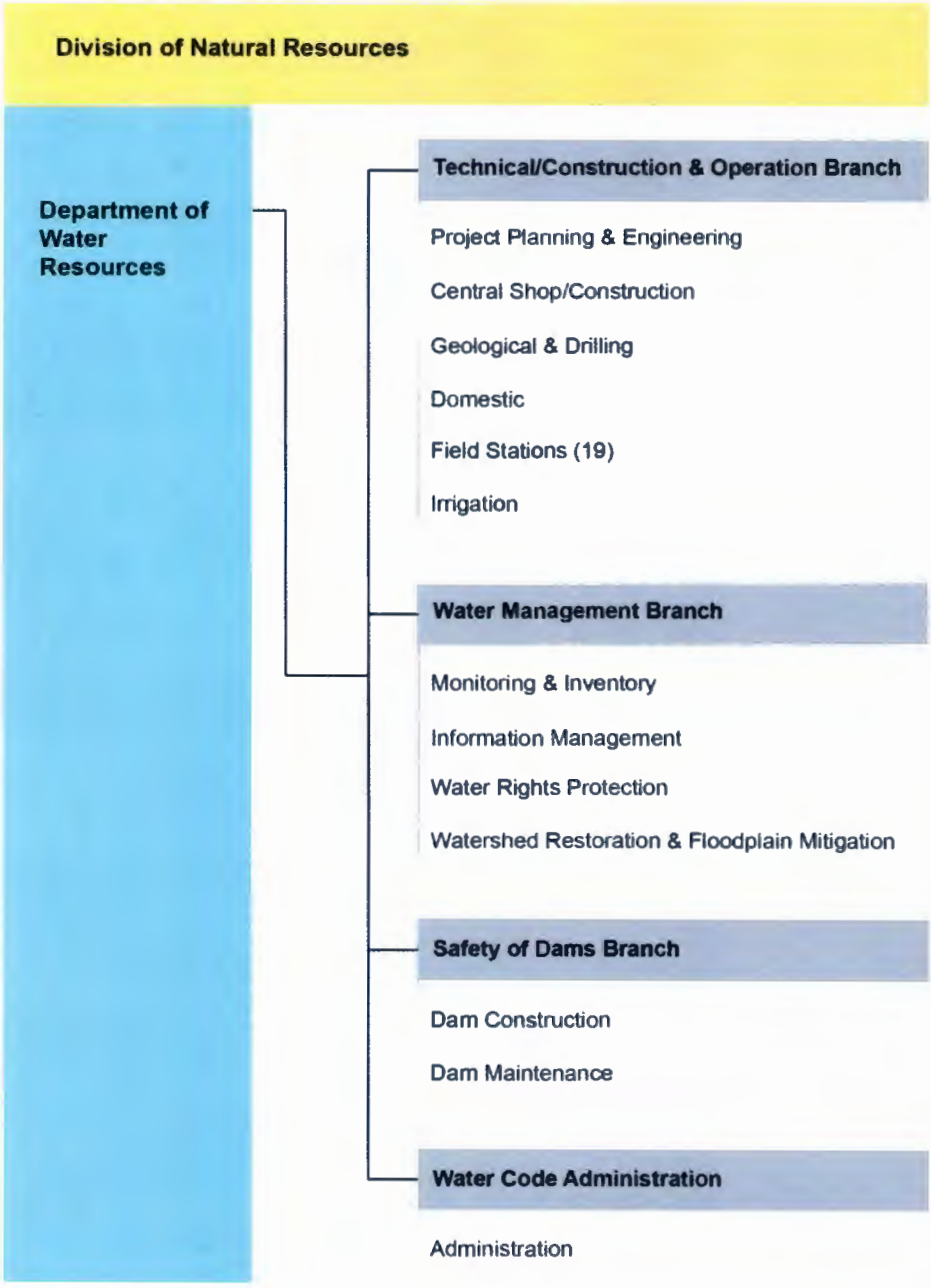
- Technical & Construction Branch
    - The Technical, Construction and Operations Branch (TCOB) plans, designs, constructs, repairs, and maintains water facilities to directly serve the water needs of the Navajo ranchers and farmers across the Navajo Nation. The projects include water wells, storage tanks, waterline extensions, earthen dams, windmills, solar systems and repair/maintain all such facilities.
    - The Branch also has the responsibility to repair and maintain domestic and irrigation water systems under its jurisdiction. In addition, TCOB repairs and maintains all equipment used for drilling, construction, repair and maintenance of all above described purposes.
- Operations & Maintenance Branch
    - Water Management Branch - The Water Mgmt. Branch's stated goal is "To protect and manage the water resources of the Navajo Nation through development, reviewing and enforcement of sound water management, regulation, and planning policies. Support of the

[126] Draft Water Resource Development Strategy for the Navajo Nation. NNDWR, July 2011.

Navajo Nation Water Code, the monitoring and inventory of all water resources data, and technical support to the Navajo Nation on water rights litigation and negotiations.

- The Department's org chart identifies Technical Construction & Operations as a combined branch.
- The Dam Safety Branch is responsible for overseeing construction repairs on unsafe dams, providing general maintenance and monitoring of existing dams, surveying and land withdrawal, and developing safety plans, emergency action plans, and early warning systems.

Navajo Nation Water Resources Department



13.4.2 Supporting Agencies

Navajo Tribal Utility Authority - It is important to note that much of the NN's drinking water is managed by the NTUA, which is an enterprise of the Navajo Nation, separate from the Water Resources Department.

Mission Statement - The mission of NTUA is to provide its customers with electricity, natural gas, water, wastewater treatment, and related services.

Vision Statement/Goals -

Agency Organization - NTUA was created in 1966 and is under the direction of a management board which operates as a tribal enterprise under the oversight of the Navajo Nation's Economic Development Committee.

- Departments - NTUA has five district offices. NTUA operates and maintains 93 public water systems including 1,300 miles of water lines, 24,000 water connections, and 12,000 wastewater connections, delivering more than 12,000 acre-feet of residential water and 3,300 acre-feet of commercial water annually to approximately 200 commercial users. NTUA serves approximately 55 percent of the on-Reservation population.[127]

13.5 Current Management Plans

On July 17, 2000, the Navajo Nation (NN) and the Bureau of Reclamation (Reclamation) signed a memorandum of understanding to support the Navajo Nation's efforts to develop its water resources. This strategy is articulated in Water Resources Management and Development Strategy for the Navajo Nation (Strategy Document). The Strategy Document describes the tremendous overall need for water development on the Navajo Nation, and lays out a strategy for meeting the need. The Development Strategy includes:[128]

- Developing Water Resources - The Water Resources Development Strategy document states that "recognizing that water is integral to human health and safety and economic development, the Navajo Nation has placed one of its highest priorities on developing reliable water supplies."
    - Goals
        - Developing large regional water supply projects.
        - Developing and rehabilitating local domestic and agricultural water projects.
        - Assistance for water haulers
        - Preparing reservation-wide chapter water plans based on municipal sub-areas to assess needs and prioritizing projects.
        - Completing NIIP. (Navajo Indian Irrigation Project)
        - Continuing to address deficiencies in water storage facilities.
        - Improving drought response and mitigation.
        - Improving flood plain management.
        - Continuing with watershed restoration projects.
        - Establishing technical advisory committees for major water projects or initiatives, these committees will coordinate technical and fiscal resources of the Navajo Nation and Federal agencies.

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[127] Navajo Nation Drought Contingency Plan, 2003. NN Dept. of Water Resources.

[128] Draft Water Resource Development Strategy for the Navajo Nation. NN Dept. of Water Resources, 2011.

- Water Development Strategy Projects:[129]

  - Regional Water Supply Projects. The cornerstone of the Strategy Document is several large, regional water supply projects that will provide safe, new, and reliable water supplies for municipal use and will stimulate sustainable economic development on the reservation. These regional projects will maximize the number of water users that will have reasonable access to the mainline delivery systems. Most of these projects have made significant progress since July 2000. The proposed regional water supply projects will convey domestic water to approximately 67 of the 110 chapters on the reservation. By the year 2050 these systems will provide capacity to serve domestic water to more than 80 percent of the projected population of 500,000. The proposed regional projects are estimated to cost billions of dollars to construct. For a detailed list of projects, see the Development Strategy document.

  - Local Water Supply Projects. Even with the large regional projects, without additional local infrastructure, conveyance and treatment capacity will be inadequate to deliver potable water from the regional systems to many of the water users. Even with the regional projects and the associated local distribution systems fully in place, approximately 40 percent of the chapters will rely on local water sources and facilities. Many of these areas have systems that require rehabilitation, and many areas require new systems In 2010 the Indian Health Service identified approximately 679 projects with a total cost of more than $562 million on the Sanitation Deficiency System list. Since 2000 the IHS has constructed nearly $160 million of local projects, and more than 10,000 water connections have been installed.

  - Assistance for Water Haulers. For areas where distribution systems are currently infeasible, community wells and watering points need to be upgraded or constructed to improve access for water haulers, perhaps utilizing a water-hauling truck service. The IHS and State of New Mexico have been funding this work. According to IHS statistics, since 2000 the percentage of homes hauling water has declined by almost 10 percent. In 2010 the NDWR initiated a $2 million pilot water hauling program funded by EPA.

  - Chapter and Regional Water Plans to Assess Needs and Prioritize Projects. To effectively meet these deficiencies, the Navajo Nation must systematically identify the full scope and need on the reservation. With assistance from the state and federal agencies, the Navajo Nation is preparing Chapter and Regional Water Plans across the Navajo reservation. To break the needs assessment into manageable parts, the reservation will be assessed regionally and the plans will follow the New Mexico Interstate Stream Committees Regional Water Planning Handbook (December 1994). The municipal sub-areas or regions are based on the locations of the existing and proposed regional water supply projects, growth centers and jurisdictional boundaries. The plans will develop alternatives based on a short-term, mid-term, and long-term basis.

[129] Draft Water Resource Development Strategy for the Navajo Nation. NN Dept. of Water Resources, 2011.

- Complete NIIP. The Navajo Indian Irrigation Project (NIIP) was authorized in 1962 through Public Law 87-483 for the principal purpose of furnishing irrigation water to approximately 110,630 acres of land. NIIP has not realized its full economic potential, and it is only 70 percent completed. The Navajo Nation has made several specific suggestions to realize NIIP's potential, including: 1) increase the annual construction funds to complete both the distribution systems and on-farm components in a shorter period of time, 2) vertically integrate to increase economic returns and employment, and 3) adequately fund the operation and maintenance. The Navajo Nation, BIA and Reclamation have assembled a project team to address the long-range plans for NIIP.

- Address Deficiencies in Storage Facilities. The Department of the Interior (DOI) Dam Safety Program's nationwide technical priority rating includes 15 high hazard dams on the Navajo Nation. Dam safety work has been completed on Canyon Diablo, Round Rock, Ganado, Wheatfield, and Many Farms Dams. Five others, Captain Tom, Tsaile, Charlie Day, Red Lake, and Asaayi, are ranked in the top ten by the DOI. In 2006 the NDWR Safety of Dams Branch estimated that approximately $47 million of improvements are needed over the next ten years to address operational deficiencies in the remaining unsafe dams. These improvements include conducting deficiency verification analyses, developing standard operating procedures, preparing emergency action plans, establishing early warning systems, and addressing structural problems.

- Drought Response and Mitigation. Since the signing of the MOU in July 2000, the Navajo Nation has been racked by extremely dry years. Reclamation and the BIA funded the Navajo Nation's Drought Mitigation and Response Plan which follows the National Drought Mitigation Center guidelines.

- Floodplain Management. Throughout most of the United States, 100-year floodplains have already been delineated. With these delineations entities can participate in Federal Emergency Management Authority flood insurance programs. Addressing flood hazard is required for essentially all federally funded construction programs. Typically, on the Navajo Nation adequate delineations are not available. Consequently, establishing flood hazard maps is critical to safeguard property and human safety. Work is proceeding through $12 million authorized by Section 520 of the Army Corps Water Resources Development Act of 1999. In 2006 the USGS completed an analysis of the magnitude and frequency of peak discharges for the Navajo Nation. This work was funded by the BIA and the USGS. High hazard delineations have begun. One hundred-year floodplain delineations for Window Rock and Chinle were completed in 2010. Flood management efforts are estimated to cost $30 million.

- Watershed Restoration. Almost all of the watersheds on the Navajo Nation are degraded due to land use practices that occurred without sufficient attention to their impact on the watershed. Overgrazing has had a major impact on the watersheds, which results in more intense runoff events. When these events occur on degraded watersheds, they produce additional sediment loads in the reservoirs. These events incise channels which de-waters the alluvial groundwater destroying riparian areas and reducing the carrying capacity of the land. With a restored watershed, floods can be attenuated and recharge can be increased. Wetland values can also be enhanced. With proper grazing management the fodder production can

be increased. The Navajo Department of Water Resources (NDWR) has participated in several watershed restoration projects.

- Technical Advisory Committees for Major Projects and Initiatives. To address these problems, the leaders of the Navajo Nation are committed to providing capital and personnel resources, along with developing partnerships. However, due to the magnitude of the deficiencies, sufficient water resource development is beyond the financial capabilities of the Navajo Nation and the federal agencies authorized to address these needs.

13.6 Community Concerns.

Water concerns are widespread and numerous, involving nearly every other resource category and topic. Most communities face serious challenges surrounding water. These concerns can be summarized in six categories; quality and safety, allocation, infrastructure (domestic water, agricultural irrigation and water for livestock), drought conditions, seasonal flooding and the need for conservation.

13.6.1 Concerns by Forestland

Defiance Plateau -

- There are issues with water quality including high mineral content, access to domestic supply and residue from tank treatments in the water lines. "there are frequent complaints from the community regarding water quality. This is because the water in the Chinle area has a high level of iron oxide which affects the taste and creates discoloration.[130]" Some residents are concerned there is uranium in the water.
- Community elders report a greater abundance of water in the past supporting farming operations.[131] There has been an expressed desire to establish an irrigation systems for farming.
- Flooding within the come of the chapter areas is a major seasonal problem. "Several washes converge in Fort Defiance, making flood control a major limitation to development. These washes include Bonito Creek, Black Creek, Slick Rock Wash, and Hickman Wash. Intense summer rain storms cause property damage, ponding, and soil erosion at residences, community areas, and enterprises.

Chuska Mountain - Communities near the mountains feel they have a precious resource in water and should do more to "put it to work," and protect it. Outside of the mountainous areas communities face serious water concerns including shortages and access to safe drinking water.

- There are issues with water quality including high mineral content, access to domestic supply and residue from tank treatments in the water lines. "there are frequent complaints from the community regarding water quality. This is because the water in the Chinle area has a high level of

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[130] Community Based Comprehensive Land Use Plan, CH'ÍNÍLı'Chapter. Chinle, Arizona Including the Canyon Communities. Takahashi Associates Santa Fe, NM. Summer, 2006. Data Assessment (Page 20)

[131] Crystal Chaper Community Based Land Use Plan. Prepared by Planners Ink. Santa Fe, NM with Red Mountain Engineering. June, 2003. (Page 37)

iron oxide which affects the taste and creates discoloration.[132]" Some residents are concerned there is uranium in the water.

- How water is used and distributed throughout the chapters is a major point of contention. "There was much additional discussion on Navajo water rights and how the Navajo-Gallup water project does not include Red Valley all the area contributes significantly to the San Juan River Basin. It was felt that larger dams should be explored so that larger quantities of water can be retained for irrigation purposes.[133]"

- Community elders report a greater abundance of water in the past supporting farming operations.[134] "Several community members have expressed a desire to establish an irrigation system for farming in the Chapter. One idea is to build a reservoir to store run-off from the mountains for irrigation use. There is also the possibility of water being made available from the Navajo-Gallup Water Supply Project (although current discussions indicate that this project will only provide water for household use).[135]" It was reported that residents believe water resources are inadequate for future growth and sustaining livestock.

- Residents have brought up concerns about a long running drought, lack of rain and the possibility of aquifers not recharging.

- Flooding within the come of the chapter areas is a major seasonal problem. "Several washes converge in Fort Defiance, making flood control a major limitation to development. These washes include Bonito Creek, Black Creek, Slick Rock Wash, and Hickman Wash. Intense summer rain storms cause property damage, ponding, and soil erosion at residences, community areas, and enterprises.

- Many of the CLUPs suggest conservation efforts at the behest of residents

Navajo Mountain - The chapter is lacks sufficient water storage and distribution. Some existing water storage also needs to be upgraded. There are few sources for freshwater. A good portion of natural water drains across Navajo Mountain Chapter and on into Lake Powell without the Chapter being able to capture it.

Mount Powell - Water quality and allocation are community concerns.

- "The Chapter would like to see an effort made to restore the lake's (Smith Lake) water holding capacity, but the lake bed is divided by three different property types: Tribal Trust, Indian

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[132] Community Based Comprehensive Land Ue Plan, CH'ÍNÍLĮ'Chapter. Chinle, Arizona Including the Canyon Communities. Takahashi Associates Santa Fe, NM. Summer, 2006. Data Assessment (Page 20)

[133] Community Land Use Plan, Red Valley. LSR Innovations, Research and Planning. May 08,2002 and February 27, 2004. (Component 5 Page 8)

[134] Crystal Chaper Community Based Land Use Plan. Prepared by Planners Ink. Santa Fe, NM with Red Mountain Engineering. June, 2003. (Page 37)

[135] Land Use Plan for the

Sanostee Chapter, Final Report. By Architectural Research Consultants, Incorporated In association with: Sanostee Chapter Comprehensive Land Use Planning Committee. July 2004. (Page b-23)

Allotment, and privately owned. Some type of a joint-use agreement would need to be worked out before work could begin.[136]"

- Smith Lake is reported to have, "Foul-tasting, possibly carcinogenic water; remediated uranium mines.[137]"
- Mariano Lake Chapter reported concerns about the amount of water the community will need going into the future and a potential shortage of water.

Carrizo Mountain - "Being situated near the Lukachukai Mountains, the community feels they have a precious resource in water.[138]"

- Water infrastructure is limited in terms of irrigation for agriculture and domestic supply.
- "Explore feasibility of creating reservoir in foothills with water from San Juan River[139]"
- Concern over water rights/allocation

13.7 External Resource Department Concerns

- Federally mandated protection of certain species through the Endangered Species Act (established in 1973 to conserve the Nation's natural heritage for the enjoyment and benefit of current and future generations by conserving species that are in danger of extinction) limits development and created significant barriers to water infrastructure and access projects such as pumping and pipeline development[140]. Sport fishes require acceptable levels of water quality to survive and achieve maximum growth. Monitoring and maintenance of water quality is important to the survival of all aquatic inhabitants.
- The largest water users have been coal mining, oil recovery and power generation, which use a combined total of approximately 158,000 acre-feet of water annually.[141]

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[136] Community Land Use Plan for the Smith Lake Chapter, Final Report. Prepared by, Architectural Research Consultants, Incorporated and Smith Lake Chapter Community Land Use Planning Committee.

July 2005. (Page d-5)

[137] http://www.navajotimes.com/news/chapters/040314smithlake.php

[138] Community Land Use Plan, Red Valley. LSR Innovations, Research and Planning. May 08,2002 and February 27, 2004. (Componenet 1 Page 8)

[139] Beclabito Chapter Community-Based Land Use Plan. Beclabito Chapter, Shiprock,NM and JJ Clacs and Company Fort Wingate, NM. December, 2011 (Page 66)

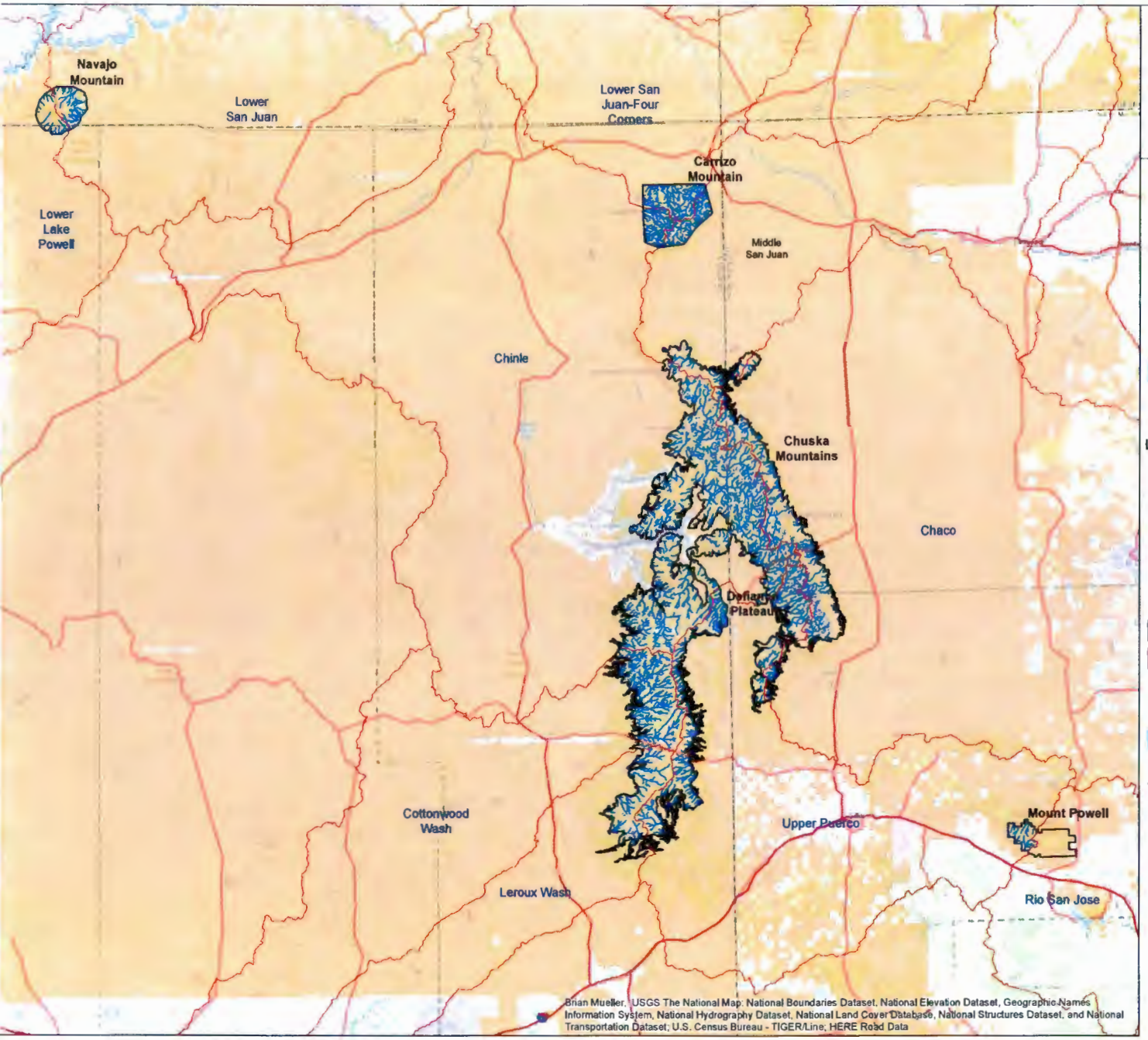
[140] FBFA Integrated Resource Management Plan.Bureau of Indian Affairs, Navajo Region and The Navajo Nation. October 2016. (Page 10-11)

[141] Water Resource Management Strategy for the Navajo Nation

13.8 WATER RESOURCES COLLABORATION CHART

Primary Concerns	**General Best Management Practices**[142] List of core best practices for Water Quality Mgmt. on Forestlands	**Opportunities for Integrated Mgmt.**
Water quality, supply and inadequate infrastructure	• Establish desired conditions, goals, and objectives for soil, water quality, and riparian resources that contribute to the overall sustainability of social, economic, and ecological systems in the plan area consistent with established State or national water quality goals for the plan area. • Consider the water quantity, quality, location, and timing of flows needed to provide water supplies for municipal, agricultural, commercial, and industrial uses; hydropower generation; water recreation, transportation, and spiritual uses; aesthetic appreciation; and tourism to contribute to social and economic sustainability. • Consider the water quantity, quality, location, and timing of flows needed to provide the ecological conditions to support diversity of native and desired nonnative plants and animal species in the plan area to contribute to ecological sustainability. • Include plan objectives to maintain or, where appropriate, improve or restore watershed conditions to achieve desired conditions of soil, water quality, and riparian resources. • Consider watershed characteristics, current and expected environmental conditions (including climate change), and potential effects of land uses when determining suitability of NFS lands within the planning area for various uses. • Include standards and guidelines to maintain and, where appropriate, improve over time the quality of soil, water resources, and riparian areas when implementing site-specific projects and activities. • Include monitoring questions and associated performance measures to address watershed condition and water quality goals and objectives.	Forestry Department Fish & Wildlife Dept. Water Resources Dept. Land Dept.

[142] https://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf



Map 13.0 - Forest Study Area Wetland

Water Resource Inventory

NAVAJO FORESTLANDS IRMP

LEGEND

Water Resource Type - Count (Entire Forest Study Area)

- River/Streams/Creeks/Washes - 4,849
- Waterbody/Lakes/Ponds/Reservoir - 1,020

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

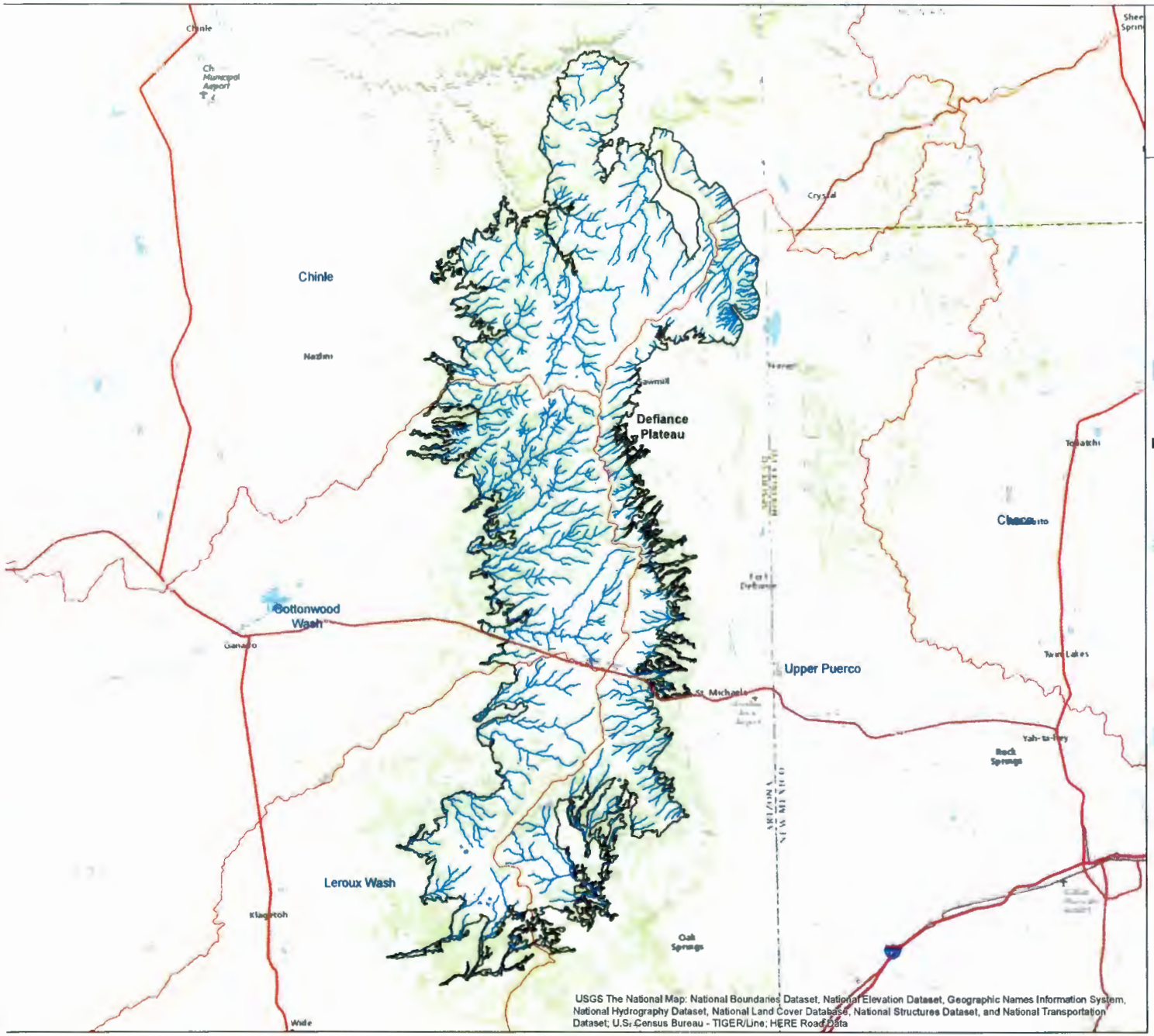
- Forest Study Area Boundary
- Subregional Watershed Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: USGS Hydrological Data

0 5 10 20 30 40 Miles

N W E S



Map 13.1 - Defiance Plateau

Water Resource Inventory

NAVAJO FORESTLANDS IRMP

LEGEND

Water Resource Type - Total Count (Defiance Plateau)

- Defiance Plateau Streams - 1,636
- Defiance Plateau Waterbody - 111

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

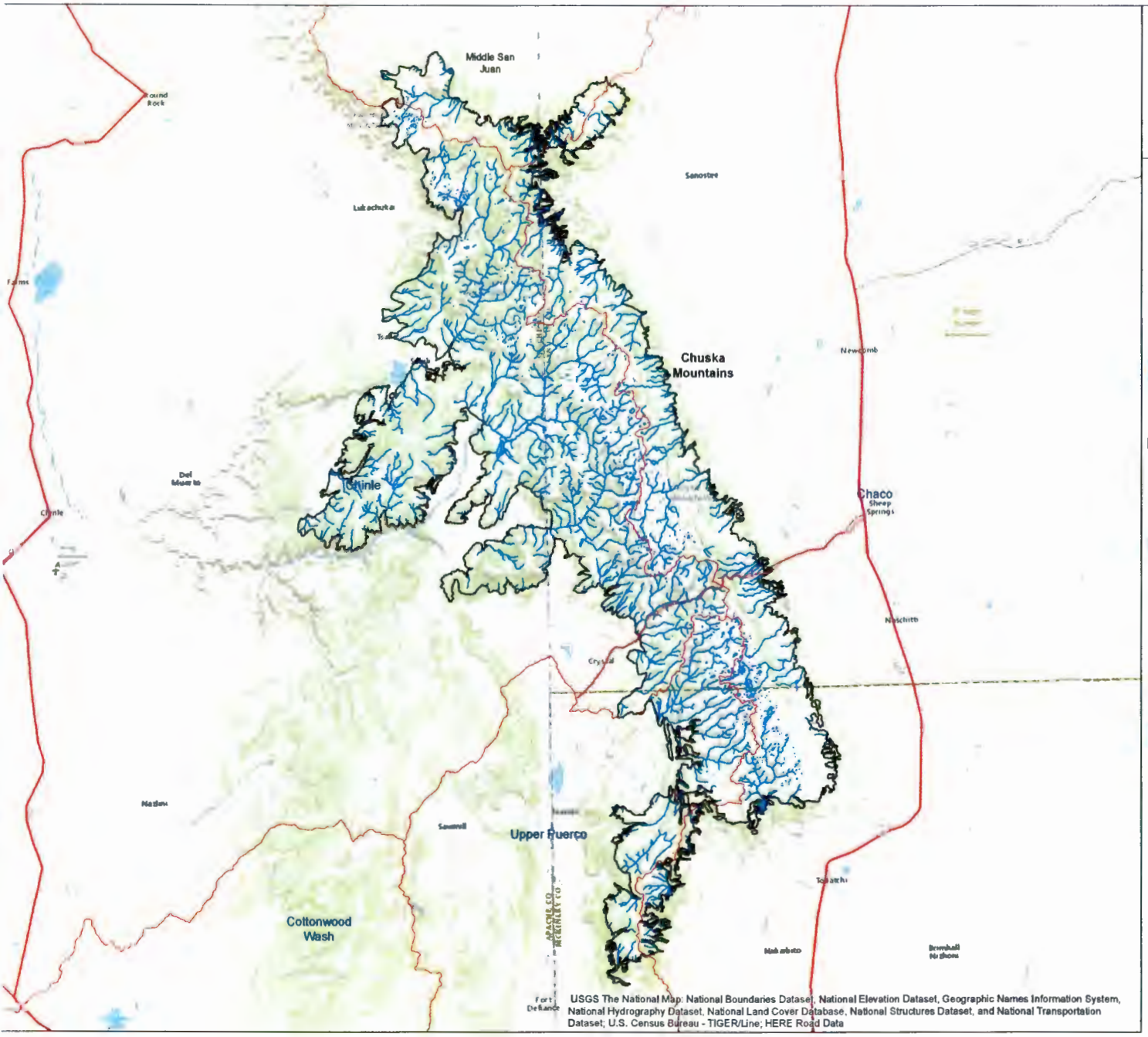
General Reference

- Defiance Plateau Study Area Boundary
- Subregional Watershed Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: USGS Hydrological Data

0 1.75 3.5 7 10.5 14 Miles



Map 13.2 - Chuska Mountains

Water Resource Inventory

NAVAJO FORESTLANDS IRMP

LEGEND

Water Resource Type - Total Count (Chuska Mountains)

- Chuska Mountains Streams -2,343
- Chuska Mountains Waterbody - 901

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

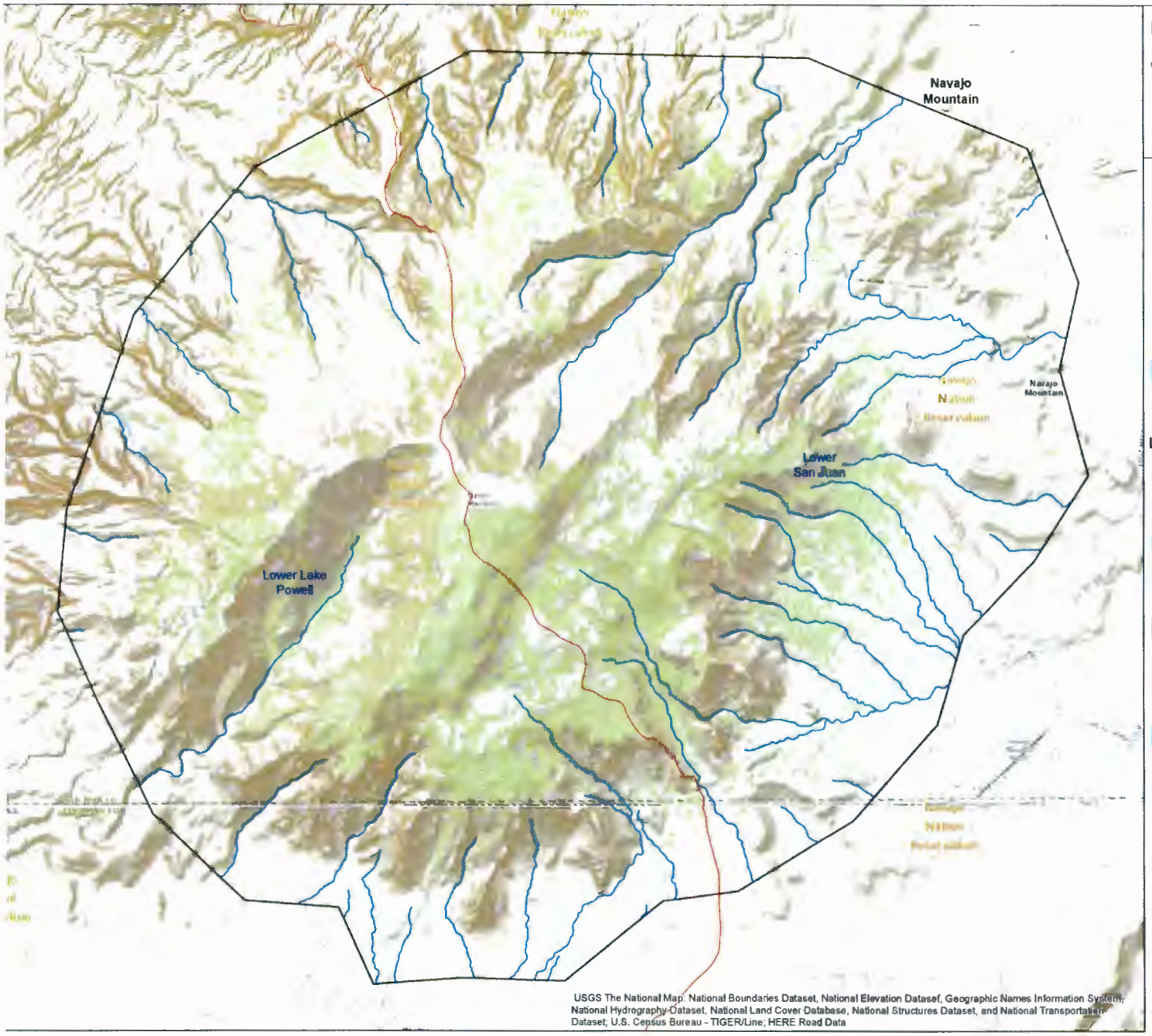
- Chuska Mountains Study Area Boundary
- Subregional Watershed Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: USGS Hydrological Data

0 2 4 8 12 16 Miles

N W E S



Map 13.3 - Navajo Mountain

Water Resource Inventory

NAVAJO FORESTLANDS IRMP

LEGEND

Water Resource Type - Total Count (Navajo Mountain)

- Navajo Mountain Streams - 69
- Navajo Mountain Waterbody - N/A

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

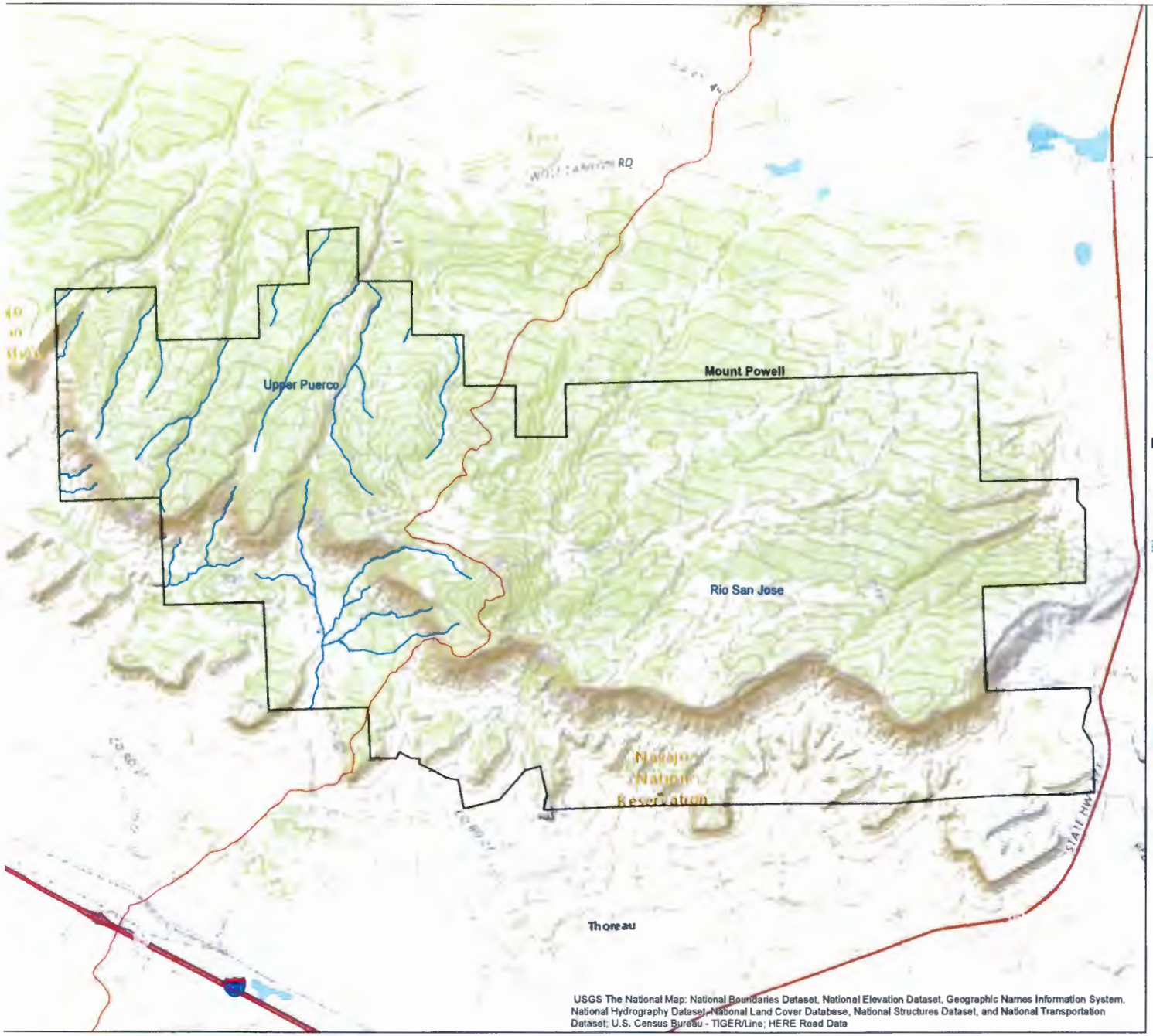
- Navajo Mountain Study Area Boundary
- Subregional Watershed Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: USGS Hydrological Data

0 0.25 0.5 1 1.5 2 Miles

N W E S



Map 13.4 - Mount Powell

Water Resource Inventory

NAVAJO FORESTLANDS IRMP

LEGEND

Water Resource Type - Total Count (Mount Powell)

- Mount Powell Streams - 37
- Mount Powell Waterbody - 2

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

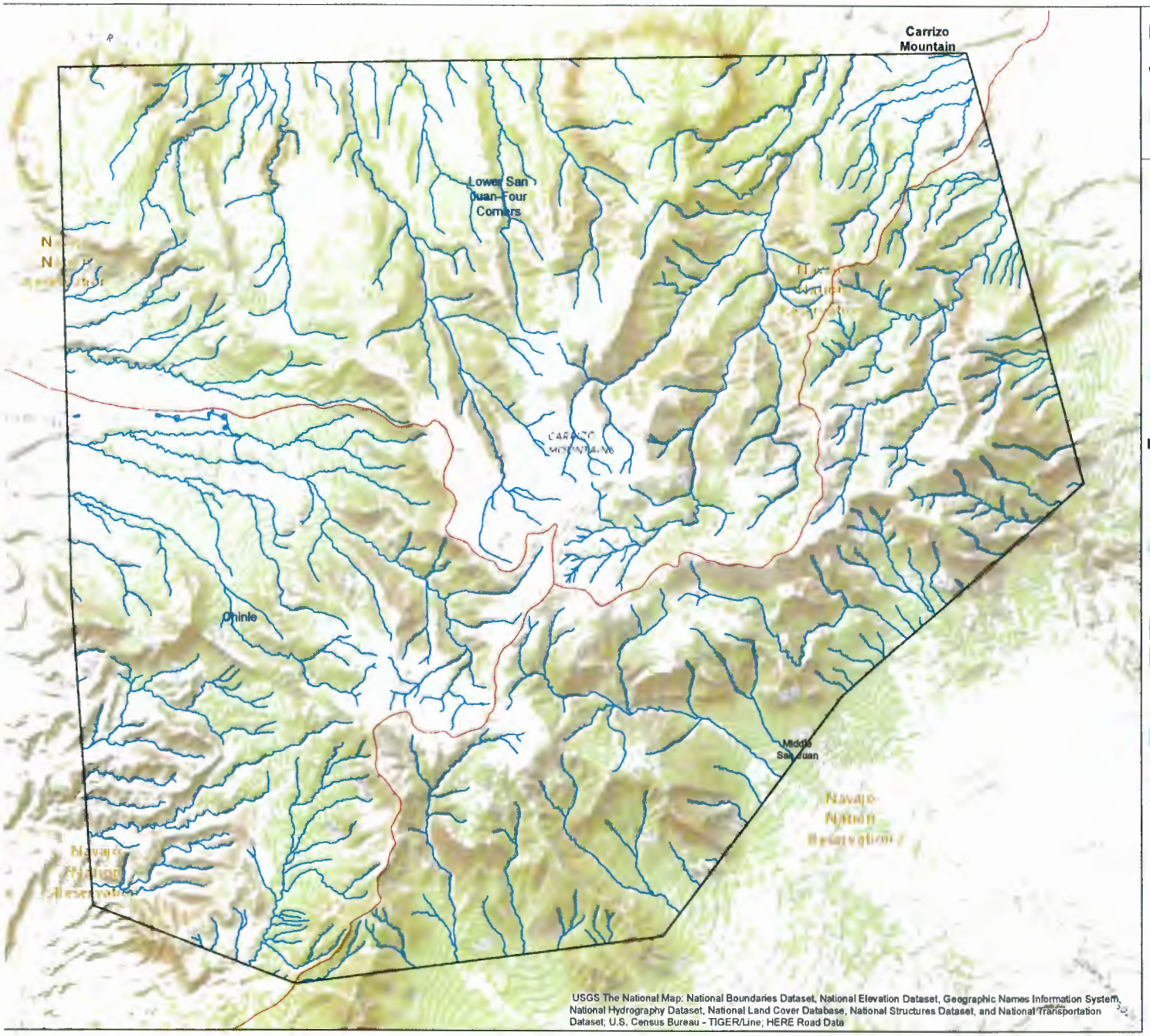
General Reference

- Mount Powell Study Area Boundary
- Subregional Watershed Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- State Boundary
- County Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: USGS Hydrological Data

0 0.325 0.65 1.3 1.95 2.6 Miles



Map 13.5 - Carrizo Mountain

Water Resource Inventory

NAVAJO FORESTLANDS IRMP

LEGEND

Water Resource Type - Total Count (Carrizo Mountain)

- Carrizo Mountain Streams - 764
- Carrizo Mountain Waterbody - 6

Land Ownership

- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (USBR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local

General Reference

- Carrizo Mountain Study Area Boundary
- Subregional Watershed Boundary
- Interstate Highway
- Other Road
- Lake or Reservoir
- State Boundary
- County Boundary

0 0.35 0.7 1.4 2.1 2.8 Miles

14. Mineral Resources and Abandoned Mines

14.1 Resource Description

Mineral resources are "a concentration of naturally occurring solid, liquid, or gaseous material in or on the Earth's crust in such form and amount that economic extraction of a commodity (mineral resource) from the concentration is currently or potentially feasible" (U.S. Geological Survey 2016). Inorganic Mineral resources are defined as homogenous, naturally occurring, each having their own characteristic chemical composition and highly ordered atomic structure. Fossil Fuel resources are organic compounds formed over millions of years by the decomposing remains of plants and animals under immense heat and pressure. This process resulted in energy laden fuels—coal, petroleum, and natural gas. The Navajo section of the Colorado Plateau is characterized as a basin with thick layers of gently dipping Mesozoic and Cenozoic sedimentary shale, mudstone, and sandstone which contain coal seams. The area is generally characterized as rolling plains with cuestas and tablelands capped by sandstone. Canyons are typically broad and shallow. Adjacent mesas and highland areas are Cretaceous sandstones interbedded with shale. The Chuska Mountains and Defiance Uplift separate the San Juan Basin and the Black Mesa-Holbrook Basin. The San Juan Basin is bounded on the east by monoclines and underlying basement faults of the Chama and Nacimiento-San Pedro Mountains, on the south by the Zuni Uplift, on the west by the Defiance Uplift, and to the north by the Hogback monocline and La Plata Mountains. West of the Defiance Uplift is the Black Mesa-Holbrook Basin complex, bounded on the south by the faulted escarpment of the Mogollon Rim, to the west by the Echo Cliffs and East Kaibab monocline and to the north by the Comp Ridge monocline of the Monument Upwarp[143]. Navajoland is endowed with vast reserves of coal, uranium, oil, and natural gas.

14.1.1 Data

Peabody Coal Company and the Pittsburgh and Midway Coal Company mine 23 million tons per year. Oil wells produced 6.1 million barrels in 1991, while natural gas productions totaled 4.5 million MCF. Coal, oil, and uranium have been the foundation of the Navajo economy since the 1920's. Leases for mineral and petroleum exploration or extraction currently total 400,000 acres, or about 2.5 percent of the reservations land area. Mine-mouth coal generating stations in and around Navajo country provide a substantial percentage of electrical power to the American Southwest and southern California. The Nation's oil and gas severance is four percent of the value of the minerals extracted from reservation lands, and a three percent possessory interest tax is levies on the value of natural resource leaseholds[144]."

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[143] Donald L. Baars. *Navajo country: a geology and natural history of the Four Corners region.* University of New Mexico Press, 1995.

[144] http://www.navajoadvantage.com/pages/natrlrs.htm

Table 4: Minerals production on the Navajo Nation (Navajo Nation Mineral's Department). Coal production measured in min. tons, oil production measured in barrels (bbls), gas million cubic feet (Mcf), natural gas liquids (LPG) in gallons.

Year	Coal	Oil	Gas	LPG
2001	23.5	5,141,285	8,625,787	1,448,707
2002	23.7	4,530,000	8,520,000	750,000
2003	24.4	4,250,000	8,100,000	800,000
2004	26.09	3,800,000	7,700,000	750,000
2005	27.5	3,490,000	2,400,000	-
2006	23.17	3,500,000	2,450,000	-
2007*	19.72	3,700,000	2,500,000	-
2008*	19.23	3,747,000	2,500,000	-

*Started 2005, Oil Revenue includes revenue from Oil, Gas and Natural Gas Liquids (NGL) previously referred to as LPG. **Started 2005, Gas includes NGL [145]

COAL: The major coal deposits are located at Black Mesa and the San Juan Basin. Permitted coal mines include Amcoal, Kayenta Mine, Black Mesa Mine and Pipeline, Navajo Mine, and Burnham Mine. Kayenta and Navajo Mine are the only active mines at this time (2016). All mining is surface mining. "the Black Mesa and Kayenta mines, is estimated by USGS to contain 21 billion tons of coal, potentially worth $100 billion. Peabody Energy holds an exclusive right to extract defined tonnages of Black Mesa coal under separate lease contracts signed with each tribe in 1966. The coal under contract to Peabody is but a fraction of what still is available to be mined if the Hopi and Navajo tribes ever choose to do so."[146]

- In 2005 Black Mesa mine was closed following the closure of two Hopi coal-fired generating stations.

URANIUM: For twenty years, uranium was mined on the Navajo Nation lands. 6 regions were commercially mined. Over 500 abandoned mine locations.

OIL and GAS:

- There is no natural gas exploration but 150,000 acres have been identified by the Navajo Nation as potential development areas.

Sand, gravel, and precious metals are also present but data quantifying their amounts, locations and economies were not provided or found.

14.1.2 Inventory by Forestland

- Defiance Plateau - There have been proposals made to open commercial coal mines in the Black Mountain area. There is also abandoned uranium mine at Forest Lake in Black Mesa.[147]
- Chuska Mountains – N/A

[145] FBFA Integrated Resource Management Plan.Bureau of Indian Affairs, Navajo Region and The Navajo Nation. October 2016. (Page 36)

[146] Grogan, Maura. "Native American Lands and Natural Resource Development." *Revenue Watch Institute, New York, NY* (2011).

[147] Community Based Comprehensive Land Ue Plan, CH'ÍNÍLı̨'Chapter. Chinle, Arizona Including the Canyon Communities. Takahashi Associates Santa Fe, NM. Summer, 2006. Data Assesmnet (Page 11)

- Navajo Mountain – N/A
- Mount Powell - The Mariano Lake Mine, also known as the Old Gulf Mine, is located in the Mariano Lake Chapter. 505,000 tons of uranium ore was mined between 1977 and 1982. Primary contaminants polluting the site are uranium, radium and arsenic.
- Carrizo Mountains - The Beclabito Dome, an igneous intrusion that has been mined for both copper and uranium.

4.2 Resource Context -

Coal - Coal is a major extractive industry within the Navajo Nation. Historically the use of aquifers to transport and process coal have led to accusations of depleting ground water supply and water contamination.

Uranium -

- "The unique geology of the region makes the Navajo Nation rich in uranium, a radioactive ore in high demand after the development of atomic power and weapons at the close of World War II in the 1940s." Mining for radium on the Navajo Nation began as early as the 1920s when John F. Wade located carnotite-bearing outcrops in the Carrizo Mountains while working with local Navajos. "Approximately four million tons of uranium ore were extracted during mining operations within the Navajo Nation from 1944 to 1986. The federal government (i.e., the Atomic Energy Commission [AEC]) was the sole purchaser of uranium until 1966. The AEC continued to purchase ore until 1970, although sales to the commercial industry began in 1966. The last uranium mine on the Navajo Nation shut down in 1986. Many Navajo people worked in and near the mines, often living and raising families in close proximity to the mines and mills.[148]"
- "Navajo men gravitated to work in the mines, which were near their homes and about the only job available. For many Navajo families, uranium mining represented a first contact with the broader US wage economy. These Navajo families were thankful at the time that they had employment..... When uranium mining began, the predominant modes of transportation for Navajo People were by horse and wagon or by foot on the reservation, the Navajo language had no word for radiation, few Navajo People spoke English, and few had formal education. Thus, the Navajo population was isolated from the general flow of knowledge about radiation and its hazards by geography, language, and literacy level. Today, the miners and their families say that they had no idea that there were long term health hazards associated with uranium mining. Virtually all of the Navajo miners report that they were not educated about the hazards of uranium mining and were not provided with protective equipment or ventilation.[149]"

Oil and Gas - "Modern Navajo tribal government originated in 1923 solely to approve oil leases. From that beginning, the responsibilities and functions of tribal government expanded, fostering economic and political changes that brought the Diné people into closer contact with their Anglo neighbors. As tribal government undertook more projects, the revenue from oil and natural gas leases became key parts of the Navajo Nation's finance. Economic development was spurred by oil leases, however the federal stock

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[148] Federal Actions to Address Impacts of Uranium Contamination in the Navajo Nation 2014 (Page 2)

[149] Brugge, Doug, PhD, MS, and Rob Goble, PhD. The History of Uranium Mining

and the Navajo People. Public Health Then and Now, American Journal of Public Health, September 2002, Vol 92, No. 9

reduction program imposed in the 1930s and 1940s devastated the Navajo agricultural economy and altered family structure. Women had owned and cared for the sheep and goat herds which were now reduced in number by hundreds of thousands. Oil did offer some wage work, but only for men who dug trenches, laid pipe, or drove trucks. Following the end of World War II as the millions of dollars generated annually from oil and gas leases became available to the impoverished Navajo Nation.[150]" Allocation of this new source of revenue has been controversial.

Sand, gravel and precious metals are present within the Navajo Nation but historic and current context was not found or provided.

14.2.1 Key Mineral Resource Concerns

- Resource Extraction - "Many American Indian tribes, including the Navajo, have experienced a tumultuous history of energy development on their lands. Determined and managed primarily by outsiders, many argue that this development has been unreflective of native cultural values, which maintain that ecological systems are sacred and foundational to the integrity of social systems. Consequently, past energy development on the Navajo Nation has left a legacy of long-lasting ecological damage, adverse health effects, and profound feelings of helplessness and violation among tribal citizens due to the nature of the exploitation of their lands.[151]"

- Uranium - "Uranium mining and milling activities no longer occur on Navajo lands, but the legacy of these activities remains, including more than 500 abandoned uranium mine claims with thousands of mine features such as pits, trenches, holes, etc., and some homes that were built from mine and mill site materials. In addition, there are drinking water sources with elevated levels of uranium, radium, and other metals. Uranium and other elements (selenium, arsenic, etc.) are associated with mine and mill sites, although the same constituents occur naturally at elevated levels in rock, soil, surface water, and groundwater across the Navajo Nation and the broader Four Corners region. Health effects as a result of non-occupational exposure to these elements can include lung cancer and impaired kidney function. For Navajo miners and millers and their families, health consequences of uranium mining and milling have been widespread. In 2000, Congress expanded the Radiation Exposure Compensation Act (RECA) to provide monetary compensation to individuals who contracted certain cancers and other serious diseases following their occupational exposure to radiation while employed in the uranium industry during the Cold War arsenal buildup. As of April 4, 2014, 1,347 Navajos have received compensation under RECA for illnesses from occupational radiation exposure as uranium miners, millers, or ore transporters.[152]" Recent increase in demand for uranium has increases pressure on the NAvajo Nation to permit Uranium mining again. Mining companies have purchased mining rights to lands and rights-of-ways located

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[150] Chamberlain, Kathleen P. "Under sacred ground: A history of Navajo oil, 1922-1982." (2000).

[151] Len Necefer, Gabrielle Wong-Parodi, Paulina Jaramillo, Mitchell J. Small, Energy development and Native Americans: Values and beliefs about energy from the Navajo Nation, In Energy Research & Social Science, Volume 7, 2015, Pages 1-11, ISSN 2214-6296, https://doi.org/10.1016/j.erss.2015.02.007.

(http://www.sciencedirect.com/science/article/pii/S2214629615000274)

[152] Federal Actions to Address Impacts of Uranium Contamination in the Navajo Nation 2014 (Page 2)

on the Navajo Nation and have sought approval to conduct mining. The checkerboard pattern on the southeastern portion of the reservation may create loopholes for mining operations to commence, despite the ban.

- Economic Drivers - Peabody Coal Mines, the Pittsburgh and Midway Coal Mine and Navajo Mine account for over $60.0 million in royalties and taxes to the Navajo Nation, which is roughly 60% of the total general fund budget of the Navajo Nation. Projected revenue for the FY 2003 has been estimated to be a little over $137.0 million. Of this amount, $70.5 million or 51.35% is estimated to come from mining and oil & gas alone[153]. The closure of several mines on the Reservation has caused a significant drop in the coal revenue for the Navajo Nation. The Black Mesa mine closed in 2006 and the Pittsburgh and Midway Coal Company closed their mine in 2008.

- Community Mistrust and Local Opposition - "Energy projects on tribal lands can face many obstacles to their successful implementation and long-term viability. For example, the proposed 1500 MW Desert Rock Power Plant that promised to provide 600 long-term jobs and approximately $50 million in annual revenue for the Navajo Nation, failed dramatically due to strong local opposition. Points of conflict included: pressure from the Navajo Nation Government on grazing-rights holders to sign over their land leases, increased air pollution from a third power plant in the region, and concerns about long-lasting impacts on land and water resources from coal mining[154]."

14.3 Policies, Programs and Regulatory Framework

- Surface Mining Control and Reclamation Act of 1977 30 United States Code Subsection 1201 et seq.
    - Applies only to surface coal mining.
    - The Office of Surface Mining Reclamation and Enforcement is the permitting and enforcement 9 authority.
- Mineral Leasing Act of 1920, as amended, 30 United States Code Section 181 et seq. and Federal Coal Leasing Amendments Act of 1976, as amended, 90 Statute 1083-1092 43 Code of Federal Regulations 12 (CFR) 3400:
    - Coal Leasing on Federal Lands Exploration License.
    - Competitive Lease.
    - Lease by Application.
- Mining Law of 1872, as amended, 30 United States Code Section 22 et seq. Public Law 167 of 1955, 17 30 United States Code Section 601 et seq. and Federal Land Policy and Management Act of 1976, 18 43 United States Code Section 1701 et seq. 43 CFR 3715 and 43 CFR 3802, 3809.
    - Governs locatable minerals.

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[153] http://www.navajobusiness.com/pdf/CEDS/CEDS%202002-03.pdf

[154] Len Necefer, Gabrielle Wong-Parodi, Paulina Jaramillo, Mitchell J. Small, Energy development and Native Americans: Values and beliefs about energy from the Navajo Nation, In Energy Research & Social Science, Volume 7, 2015, Pages 1-11, ISSN 2214-6296, https://doi.org/10.1016/j.erss.2015.02.007.

(http://www.sciencedirect.com/science/article/pii/S2214629615000274)

- Materials Act of 1947, 30 United States Code Section 601, as amended Public Law 167 of 1955, 30 United States Code Section 601 et seq. and Federal Land Policy and Management Act of 1976, 43 United States Code Section 1701 et seq. 36 CFR 228 Subpart C:
    - Mineral Material Contracts Prospecting Permits.
    - Free Use Permits.
    - Nonexclusive Sales.
    - Sale Contracts for Mineral Materials.
- Navajo Nation: applicable rules of the Navajo Nation Environmental Protection Agency and Division of Natural Resources.
- Hopi Tribe Department of Natural Resources: applicable plans, policies, and ordinances.
- 1978 US Uranium Mill Tailings Radiation Control Act (UMTRCA; 42 U.S.C. §7901, et seq.) to address the environmental contamination from decades of uranium ore processing at uranium milling sites mostly throughout the western United States. UMTRCA mandated remedial action for over 5,000 "vicinity properties" that contained contamination exceeding EPA Standards when contamination came from the former uranium milling site. In addition to conducting remedial action on the milling sites, DOE also remediated contaminated soils on properties surrounding and in the vicinity of the milling sites, as a part of the Vicinity Properties Program (VPP). DOE conducted investigations for contaminated properties through aerial surveys, mobile scans, and advertising. DOE's investigations were targeted based on results of mobile scans conducted by EPA and the Atomic Energy Commission in 1971 on over 1000 properties on the Navajo Reservation. Participation in the VPP was voluntary, and DOE conducted a radiological survey upon request.
- 2005 U.S. Indian Tribal Energy Development and Self-Determination Act, allowing tribal governments to lease and develop energy resources on tribal lands without final approval from the U.S. Department of the Interior.
- Audits and Taxes - "The tribe conducts its own minerals audits under a cooperative agreement with ONRR and has its coal royalty payments go directly to a bank lockbox rather than through ONRR. Additionally, the nation institutes and manages its own taxes (levying a 4 percent oil and gas severance tax, among other business taxes), and manages its own regulation and enforcement activities. It also handles its own environmental assessments through an independent EPA and minerals department within the nation's Division of Natural Resources.[155]"

14.4 Managing Agencies

14.4.1 Navajo Minerals Department

(No web site), under the Division of Natural Resources, is the center for all minerals and exploration/development projects on the Navajo Nation.

[155] Grogan, Maura. "Native American Lands and Natural Resource Development." *Revenue Watch Institute, New York, NY* (2011).

Vision Statement/ Goals - The Minerals Department is charged with ensuring the proper management and accountability of Navajo Nation mineral resources and the Department is also responsible for the reclamation of lands that are disturbed by mining activities.

Agency Organization - Departments: Minerals Audit Program, Mine Safety, Surface Mining, Oil and Gas Inspection and Enforcement.

14.4.2 Supporting Agencies

Navajo Nation Environmental Protection Agency (NNEPA). NNEPA is an independent regulatory agency within the Executive Branch of the Navajo Nation Government with regulatory, monitoring, and enforcement authority over matters relating to the quality of the environment and over any person or entity doing business within, or otherwise affecting the environment of the Navajo Nation. Funding for NNEPA is provided by Navajo Nation general funds, federal grants from the EPA, the U.S. Department of Justice, and from fees that are collected under existing Tribal environmental laws.

- Departments - Within the NNEPA are the Air & Toxics Department, the Surface and Ground Water Protection Department, the Waste Regulatory Compliance Department (WRCD), and the Criminal Enforcement Department. The first three departments are responsible for the civil and administrative enforcement of Tribal environmental laws and regulations. Criminal environmental crimes are investigated by the Criminal Enforcement Department. Each department consists of several programs that are responsible for program development, technical and enforcement development, conducting research, investigating and assessing environmental problems and concerns, monitoring cleanup and/or corrective actions, and providing technical assistance and training.
    - The Navajo Superfund Program (NSP) is one of several programs within the Waste Regulatory Compliance Department (WRCD) and is funded under an EPA CERCLA grant. Under CERCLA, NSP is responsible for conducting site assessments where hazardous substances may have been used by past development activities, such as uranium mining and milling activities that occurred on the Navajo Nation. NSP has conducted assessments at several AUM. Activities related to these assessments included collecting samples of soil sediments and both surface water and ground water. Other activities included conducting surveys using instruments to detect different types of radiation, conducting interviews of chapter officials and local residents, and reviewing U. S. Bureau of Indian Affairs (BIA) lease information to identify the companies that developed the mines. The information was submitted to EPA for use in the federal Hazard Ranking System (HRS) to score each site and to determine the threat associated with actual or potential releases of hazardous substances. EPA uses the HRS to set priorities for further site evaluation and determine possible remedial action if the site is eligible for placement on the National Priorities List (NPL). The NPL identifies sites at which EPA may conduct remedial response actions.

NAVAJO ABANDONED MINE LANDS (AML) RECLAMATION and Uranium Mill Tailings Remedial Action (UMTRA) Department/Program. The Navajo AML was established in August 1988 as a program under the Navajo Nation's Division of Natural Resources. The purpose of the program is to fulfill the abandoned mine reclamation requirements of Public Law 95-87 Surface Mining Control and Reclamation Act (SMCRA). Navajo UMTRA entered into Cooperative Agreement with the U.S. Department of Energy (DOE) to assist/participate in the remedial actions activities of four Navajo UMTRA sites pursuant to the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA). These sites are located in Tuba City, AZ; Monument

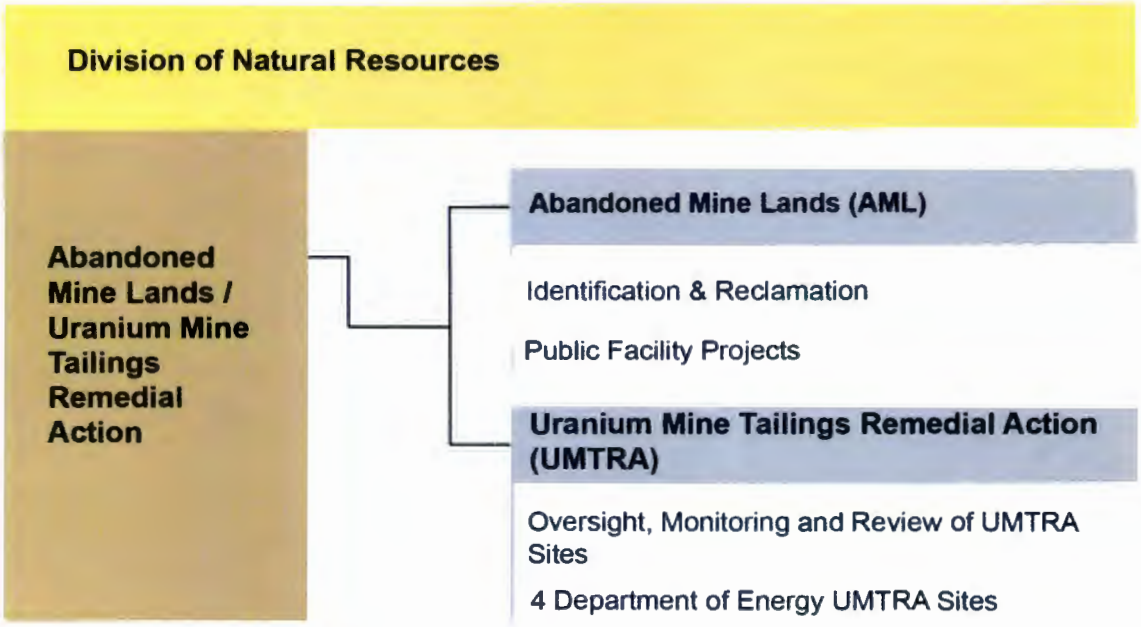
Valley, AZ; Mexican Hat, UT; and Shiprock, NM. Navajo UMTRA provides oversight, monitoring and review of the remedial action work at these sites. BY 1994, all surface remediation which included disposal of residual radioactive materials and debris has been completed pursuant to US EPA cleanup standards and regulations.

Mission Statement - The mission of Navajo AML / UMTRA Department is to "protect, restore, enhance and reclaim abandoned mines, develop infrastructure and facilities through AML Public Facility Projects, ensure the long-term stability of all UMTRA sites, and provide adequate public relations for the benefit of the Navajo people and the environment."

Vision Statement /Goals - In support of the mission statement, Navajo AML / UMTRA commits to:

- Promote partnership with local Navajo Nation, State, and Federal entities to strengthen environmental restoration techniques and infrastructure development;
- Utilize technology to become more efficient and effective;
- Provide quality customer services through accountability, honesty, fairness while being results oriented;
- Promote staff development;
- Ensure proper coordination and communication with programs and entities;
- Complete all projects in a timely, quality, and cost-effective manner;
- Ensure groundwater contaminants are addressed in accordance with the cleanup standards promulgated by U.S. Environmental Protection Agency (USEPA) and the Navajo Nation; and
- Promote the Geographic Information System (GIS) development.

Navajo Nation Abandoned Mine Lands / Uranium Mine Tailings Remedial Action Department



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA) Since 1970, EPA has been working for a cleaner, healthier environment for the American people.

Mission Statement - The mission of the EPA is to protect human health and the environment.

Vision Statement/Goals - EPA conducts environmental science, research, education, and assessment efforts. EPA develops and enforces regulations, provides financial assistance, performs environmental research and cleanup of contaminated sites.

Community Outreach Network - created in 2015 by Federal and Navajo agencies. The Network includes representatives from the following Federal Agencies: EPA, the Bureau of Indian Affairs, the Nuclear Regulatory Commission, the Department of Energy, the Indian Health Service, and the Agency for Toxic Substances and Disease Registry. The Network also includes the following Navajo Agencies: Navajo Nation Environmental Protection Agency, Navajo Abandoned Mine Lands/Uranium Mill Tailings Remedial Action Program, and the Navajo Nation Department of Health.

Mission Statement - to coordinate outreach efforts to increase community understanding of the work agencies are doing to address uranium contamination on Navajo Nation.

Vision Statement/Goals The Community Outreach Network plans workshops and meetings, creates educational material, and participates in local events to help the communities to stay involved and informed.

U.S. Office of Natural Resources Revenue (ONRR)

Mission Statement - For the benefit of all Americans, ONRR collects, accounts for, and verifies natural resource and energy revenues due to States, American Indians, and the U.S. Treasury.

Departments -There are two units within ONRR that provide support to Indian and tribal mineral holders.

- Federal Indian Minerals Office This is a "one-stop shop" created specifically for Navajo allottees and located in Farmington, New Mexico. Its intent is to provide more efficient service for these individuals by having a single location staffed with ONRR, BIA and BLM personnel.
- State and Indian Coordination This office, located in Denver and with team sites in New Mexico and Oklahoma, serves as a focal point for Indian mineral issues and coordination among tribes, allottees and various federal agencies. Its mission is "to serve as an advocate for the fulfillment of [ONRR's] trust responsibility and to resolve Indian mineral related issues. In any given year, this office will conduct as many as 65 meetings on different reservations to meet directly with Indian mineral owners.

Navajo Nation Oil and Gas Co. (NNOGC) oversees oil and gas production. "Navajo Nation Oil & Gas Company (NNOGC) is a federally incorporated oil and gas company wholly owned by the Navajo Nation. NNOGC has more than 100 employees with headquarters in St. Michaels, Ariz., and operations in New Mexico, Colorado and Utah. NNOGC owns and operates oil and natural gas interests, primarily in the San Juan Basin in New Mexico and the Greater Aneth, Tohonadla and Desert Creek fields in southeast Utah. The company also operates the Running Horse Pipeline in southeast Utah and northwest New Mexico and gas stations on the Navajo Nation under the Navajo Petroleum and Chevron brands. NNOGC was established as a federally chartered Section 17 Corporation under authority granted by the Navajo Nation Council and began operations in 1998. The company contributed $49.6 million in direct and indirect payments to the Navajo Nation economy in 2013.[156]"

Federal Indian Minerals Office (FIMO) - established by the Department of the Interior

Mission Statement - To provide and improve Indian Trust services to individual Indian beneficiaries in the management of their oil and gas mineral resources.

Agency Organization - FIMO has been structured to consolidate and integrate Indian allotted oil and gas management functions under one line of authority. Personnel from the Bureau of Indian Affairs (BIA) and the Office of Natural Resources Revenue (ONRR), work in conjunction with personnel from the Bureau of Land Management (BLM) and the Office of Special Trustee for American Indians (OST) to provide one-stop customer service for allottees regarding all aspects of their mineral interests. The first office of its type is in Farmington, New Mexico. FIMO-Farmington provides services that are responsive, consistent, and effective for individual Navajo mineral owners regarding oil and gas in the Four Corners Region. FIMO's location in Farmington gives them an understanding of local market conditions, the methods whereby minerals are sold, and royalty distribution to Navajo allottees.

14.5 Current Management Plans and Priorities -

Five Year Plan: 2014 Federal Actions to Address Impacts of Uranium Contamination in the Navajo Nation - Created by the United States Environmental Protection Agency (USEPA), the Bureau of Indian Affairs (BIA), the Nuclear Regulatory Commission (NRC), the Department of Energy (DOE), the Indian Health Service (IHS), and the Agency for Toxic Substances and Disease Registry (ATSDR), in consultation with the Navajo Nation, the Five-year plan is an effort to address uranium contamination in the Navajo Nation. The effort

[156] http://www.nnogc.com/

focuses on the most imminent risks to people living on the Navajo Nation. Description of existing laws, regulations, and formal orders; and the terms and conditions of the standard lease form. "Objectives and Strategies for Amending the 2014–2018 Five Year Plan to Address Impacts of Uranium Contamination from Tronox Navajo Area Uranium Mines," published in March 2016 lists five objectives and two cost cutting measures[157].

- Five Objectives
    - Objective 1: Assess Water Supply Sources for Contamination in the Cove Watershed and San Mateo Creek Basin. The goal is to assess water supply sources and build conceptual site models by 2018 that can be used as a tool to understand impacts of legacy uranium mining and milling in the soils and groundwater systems and to identify the current and potential future risks to human health.
    - Objective 2: Assess and Cleanup Tronox Uranium Mine Sites. During the next five years, the EPA will conduct a series of assessments and engineering evaluation/cost analyses at uranium mine sites for the purpose of obtaining necessary information to develop an appropriate number of investigations which will be become the basis for any subsequent actions that may be necessary to reduce the threats to human health and the environment posed by these 49 mine sites.
    - Objective 3: Assess and Cleanup of Quivira North-east Churchrock Legacy Uranium Mine Sites. During the next five years, the EPA will complete the assessments and engineering evaluation/cost analyses at the two Quivira Northeast Churckrock uranium mine sites. EPA will release the engineering evaluation/cost analysis for public comment and hold public meetings for the purpose of getting community input prior to selecting a final action to reduce the threats to human health and the environment posed by these mine sites.
    - Objective 4: Communicate and Coordinate with Communities. The goal for the 2015 Five-Year Plan partners is to provide clear and understandable information about ongoing and planned actions and activities in the Grants Mining District. This will be accomplished through enhanced coordination amongst the partners to provide clear and understandable information that the community members request, want, and/or need.
    - Objective 5: Provide Job Opportunities and Workforce Development throughout the Navajo Communities. The implementation of the Tronox/Kerr McGee settlement at various sites has identified the need for additional resources and attention to job training and workforce development for Navajo businesses and community members. The goal is to provide opportunity and development to Navajo businesses and community members through Grants, Contracts, and Interagency Agreements.
- "Cross Cutting Strategies"[158]:
    - Enhanced Coordinated Outreach and Education
    - Workforce Development and Training

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[157] https://www.epa.gov/sites/production/files/2016-06/documents/navajo_fyp_3-16_web.pdf

[158] https://www.epa.gov/sites/production/files/2016-06/documents/objectives-strategies-2014-2018-five-year-plan-addr-impact-uranium-contam-navajo-nation_0.pdf

14.6 Community Concerns -

Community concerns surrounding mining hinge on human health and the sacredness of the land. Mining operations seem widely to be seen as public health hazards. Water contamination as a result of historic mining operations is a widespread community concern.

Defiance Plateau - Water contamination as a result of historic mining operations is a widespread community concern.

Chuska Mountain - "In Mexican Springs there have been periods of relative prosperity brought about from the discovery and mining of coal and then uranium – and also, the aftermath of sickness and environmental damage.[159]" A couple of CLUPs suggested gravel mining as an economic opportunity. *"The mountains provide natural resources to the community. One of the most significant findings was mining of vanadium and uranium. In fact, Cove is attributed with the place where mining started on the Navajo Nation (Office of Navajo Uranium Workers, 1993). As early as 1918, vanadium was mined.The ore played a significant role fueling weapons during World War II; hence, the community of Cove Chapter prides itself in helping America win the war. Later, after World War II, the value of uranium was discovered and mining intensified. Uranium mining in this area of the reservation started around 1946 and continued into the 1960's. In the process of mining the ore, radioactive contaminated rock was removed and left in places like Beciabito Trading Post, along road sides and in piles around the community. Not knowing the health hazards, many people used the rock for foundations and other uses in the home.[160]"*

Navajo Mountain - Oil and gas production is a major industry at the Aneth Basin oilfield. The Black Mesa coal mining operation and an electrical generating plant at Page also provide several hundred job opportunities.

Mount Powell - "The mines in Smith Lake community were all uranium mines, which operated in the 1960s into the 1970s. None of the mines have been reclaimed; they were just abandoned. Many residents are worried about contamination as a result, especially of underground water, and they would like to see reclamation efforts taken to prevent any potential problems.[161]"

Carrizo Mountain – N/A

14.7 External Resource Department Concerns

- Water Resources - The largest water users have been coal mining, oil recovery and power generation, which use a combined total of approximately 158,000 acre-feet of water annually.[162]

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[159] Nakaii bito'í Comprehensive Land Use Plan (Page 49)

[160] Cover Chapter K'aabiishii Nasdl'ah Community-Based Land Use Plan. Cove, AZ. JJ Clacks & Company. Fort Wingate, NM and Navak Environmental, Inc. Tuscon, AZ. March 2002. (Page 14 - 15)

[161] Community Land Use Plan for the Smith Lake Chapter, Final Report. Prepared by, Architectural Research Consultants, Incorporated and Smith Lake Chapter Community Land Use Planning Committee. July 2005. (Page d-5)

[162] Water Resource Management Strategy for the Navajo Nation

14.8 MINERAL RESOURCE COLLABORATION CHART

Primary Concerns	Broad Overview of Best Practices in Abandoned Mine Land Reclamation[163]	Opportunities for Integrated Mgmt.
Abandoned Mines **[Issues related to public safety, pollution, recreation and general environmental degradation]**	• Diversion ditches • Mine waste rock tailings removal and consolidation • Stream diversion • Erosion control by regrading • Capping • Intensive revegetation • Aeration and settling ponds • Sulfate-reducing wetlands • Oxidation wetlands • BMP's to treat acid-mine drainage • Barriers (to open mines for safety) • Plugs and Structural seals (physical barrier methods)	Minerals Dept. Forestry Department Fish & Wildlife Dept. Water Resources Dept.

Key References:

https://www.epa.gov/navajo-nation-uranium-cleanup

http://mining.state.co.us/SiteCollectionDocuments/AMLbmp.pdf

14.9 MAPS

Mineral Resources Inventory and Uranium Mine Sites of Carrizo Mountain

[163] http://mining.state.co.us/SiteCollectionDocuments/AMLbmp.pdf

Map 14.0 - Carrizo Mountain

Mineral Resource Inventory

NAVAJO FORESTLANDS IRMP

LEGEND

Mine Sites / Status / Total

- Uranium Mine Site - Not Reclaimed - 1
- Uranium Mine Site - Reclaimed - 14

Land Ownership

Department Of Defense (DOD)	Bureau of Reclamation (USBR)
Bureau of Land Management (BLM)	Bureau of Indian Affairs (BIA)
National Park Service (NPS)	Other Federal
US Forest Service (USFS)	State
US Fish and Wildlife (USFW)	Local

General Reference

- Interstate Highway
- Other Road
- Forest Study Area Boundary
- Lake or Reservoir
- Stream/River
- County Boundary
- State Boundary

Geographic Coordinate System:
GCS_North_American_1983

Source: Navajo Nation Forestry Department

0 0.35 0.7 1.4 2.1 2.8 Miles

N W E S

APPENDIX A -1 - NAVAJO ENDANGERED SPECIES LIST

NAVAJO NATION

DIVISION OF NATURAL RESOURCES

DEPARTMENT OF FISH AND WILDLIFE

GROUP 1: Those species or subspecies that no longer occur on the Navajo Nation.

GROUP 2 (G2) & GROUP 3 (G3): "Endangered" -- Any species or subspecies whose prospects of survival or recruitment within the Navajo Nation are in jeopardy or are likely within the foreseeable future to become so.

G2: A species or subspecies whose prospects of survival or recruitment are in jeopardy.

G3: A species or subspecies whose prospects of survival or recruitment are likely to be in jeopardy in the foreseeable future.

GROUP 4: Any species or subspecies for which the Navajo Nation Department of Fish and Wildlife (NNDFWL) does not currently have sufficient information to support their being listed in G2 or G3 but has reason to consider them. The NNDFWL will actively seek information on these species to determine if they warrant inclusion in a different group or removal from the list

The NNDFWL shall determine the appropriate group for listing a species or subspecies due to any of the following factors:

1. The present or threatened destruction, modification, or curtailment of its habitat;
2. Over-utilization for commercial, sporting or scientific purposes;
3. The effect of disease or predation
4. Other natural or man-made factors affecting its prospects of survival or recruitment within the Navajo Nation.

NAVAJO ENDANGERED SPECIES LIST – MARCH 2001

Scientific name (Common name)

GROUP 1:

MAMMALS

Canis lupus (Gray Wolf)

Lontra canadensis (Northern River Otter)

Ursus arctos (Grizzly or Brown Bear)

BIRDS

Centrocercus minimus (Gunnison Sage-Grouse)

FISHES

Gila elegans (Bonytail)

GROUP 2:

MAMMALS

Mustela nigripes (Black-footed Ferret)

BIRDS

Empidonax traillii extimus (Southwestern Willow Flycatcher)

AMPHIBIANS

Rana pipiens (Northern Leopard Frog)

FISHES

Gila cypha (Humpback Chub)

Gila robusta (Roundtail Chub)

Ptychocheilus lucius (Colorado Pikeminnow)

Xyrauchen texanus (Razorback Sucker)

PLANTS

Astragalus humillimus (Mancos Milk-vetch)

Erigeron rhizomatus (Rhizome Fleabane)

Pediocactus bradyi (Brady Pincushion Cactus)

GROUP 3:

MAMMALS

Antilocapra americana (Pronghorn)*

Ovis canadensis (Bighorn Sheep)

BIRDS

Aquila chrysaetos (Golden Eagle)

Buteo regalis (Ferruginous Hawk)

Cinclus mexicanus (American Dipper)

Coccyzus americanus (Yellow-billed Cuckoo)

Strix occidentalis lucida (Mexican Spotted Owl)

INVERTEBRATES

Speyeria nokomis (Western Seep Fritillary)

PLANTS

Allium gooddingii (Gooding's Onion)

Astragulus cremnophylax var. *hevroni* (Marble Canyon Milk-vetch)

Astragalus cutleri (Cutler's Milk-vetch)

Carex specuicola (Navajo Sedge)

Erigeron acomanus (Acoma Fleabane)

Pediocactus peeblesianus var. *fickeiseniae* (Fickeisen Plains Cactus)

Penstemon navajoa (Navajo Penstemon)

Platanthera zothecina (Alcove Bog-orchid)

Sclerocactus mesae-verdae (Mesa Verde Cactus)

*G3 designation **excludes** NNDFWL Management Unit 16 ('New Lands'), the boundaries of which are: From Sanders, AZ east along Unit 4 boundary to the Zuni boundary; south along the boundary past AZ Hwy 61 to the Navajo Nation/state boundary; west along the boundary past US Hwy 666 to the Navajo Nation/state boundary; north along Rd 2007 to Navajo, AZ; west (to the north and south of Interstate 40) to the state/Petrified Forest National Park boundary; north along the boundary to the Unit 8 boundary; east along the boundary to US Hwy 191; south to Chambers and east to Sanders. For a Unit 16 map, contact NNDFWL, P.O. Box 1480, Window Rock, AZ, 86515, (520) 871-6451.

NAVAJO ENDANGERED SPECIES LIST – MARCH 2001

Scientific name (Common name)

GROUP 4:

MAMMALS

Dipodomys microps (Chisel-toothed Kangaroo Rat)

Microtus mexicanus (= mogollonensis) (Navajo Mountain Vole)

Plecotus townsendii (Townsend's Big-eared Bat)

Vulpes macrotis (Kit Fox)

BIRDS

Accipiter gentilis (Northern Goshawk)

Aechmophorus clarkii (Clark's Grebe)

Aegolius acadicus (Northern Saw-whet Owl)

Ceryle alcyon (Belted Kingfisher)

Charadrius montanus (Mountain Plover)

Columba fasciata (Band-tailed Pigeon)

Dendragapus obscurus (Blue Grouse)

Dendroica petechia (Yellow Warbler)

Empidonax hammondii (Hammond's Flycatcher)

Falco peregrinus (Peregrine Falcon)

Glaucidium gnoma (Northern Pygmy-Owl)

Otus flammeolus (Flammulated Owl)

Picoides tridactylus (Three-toed Woodpecker)

Porzana carolina (Sora)

Tachycineta bicolor (Tree Swallow)

REPTILES

Lampropeltis triangulum (Milk Snake)

Sauromalus ater (Chuckwalla)

FISHES

Catostomus discobolus (Bluehead Sucker)

Cottus bairdi (Mottled Sculpin)

INVERTEBRATES

Oxyloma kanabense (Kanab Ambersnail)

PLANTS

Amsonia peeblesii (Peebles Blue-star)

Asclepias sanjuanensis (San Juan Milkweed)

Asclepias welshii (Welsh's Milkweed)

Astragalus cronquistii (Cronquist Milk-vetch)

Astragalus naturitensis (Naturita Milk-vetch)

Astragalus sophoroides (Painted Desert Milk-vetch)

Astragalus tortipes (Sleeping Ute Milk-vetch)

Camissonia atwoodii (Atwood's Camissonia)

Clematis hirsutissima var. *arizonica* (Arizona Leather Flower)

Cryptantha atwoodii (Atwood's Catseye)

Cymopterus acaulis var. *higginsii* (Higgins Biscuitroot)

Cystopteris utahensis (Utah Bladder-fern)

Erigeron sivinskii (Sivinski's Fleabane)

Errazurizia rotundata (Round Dunebroom)

Lesquerella navajoensis (Navajo Bladderpod)

Perityle specuicola (Alcove Rock Daisy)

Phacelia indecora (Bluff Phacelia)

Phacelia welshii (Welsh Phacelia)

Puccinella parishii (Parish's Alkali Grass)

APPENDIX B

COMMUNITY ENGAGEMENT INFORMATION:

BROCHURE, FACT SHEET, MEETING FLYERS & PRESS RELEASES

Throughout the Integrated Resource Management Plan project, various outreach materials were created including a Project Brochure introducing the project, a Navajo/English Project Fact Sheet and a Postcard listing the social media links. Local Chapters, officials and media (both newspaper and radio) were sent Meeting Flyers and Press Releases about the community meetings. Samples of some of these outreach materials are included as part of Appendix B.

REGIONAL COMMUNITY MEETINGS

The IRMP Project Team is hosting community meetings to gather your input on the future of the Navajo Forestlands in your area.

October:

All community members may share concerns & suggested solutions for managing the Navajo Forestland areas

January:

Review and discuss strategies for managing the Navajo Forestland areas

Find meeting schedule by Chapter:

- https://navajoirmp.wixsite.com/irmp
- Social media pages (listed on back of brochure)
- Newspaper
- Local Chapters
- Radio

FOLLOW US!

Take our COMMUNITY SURVEY and enter to win a chance at a $100 Walmart gift card. Find the link on our social media pages.

Website:
https://navajoirmp.wixsite.com/irmp

Facebook:
@navajoforestlandsirmp

Instagram:
Navajoforestlandsirmp

Twitter:
@NNForestIRMP

Other ways to comment:
- Email: navajoirmp@gmail.com
- Phone: Melissa Antol, 720 409 5306
- Written:
  Melissa Antol
  Revolution Advisors
  10170 Church Ranch Way, Suite 100
  Westminster, CO 80021

NAVAJO FORESTLANDS IRMP

Managing Our Land Resources Collectively for the Diné

Navajo Nation Division of Natural Resources

VISION

The Integrated Resource Management Plan (IRMP) will provide the Navajo Nation with guidance on how best to manage, conserve and enhance forestlands for the benefit of ALL the Navajo people. The foundation of the IRMP involves using an integrated management approach that takes into account the relationships between and among all natural resources, community values and forestland uses to guide future management of these shared forestlands.

The Navajo Nation Forestlands IRMP will be a long-term, strategic level, umbrella document that provides natural and cultural resource guidance for future plans and activities. It will be based on the issues, concerns and solutions identified by the community and the participating Division of Natural Resources.

The Navajo Nation Forestlands IRMP is being led by the Navajo Forestry Department, which is coordinating with an interdisciplinary team of representatives from Navajo Nation resource departments and community representatives.

FOCUS AREAS

The IRMP Project includes 760,878 acres (AC) of Navajo Forestlands and covers the following areas:

- Defiance Plateau: 270,467 AC
- Chuska Mountains: 336,940. AC
- Navajo Mountain: 25,960 AC
- Mount Powell: 22,136 AC
- Carrizo Mountain: 50,378 AC

The IRMP includes an assessment of the following resources and activities.

- Forests
- Vegetation
- Soils & Geology
- Mining & Minerals
- Fish & Wildlife
- Water Resources
- Air Quality
- Cultural Resources & Sacred Sites
- Land Ownership
- Infrastructure
- Recreation
- Home Site Development
- Agriculture & Rangeland Management
- Fire Management
- Community & Economic Development

YOUR VOICE IS IMPORTANT!

- Participate in Regional Community Meetings in October & January
- Complete our Community Survey
- Watch the IRMP Project Video at https://navajoirmp.wixsite.com/irmp
- Ask your Chapter Representative for updates
- Involve others by inviting them to attend

NAVAJO FORESTLANDS IRMP

Managing Our Land Resources Collectively for the Diné

Navajo Forestlands Integrated Resource Management Plan (IRMP)

Diné Bikéyah Tsin Bił Nahazą́ągi Kéyah Bikáá' dóó Bii'di Hólóonii Ałtah Neelzhee'go Baa'áháyą́ Binidii' a'

VISION –**Yidts'ı́ı́go Hadidzaa**

The Integrated Resource Management Plan (IRMP) will provide the Navajo Nation with guidance on how best to manage, conserve and enhance forestlands for the benefit of ALL the Navajo people.

Diné Bikéyah Tsin Bił Nahazą́ągóó Kéyah Bikáá' dóó Bii'di Hólóonii Ałtah Neelzhee'go Baa'áháyą́ Binidii'a' bik'ehgo bóhónéédzáágo bee baa'áháyą́, bee baa hąha singo neeni'jı́' bí'niil tł'ołgo, dóó bee chą́nah niidzingo háá hanool yéél óólzin nihi Dine'é bá.

The foundation of the IRMP involves using an integrated management approach that takes into account the relationships between and among all natural resources, community values and forestland uses to guide future management of these shared forestlands.

Ts'ídá Diné Bikéyah Tsin Bił Nahazą́ągóó Kéyah Bikáá' dóó Bii'di Hólóonii Ałtah Neelzhee'go Baa'áháyą́ągi Binidii'a' ałtsohjı́' kéyah bikáá' dóó bii'di hólóonii ałtah neelzhee'ígo, Diné be'é'élı́' aláadi deidí sinii, dóó tsin bił nahazą́ągóó nee'ni'jı́ bee baa' áháyą́ą doo t'áá' ałtso chiyołínígi bá.

PURPOSE & NEED—**Biniyé Dóó Bee'aní da Hazt'i'ii**

The purpose of the Navajo Forestlands IRMP is to develop a shared vision for management of the Navajo Nation Forestlands that integrates strategies for all its natural and cultural resources.

Áyísíí biniyé hígíí Diné Bikéyah Tsin Bił Nahazą́ągóó Kéyah Bikáá' dóó Bii'di Hólóonii Ałtah Neelzhee'go bee Baa'áháyą́ą doo'gi' éí t'áá' ałtso bila'ashdla'ii bibe'é'ool ı́łii' ałhii'jı́'chiyołínígíí bohó néédzáágo át'áó yaa nitsékeesígí' ałhii' neel zhee'go baa'á há yą́ągo bee' oonishgi hadét'ée doo biniyé.

It is the responsibility for the Navajo Nation to manage its resources in a coordinated and collaborative manner for the benefit of its tribal members and for the long term sustainability of its resources.

Diné nii dliinii nihí nihaah silá nihi kéyah bikáá' dóó bii'di hólóonii ałtah neelzhee'go baa'áhwiilyą́ą doo dóó ałhełt'éego bee'ałhaa nitsíí kesgo nee'nijı́' bí'niits'iih yiiyéél doo.

BACKGROUND & SCHEDULE—**Bini'doonishígíí dóó Naanish Ałkéé' sinilgi**

The Navajo Forestlands IRMP is being led by the Navajo Forestry Department, who is coordinating through an Interdisciplinary Team that is made up of representatives from Navajo Nation Resource Departments, other Agencies and community representatives.

Diné Bikéyah Tsin Bił Nahazą́ągóó Kéyah Bikáá' dóó Bii'di Hólóonii Ałtah Neelzhee'go Baa'áháyą́ą doo gi Hádét'éhígíí' éíí Diné Tsin Bił Hazą́ąjí Oonish dóó Kéyah Bikáá'gi dóó Bii'di Hólóonii Yidaal nííshjí ałtahjį' díkwíí dę́ę́' shį́ą ałhił da deeshnish dóó Diné Bikéyah bił honí'ą́ągóó dó' atah bił da'deezhnish.

Revolution Advisors is the consultant team chosen to partner with the Forestry Department for development of the IRMP.

Revolution Advisors tł'óódę́ę́' da'íníísh dó' yił da deesh nish yéego digi'at'áó Tsin Bił Nahazą́ągóó Kéyah Bikáá' dóó Bii'di Hólóonii Ałtah Neelzhee'go Baa'áháyą́ą doo gi Hadilnééhgi naanish yii' dahoo'ą́ą́nígíí biniinaa.

Their role is to work with the communities and agencies to collect input and feedback on the IRMP process and to develop resource management strategies based on the information they collect.

Áájí Diné bił honí'ą́ągóó dóó da'ínííshjí yił da deeshnish baa yádaati'gi dóó baa nitsíhákesgi nááda yídzohgo chiidoo'ą́ł, Tsin Bił Nahazą́ągóó Kéyah Bikáá' dóó Bii'di Hólóonii Ałtah Neelzhee'go Baa'áháyą́ą doo gi Hadidooníłgi' díí hada'isdzíí' dóó nitsíhakes łah dóó choo'ą́ą́go 'ałhih doo' dzohgo hadilnééh.

The IRMP process began in June 2017. It is anticipated that a draft document will be ready by December 31st.

Tsin Bił Nahazą́ągóó Kéyah Bikáá' dóó Bii'di Hólóonii Ałtah Neelzhee'go Baa'áháyą́ą doogi' éí Ya'iishjáásh chilí naakidi dimííl yázhí dóó bi'aan tsosts'idts'áada yihaah dą́ą́' naanish haalwod. Niłch'itsoh tádiin dóó bi'aan t'ááłá'í yołkałdi ' áłą́ąjí naaltsos bee haalts'id doogo yisdzoh.

WHY YOUR INPUT & IDEAS MATTER:-- Biniinaanii Baa Yádił tihii dóó Baa Ninitsékeesii Laanaa hwiinidzin

The IRMP is focused on identifying the Navajo people's priorities for management, use and protection of its resources for the Navajo Forestland Areas.

Tsin Bił Nahazą́ągóó Kéyah Bikáá' dóó Bii'di Hólóonii Ałtah Neelzhee'go Baa'áháyą́ą doogi'hadilnééhgo nihí Diné niidlínígíí ts'ídá lá hait'áó dii neeni'jį' ágháadi naanish bee' áhódooníilii bá bee baa nitsííkes, éí bééhó doo dzą́ą́ł, jó choł́ł́, dóó 'índa baa'áháyą́ą doo shą́ą́ nohsin dó' t'áá nihí díí Diné niidlą́ą́nii kǫh Tsin Bił Nahazą́ągóó Kéyah Bikáá' dóó Bii'di Hólóonii nihí.

We need to understand the multiple uses of the forestland areas by the people that regularly depend on and use the forestlands.

Ts'ídá baa'ákoniidizin doo Tsin Bił Nahazą́ą góó Kéyah Bikáá' dóó Bii'di Hólóonii t'óó'ahayóíí jį' chiiniilł́, dóó bich'į' díníít'ą́ą́' t'áá díkwííjíí jį'biniinaa ts'ídá nihí dééť'i' dóó ádídíínółt'i'k'ad kwe'é.

Your input and values will be integrated into the IRMP document and provide guidance into how our forestlands are protected and managed for the future.

Ninitsékes dóó ne'é'oolą́ą́łii da'íliínii bił doo tł'ół bił ałhii' noolzhee'go Tsin Bił Nahazą́ą góó Kéyah Bikáá' dóó Bii'di Hólóonii neeni'jį' dóó náásgóó t'áá choo'ą́ą́ doo biniyé díí binidii'éíí bee baa'áháyą́ą doohígíí bá hasht'eh dool níłbgo bee' anohtah.

Development of the Navajo Forestlands IRMP is an important exercise in Tribal self-governance and sovereign control of our future.

Háálá, t'áá nihí díí nihí kéyah bikáá'gi Tsin Bił Nahazą́ą́ góó Kéyah Bikáá' dóó Bii'di Hólóonii baa' áhwiil yą́ą́ doogi, neeniji' hooláágóó t'áá niheeh hólóǫ doo biniyé díí binidii'éíí bee baa'áháyą́ą́ doohígíí bá hasht'eel yaa doo.

Focus Areas/Project Boundaries --Áyisíí Nida'doonish Dóó 'Áníłtsohgo Naanish Bił Hadahasdzohgi

The IRMP Project includes 760,878 acres of Navajo Forestlands and covers the following areas:

K'ad Tsin Bił Nahazą́ą́ góó Kéyah Bikáá' dóó Bii'di Hólóonígi bee'oonishígíí tsosts'idiin dóó bi'aan hastą́h diin di dimííl yázhí dóó bi'aan tseebídiin dóó bi'aan tsosts'id dóó bi'aan tseebí di neeznádiin di dimííl yázhí go' azą́ bi' doonish kǫǫh dabikáá' dóó azą' ádaníłtsohígíí dó' yit'į:

The Commercial Forest

Tsin Na'iini'jí bił Níti'ígíí

- Defiance Plateau: 270,467.57 AC
- Chuska Mountain: 336,940.50 AC

Satellite Forest Areas

Tsin Danaazhjaa' góó

- Navajo Mountain: 25,960 AC
- Mount Powell: 22, 136 AC
- Carrizo Mountain: 50,378 AC

These forestland areas are adjacent to 22 Chapters and fall within 12 Council Delegate Areas.

Díí Tsin bił honí'ą́ą́nígíí naadiin naaki Táá' Sinilí bił honí'ą́ą́góó bii'daazt'i' tsinyi'bił nahazą́, dóó naaki ts'áada Béésh Bą́ą́h Si'ą́ní bił hadahasdzohgo yéego bídééť'i'.

Development of the IRMP includes an assessment & evaluation of the following resources and activities: Tsin Bił Nahazą́ą́ góó Kéyah Bikáá' dóó Bii'di Hólóonii gi bił ałhił hááda néeshjéé' doohígíí 'éí ałhí hii dzohgo naalkah dóó béése bą́ą́hílį́ gi dó' naalkah dóó' éí kǫǫ́ dasdzoh go bee'oonish doo:

- Forests
- Tsin dalą́'í go bił nahazą́ą́gi
- Vegetation
- Kéyah bíkáá'gi nanise' ałtaséíí
- Soils & Geology
- Léézh dóó Tsé ałtaséíí ałk'ih níkaadgi
- Mining and Minerals
- Hada'agééd dóó Nitł'izh ałtaséíí da'ílį́inii
- Fish & Wildlife
- Łóó' dóó Da'ałchinii
- Water Resources –Tó' ałtaséíí
- Air Quality –Níłch'í Nizhóón
- Cultural Resources and Sacred Sites
- Bíla'ashdla'ii Be'é'oolį́ilii dóó daho diyin góó
- Land Ownership
- Kéyah ałtah át'éíí Háídah daa bííhígíí
- Infrastructure
- Nahat'á bá hasht'e hoolyaa,
- Recreation
- Háá'áyį́ą́h dóó ák'ihalta'gi
- Home Site Development
- Haadzohgo Hoghan halbi' doogi
- Agriculture & Rangeland Management
- Da'ák'eh ch'iyáán nanilze' dóó Naaldloosh Baa'aháyą́ą́jí
- Fire Management
- Kǫ́' Bina'anish dóó Baa'aháyą́
- Community & Economic Development—Bíla'ashdla'ii dashijaa'gi dóó Naanish hanilchaadgi

HOW TO PARTICIPATE: Community Engagement Opportunities – LET YOUR VOICE BE HEARD—**ŁAHDOO BEE'ÁJÍTAHGO: Nił Hazą́ą́ Dóó Bee' Anítahgo Ná'ahoot'I'—ŁAHDOO NINÉÉ' DIITS'A'**

Community input is critical for development of the IRMP.

Nihił nahazą́ą́góó łah dóó nahat'á bee' atah baa náh t'ı́ı́go ts'ídá laanaa hwiinidzin díí Tsin Bił Nahazą́ą́ góó Kéyah Bikáá' dóó Bii'di Hólóonii gi bee'oonish doogo naaltsos bee hadil nééhgi.

The Navajo Forestland Areas are a collective tribal resource and your insight on the management, use and protection of these areas is of great importance.

Tsin Bił Nahazą́ą́ góó Kéyah Bikáá' dóó Bii'di Hólónígíí Diné niidlı́ı́gi t'ááłahjı́' nihí' áko ts'ídásh áádę́ę́' ni hait'éego bik'i' adésh t'ı́ı́' doo, Índa choo'ı́ı́doo dóó baa'áháyą́ą́ doo nínízingi ts'ídá bíká'dí nii t'ı́ı́'.

The IRMP project provides many opportunities for you to share your thoughts and ideas:

Tsin Bił Nahazą́ą́góó Kéyah Bikáá' dóó Bii'di Hólóonii Ałtah Neelzhee'go bee Baa'áháyą́ą́ go bee'oonish doogi baa'áłah nída'adleehgi baanitsíní kesígíí bee' atah baayáníłti'go bohónéedzą́:

- Participate in a special community meeting within your Council District Area
- Béésh Bą́ą́h Dası́'ą́ní bił hahoodzoh ndtsaago áłah nída'adleeh di nánídááhgo bee'átah nilı́
- Take our online survey, or contact your Chapter to receive a printed copy
- Béésh nitsékees bii'jı́' na'ídíkid bini díílnish, doodago TááSinilí di ła' yídííkił go hadidíílił
- Watch the IRMP Project Video online
- Díí kǫ́ǫ́ naanish haal yeed ígíí naalkidgo yaa hane'ígíí béésh nitsékes bii'jı́' díníílı́ı́łı́ł
- Ask your Chapter Representative to receive an update on the project
- Táá' Sinil dóó Naat'áanii hozhó'ó bee shił hólne' bididíínił
- Involve your family and friends in the process by sharing these opportunities with them.
- Bił héí níjee' dóó nik'is da bił bee' atah danohłı́ı́go łah dóó nidahoh á.

Visit our website & follow us on social media for updates: Bee'éé dahózinii:

https://navajoirmp.wixsite.com/navajoforestlandirmp

Facebook: Navajo Forestlands IRMP
Twitter: NNForestIRMP
Instagram: navajoforestlandsirmp

Community Meeting Information will be provided in both Navajo and English Language.--

Nihił Nahazą́ą́di áłah nída'adleehígíí' éí Diné bizaadk'ehjí dóó Bilagáanaa bizaadk'ehjí hane' bee nihił náhánih doo.

The IRMP Project will be hosting a Community Meeting Series to gather your input on the future of the Navajo Forestlands in your area. Details on the purpose of each meeting is listed below:

Diné Bikéyah Tsin Bił Nahazą́ą́góó Kéyah Bikáá' dóó Bii'di Hólóonii Ałtah Neelzhee'go Baa'áháyą́ą́ doo gi baa' áłah nída'adleeh doo baa yádałti' dóó baa nitsókeesígíí łah dóó bił dash bizhgo nizhóní Tsin Bił Nahazą́ą́góó da nihił nahazą́ą́ góó bee hadét'ée doo. Kǫ́ǫ́' éí' áłah da'dooléłgóó dóó baa nídahódóót'ił dó' da bikáá':

Meeting Number	Meeting Purpose	Project Time Frame

Meeting 1	Development of Vision, Goals & Objectives for Navajo Forestland Areas	October-November
Meeting 2	Management Strategies & Development of Management Alternatives for Forestland Areas	Janaury

Community meetings will be scheduled as part of a special meetings format for each project area and are open to everyone interested in the IRMP project.

Bináadęęʼ kééhotʼíįnii nihá ʻáłah aleeh Diné Bikéyah Tsin Bił Nahazążągóó Kéyah Bikáá' dóó Biiʼdi Hólóonii Ałtah Neelzheeʼgo Baaʼáháyążą doo gi baa yáti' doogo nideitʼaah doo nihitah góó dóó nihichʼį' ążą'átʼée doo.

If you cannot attend the meetings or prefer to comment in another form, you can still participate in this effort:
Ałah aleeh doo nihá bíígha góó' éí kǫǫ́ wóyahgo naaltsos beeʼéédahózinígíí bikáá' das dzohígíí dó' chiidíílįłł:

- Online: Comments and suggestions can be emailed to navajoirmp@gmail.com
- Phone: Comments and suggestions can be made by calling 720. 409.5306
- Written: Comments and suggestions can be mailed or hand delivered to: Melissa Antol, Revolution Advisors, 10170 Church Ranch Way, Ste 100; Westminster, CO 80021.

IRMP Project Social Media Postcard

Take our Survey and Let your Voice be Heard

NAVAJO
FORESTLANDS IRMP

Managing Our Land
Resources Collectively for the Dine'

THE IRMP

CHECK OUT OUR SOCIAL MEDIA PAGES ON THE BACK OF THIS CARD

FOLLOW US!

Like, Share, and Post to Facebook

Don't forget to take our SURVEY and enter to win a chance at a $100 Walmart gift card. Link on all our social media accounts.

Social Media

Facebook:
@navajoforestlandsirmp

Instagram:
Navajoforestlandsirmp

Twitter:
@NNForestIRMP

Our Website:
https://navajoirmp.wixsite.com/irmp

Community Meeting Announcement Flyer

COMMUNITY MEETINGS

PLEASE SHARE YOUR THOUGHTS ON HOW THE NAVAJO FORESTLANDS SHOULD BE MANAGED FOR THE FUTURE

Learn about and vote on different options for how the Navajo Forestlands should be used, managed and conserved for the future. The information collected from these meetings will be used to develop an Integrated Resource Management Plan for the Forestlands.

WHEN & WHERE

Window Rock
Tues Apr 3rd: 1 to 5 pm
Navajo Nation Museum, Auditorium

Crownpoint
Wed Apr 4th: 10 am to 2 pm
Navajo Technical University, Wellness Center

Shiprock
Thur Apr 5th: 10 am to 2 pm
Diné College, South Campus Senator Pinto Library

YOU'RE INVITED! ALL ARE WELCOME!

NAVAJO FORESTLANDS IRMP

Web Site: https://navajoirmp.wixsite.com/irmp
Facebook: Navajo Forestlands IRMP
Twitter: NNForestIRMP
Instagram: navajoforestlandsirmp

For personal contact, please contact the following individuals:

Melissa Antol
Revolution Advisors / Community Coordinator
mantol@revolution-advisors.com
323.513.7110

Alexious C. Becenti, Sr.
Navajo Forestry Department/ Forestry Manager
acbecenti_nfd@frontiernet.net
928.729.4007

Community Meeting Press Release (pg. 1)

NAVAJO FORESTLANDS IRMP

Managing Our Land Resources Collectively for the Diné

FOR IMMEDIATE RELEASE

The Navajo Nation Division of Natural Resources & Forestry Department are holding six Regional Community Meetings to discuss community concerns and ideas for development of an Integrated Resource Management Plan (IRMP) for the Chuska and Carrizo Mountains, the Defiance Plateau, Mt. Powell and Navajo Mountain *(See page 3 for Forestland Areas that are part of this project)*.

The IRMP is a long-term strategic planning document that will provide guidance for future resource management activties. The purpose is to look at the natural & cultural resources within the Navajo Nation Forestland areas collectively to better coordinate resource management across the Navajo Nation and with government agencies and the community.

Development of the IRMP is an opportunity for ALL community members to weigh in on how our natural and cultural resources should be protected, utilized and conserved for the future.

As a Navajo, it is important that YOU provide input on how our resources should be managed for our children now and in the future.

Please attend the upcoming Regional Community Meeting in your community to share your ideas and concerns. The schedule and locations for the Regional Community Meetings are listed below:

October 3rd: Crownpoint/Thoreau, Thoreau Community Center, 1:00 PM – 5:00 PM

October 4rd: Window Rock, Fort Defiance Chapter House, 9:00 AM – 1:00 PM

October 5th: Wheatfields, Tsaile / Wheatfields / Blackrock Chapter House, 10:00 AM – 2:00 PM

October 9th: Shiprock, Shiprock Chapter House, 2:00 PM – 6:00 PM

October 10th: Tohatchi, Tohatchi High School, 1:00 PM – 5:00 PM

October 11th: Navajo Mountain, Navajo Mountain High School, 2:00 – 6:00 PM

***Refreshments will be provided at meeting locations**

For further information, visit our website and Facebook page. You can also follow us on Instagram and Twitter.

Web Site: https://navajoirmp.wixsite.com/irmp
Facebook: Navajo Forestlands IRMP
Twitter: NNForestIRMP
Instagram: navajoforestlandsirmp

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Navajo Forestry Department/Forestry Manager
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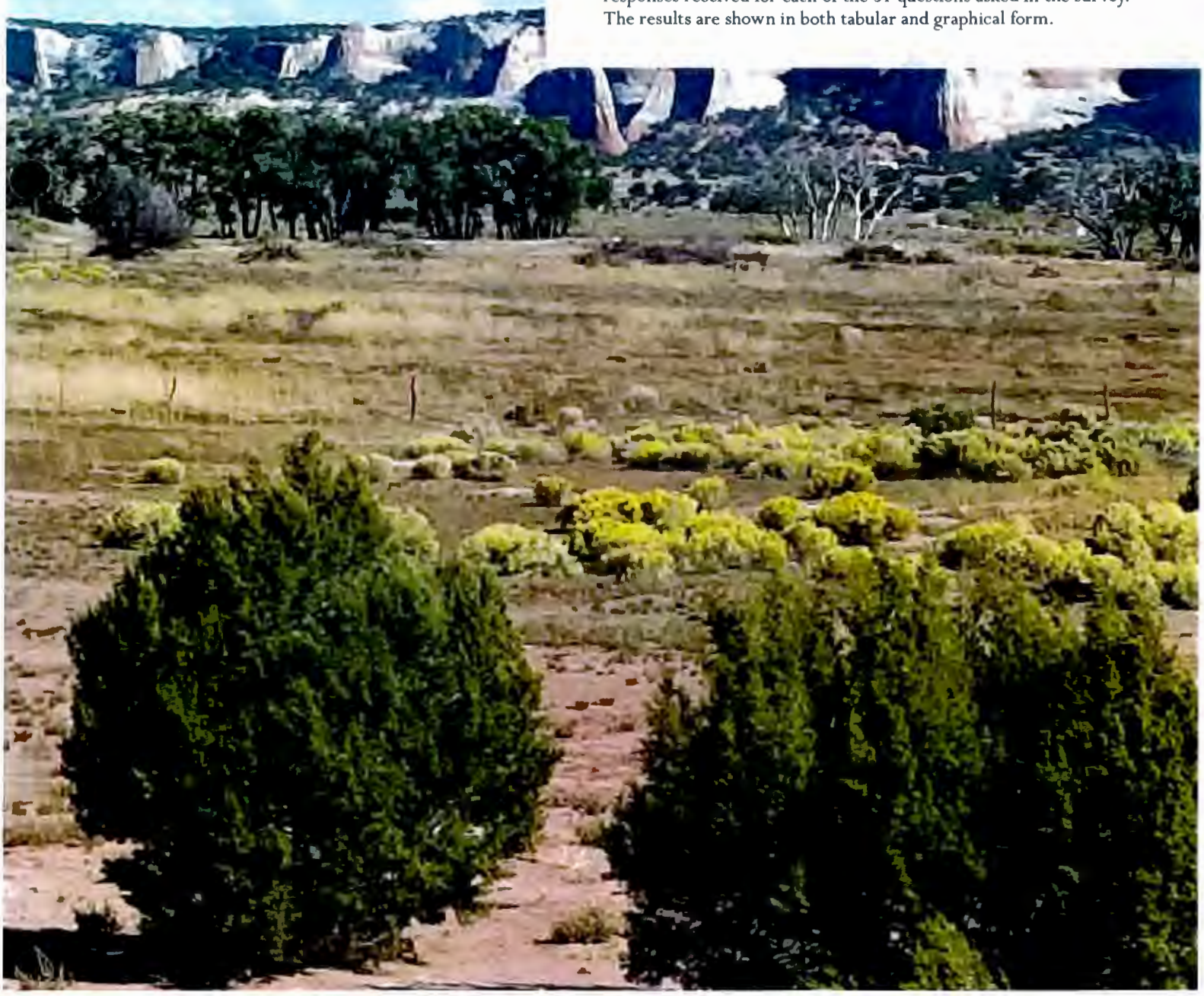
APPENDIX C

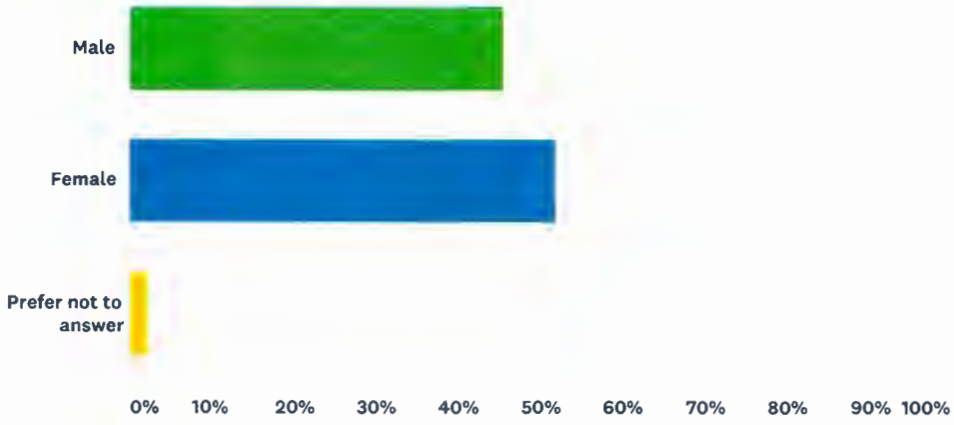
COMMUNITY SURVEY DETAILED QUESTION RESULTS

The Community Survey was conducted from August through December 2017. The attached document is the detail of the 128 responses received for each of the 51 questions asked in the survey. The results are shown in both tabular and graphical form.



Q1 What is your gender?

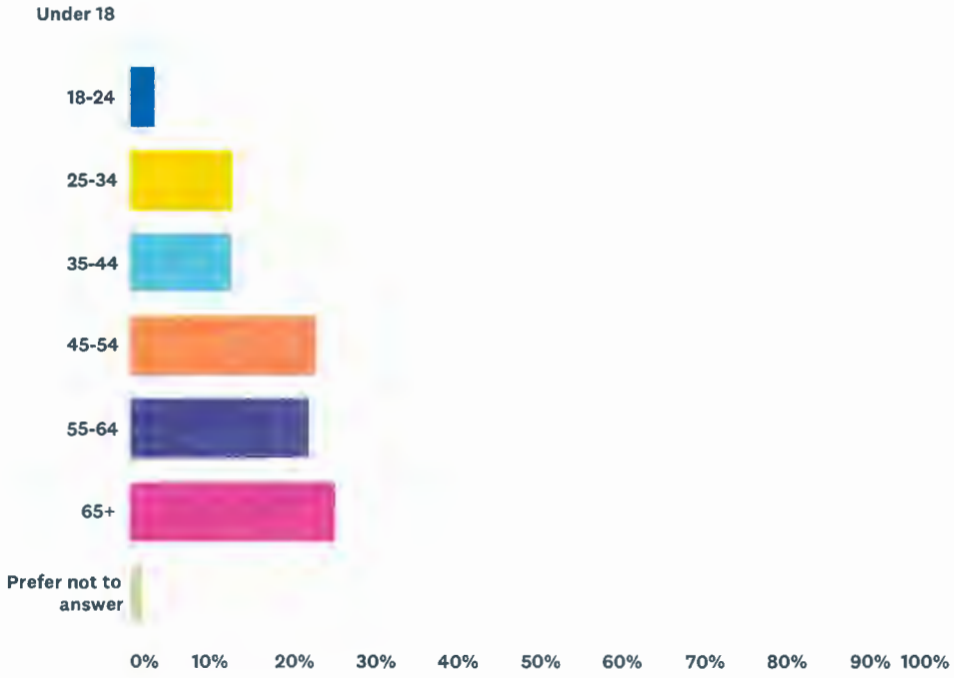
Answered: 127 Skipped: 1



ANSWER CHOICES	RESPONSES	
Male	45.67%	58
Female	51.97%	66
Prefer not to answer	2.36%	3
TOTAL		127

Q2 What is your age?

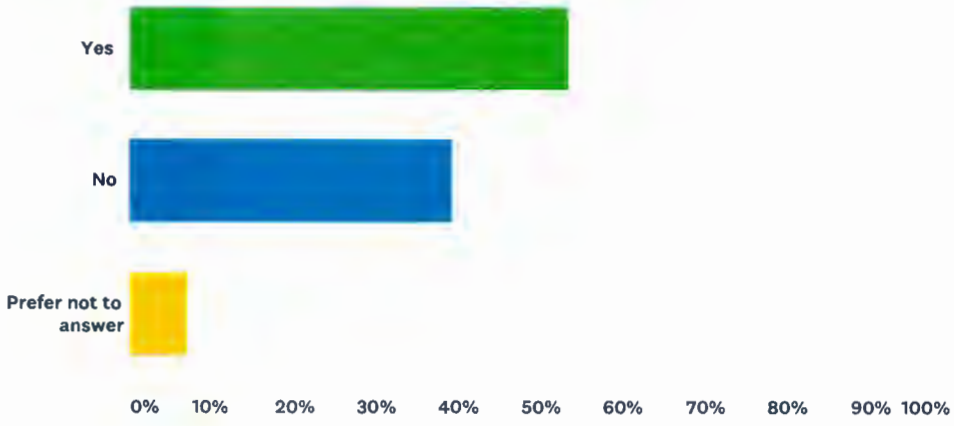
Answered: 127 Skipped: 1



ANSWER CHOICES	RESPONSES	
Under 18	0.00%	0
18-24	3.15%	4
25-34	12.60%	16
35-44	12.60%	16
45-54	22.83%	29
55-64	22.05%	28
65+	25.20%	32
Prefer not to answer	1.57%	2
TOTAL		127

Q3 Are you currently employed?

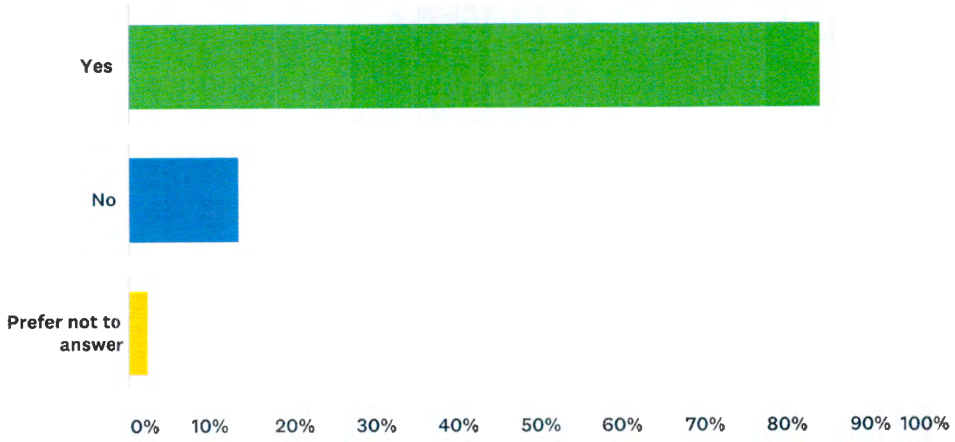
Answered: 127 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	53.54%	68
No	39.37%	50
Prefer not to answer	7.09%	9
TOTAL		127

Q4 Do you currently reside on the Navajo Nation?

Answered: 127 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	84.25%	107
No	13.39%	17
Prefer not to answer	2.36%	3
TOTAL		127

Q5 If you currently reside on the Navajo Nation, in which Chapter is your home located? Please select from dropdown list.

Answered: 106 Skipped: 22

Alamo

Aneth

Baca-Prewitt

Becenti

Beclabito

Birdsprings/Tsi dii To'ii

Black Mesa

Blue Gap-Tachee

Bodaway-Gap

Breadsprings/Ba ahaali

Cameron

Casamero Lake

Chichiltah

Chilchinbeto

Chinle

Churchrock

Coalmine Canyon

Coppermine

Cornfields
Counselor
Cove
Coyote Canyon
Crownpoint/Tsin Ya Nai Kidi
Crystal
Dennehotso
Dilkon
Forest Lake
Fort Defiance
Gadii ahi/To' Koi
Ganado
Greasewood Springs
Hardrock
Hogback/Tse'Daa Kaan
Houck
Huerfano
Indian Wells
Iyanbito
Jeddito
Kaibeto/Kai' Bii To
Kayenta

Kinlichee
Klagetoh
Lake Valley
LeChee
Leupp
Littlewater
Low Mountain
Lukachukai
Lupton
Manuelito
Many Farms
Mariano Lake
Mexican Springs
Mexican Water
Nageezi
Nahata Dziil
Nahodishgish
Naschitti
Navajo Mountain
Nazlini
Nenahnezad

Newcomb/Tiis Nideeshgish

Oak Springs

Ojo Encino

Oljato

Pinedale

Pinon

Pueblo Pintado

Ramah

Red Lake #18

Red Mesa

Red Rock/Tse' Lichii'

Red Valley

Rock Point

Rock Springs

Rough Rock/Tse Ch' Izhi

Round Rock

San Juan

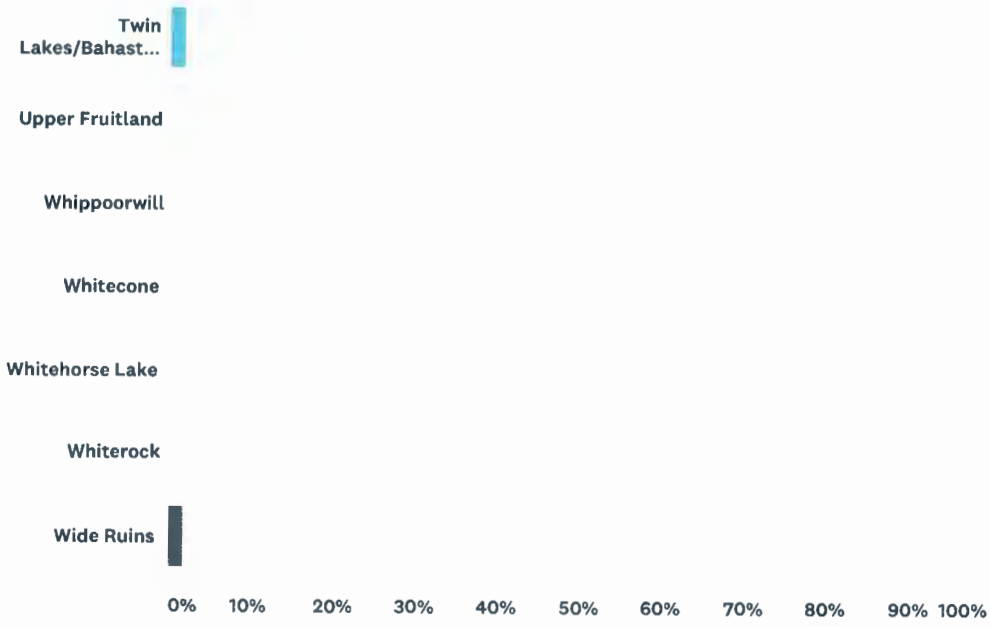
Sanostee/Tsealn aozt'ii

Sawmill

Sheepsprings

Shiprock

Shonto
Smith Lake
St. Michaels
Standing Rock-Tse'li'...
Steamboat
Sweetwater/Tolikan
Teecnospos
Teesto
Thoreau
T'iistoh Sikaad/Burnham
To' Nanees' Dizi'
Toadlena/TwoGreyHills
Tohajiilee
Tohatchi
Tolani Lake
Tonalea/Red Lake
Torreon/Star Lake
Ts'ah Bii Kin/Inscript...
Tsaile-Wheatfields
Tsayatoh
Tselani-Cottonwood



ANSWER CHOICES	RESPONSES	
Alamo	0.00%	0
Aneth	0.00%	0
Baca-Prewitt	0.00%	0
Becenti	0.00%	0
Beclabito	0.00%	0
Birdsprings/Tsidii To'ii	0.00%	0
Black Mesa	0.00%	0
Blue Gap-Tachee	0.94%	1
Bodaway-Gap	0.00%	0
Breadsprings/Baahaali	0.00%	0
Cameron	0.94%	1
Casamero Lake	0.00%	0
Chichiltah	0.00%	0
Chilchinbeto	0.00%	0
Chinle	0.00%	0
Churchrock	0.94%	1
Coalmine Canyon	0.00%	0
Coppermine	0.00%	0
Cornfields	0.94%	1
Counselor	0.00%	0

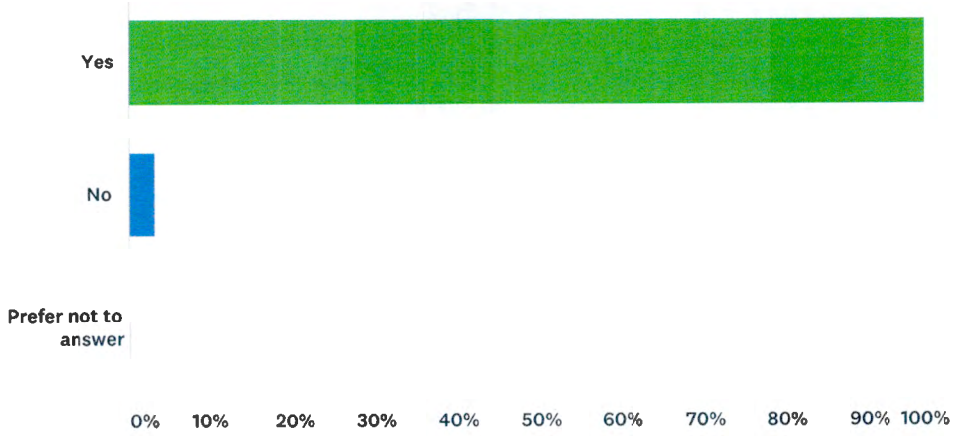
Cove	2.83%	3
Coyote Canyon	0.00%	0
Crownpoint/Tsin Ya Nai Kidi	0.00%	0
Crystal	0.94%	1
Dennehotso	0.00%	0
Dilkon	1.89%	2
Forest Lake	0.94%	1
Fort Defiance	6.60%	7
Gadii ahi/To' Koi	0.00%	0
Ganado	1.89%	2
Greasewood Springs	0.00%	0
Hardrock	0.94%	1
Hogback/Tse'Daa Kaan	0.00%	0
Houck	0.00%	0
Huerfano	0.00%	0
Indian Wells	0.94%	1
Iyanbito	0.00%	0
Jeddito	0.00%	0
Kaibeto/Kai' Bii To	0.00%	0
Kayenta	2.83%	3
Kinlichee	0.94%	1
Klagetoh	0.00%	0
Lake Valley	0.00%	0
LeChee	0.00%	0
Leupp	0.94%	1
Littlewater	0.00%	0
Low Mountain	0.00%	0
Lukachukai	1.89%	2
Lupton	1.89%	2
Manuelito	0.00%	0
Many Farms	0.00%	0
Mariano Lake	0.94%	1
Mexican Springs	2.83%	3
Mexican Water	0.94%	1
Nageezi	0.00%	0

Nahata Dziil	0.00%	0
Nahodishgish	0.00%	0
Naschitti	4.72%	5
Navajo Mountain	1.89%	2
Nazlini	0.94%	1
Nenahnezad	0.00%	0
Newcomb/Tiis Nideeshgish	0.00%	0
Oak Springs	0.94%	1
Ojo Encino	0.00%	0
Oljato	0.00%	0
Pinedale	0.00%	0
Pinon	0.00%	0
Pueblo Pintado	0.00%	0
Ramah	0.00%	0
Red Lake #18	0.00%	0
Red Mesa	0.00%	0
Red Rock/Tse' Lichii'	0.94%	1
Red Valley	0.00%	0
Rock Point	0.00%	0
Rock Springs	0.00%	0
Rough Rock/Tse Ch' Izhi	0.00%	0
Round Rock	0.00%	0
San Juan	0.94%	1
Sanostee/Tsealnaozt'ii	0.94%	1
Sawmill	0.94%	1
Sheepsprings	0.00%	0
Shiprock	1.89%	2
Shonto	1.89%	2
Smith Lake	0.94%	1
St. Michaels	5.66%	6
Standing Rock-Tse'li'Ahi'	0.00%	0
Steamboat	0.94%	1
Sweetwater/Tolikan	3.77%	4
Teecnospos	0.00%	0
Teesto	1.89%	2

Thoreau	1.89%	2
T'iistoh Sikaad/Burnham	0.00%	0
To' Nanees' Dizi'	0.00%	0
Toadlena/TwoGreyHills	15.09%	16
Tohajiilee	0.00%	0
Tohatchi	10.38%	11
Tolani Lake	0.00%	0
Tonalea/Red Lake	0.94%	1
Torreon/Star Lake	0.00%	0
Ts'ah Bii Kin/Inscription Hse	0.00%	0
Tsaile-Wheatfields	4.72%	5
Tsayatoh	0.00%	0
Tselani-Cottonwood	0.00%	0
Twin Lakes/Bahastl' aa'	1.89%	2
Upper Fruitland	0.00%	0
Whippoorwill	0.00%	0
Whitecone	0.00%	0
Whitehorse Lake	0.00%	0
Whiterock	0.00%	0
Wide Ruins	1.89%	2
TOTAL		106

Q6 Are you an enrolled member of the Navajo Nation?

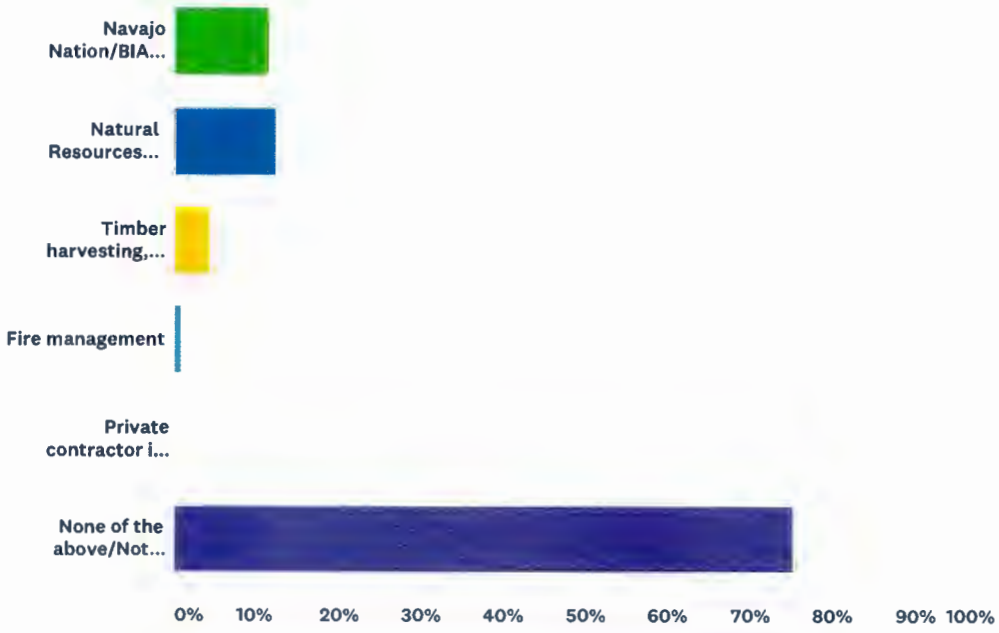
Answered: 127 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	96.85%	123
No	3.15%	4
Prefer not to answer	0.00%	0
TOTAL		127

Q7 Are you currently or have you ever been employed in any forest or natural resource related business or agency?

Answered: 122 Skipped: 6

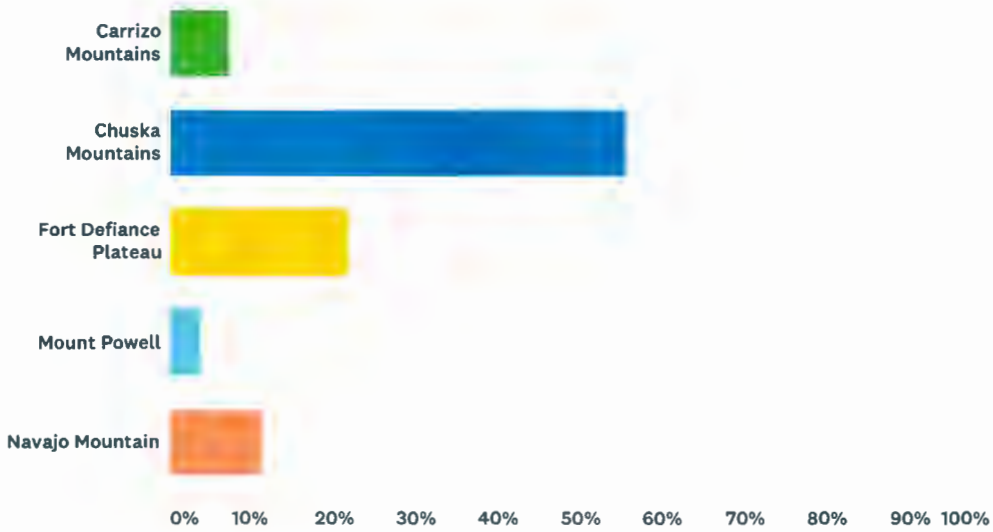


ANSWER CHOICES	RESPONSES	
Navajo Nation/BIA Forestry	11.48%	14
Natural Resources program other than Forestry	12.30%	15
Timber harvesting, lumber mills, and wood products other than manufacturing	4.10%	5
Fire management	0.82%	1
Private contractor in forest areas	0.00%	0
None of the above/Not applicable	75.41%	92

Total Respondents: 122

Q8 Of the five forestlands areas being included in the Integrated Resource Management Plan, which area is closest to your home?

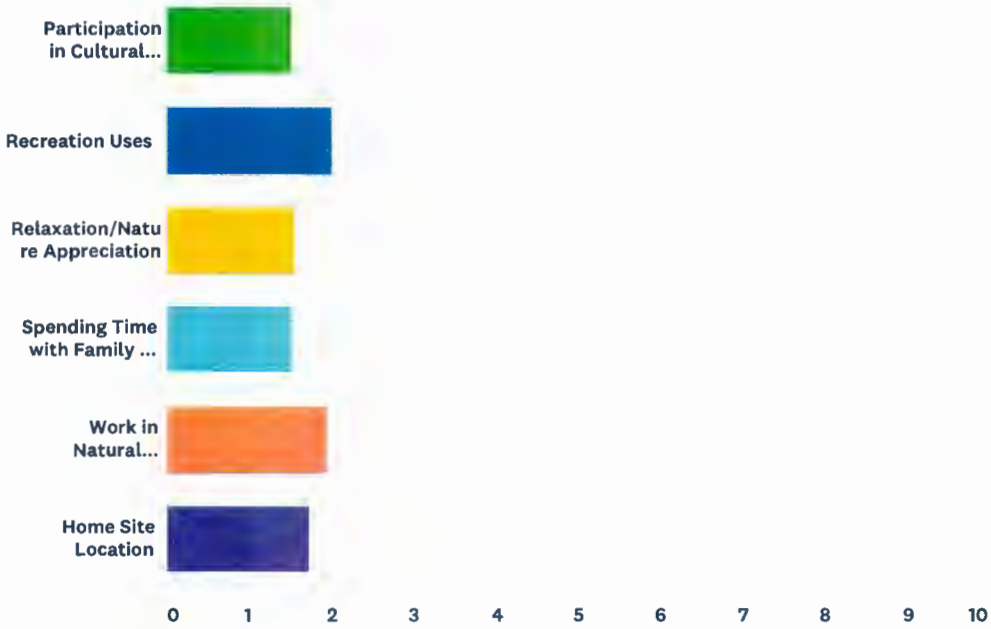
Answered: 124 Skipped: 4



ANSWER CHOICES	RESPONSES	
Carrizo Mountains	7.26%	9
Chuska Mountains	55.65%	69
Fort Defiance Plateau	21.77%	27
Mount Powell	4.03%	5
Navajo Mountain	11.29%	14
TOTAL		124

Q9 How important to you are each of the following general reasons for being in the forestlands?

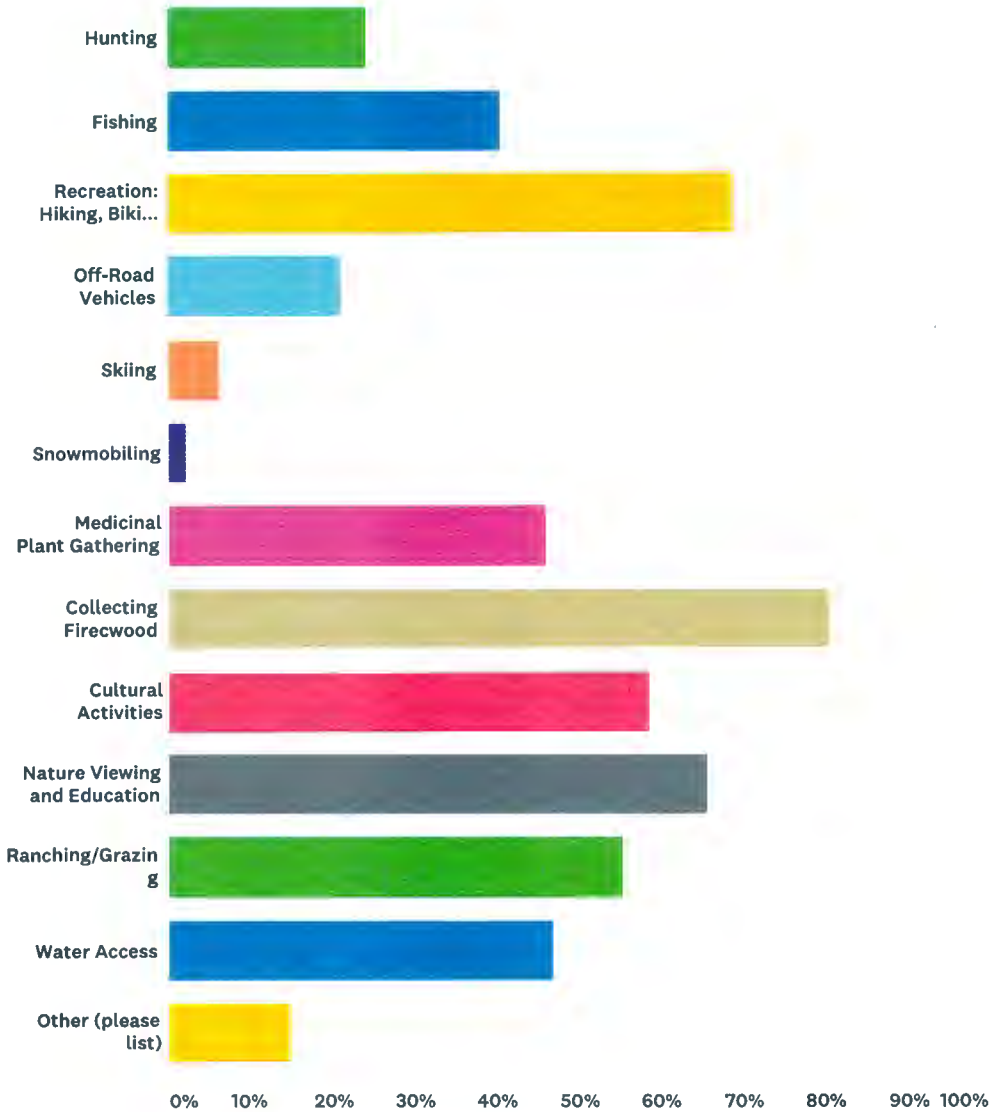
Answered: 124 Skipped: 4



	EXTREMELY IMPORTANT	IMPORTANT	OCCASIONALLY IMPORTANT	RARELY IMPORTANT	NEVER IMPORTANT	N/A	TOTAL	WEIGHTED AVERAGE
Participation in Cultural Activities, Ceremonies, and/or Traditions	61.79% 76	23.58% 29	7.32% 9	3.25% 4	0.81% 1	3.25% 4	123	1.53
Recreation Uses	30.77% 36	41.03% 48	21.37% 25	5.13% 6	0.00% 0	1.71% 2	117	2.01
Relaxation/Nature Appreciation	57.85% 70	31.40% 38	9.92% 12	0.83% 1	0.00% 0	0.00% 0	121	1.54
Spending Time with Family and Friends	57.50% 69	35.00% 42	6.67% 8	0.00% 0	0.83% 1	0.00% 0	120	1.52
Work in Natural Resource Activities	40.68% 48	30.51% 36	19.49% 23	5.08% 6	1.69% 2	2.54% 3	118	1.94
Home Site Location	55.00% 66	21.67% 26	10.83% 13	9.17% 11	0.00% 0	3.33% 4	120	1.73

Q10 Which specific activities do you participate in when you visit the forestlands? Check all that apply.

Answered: 128 Skipped: 0



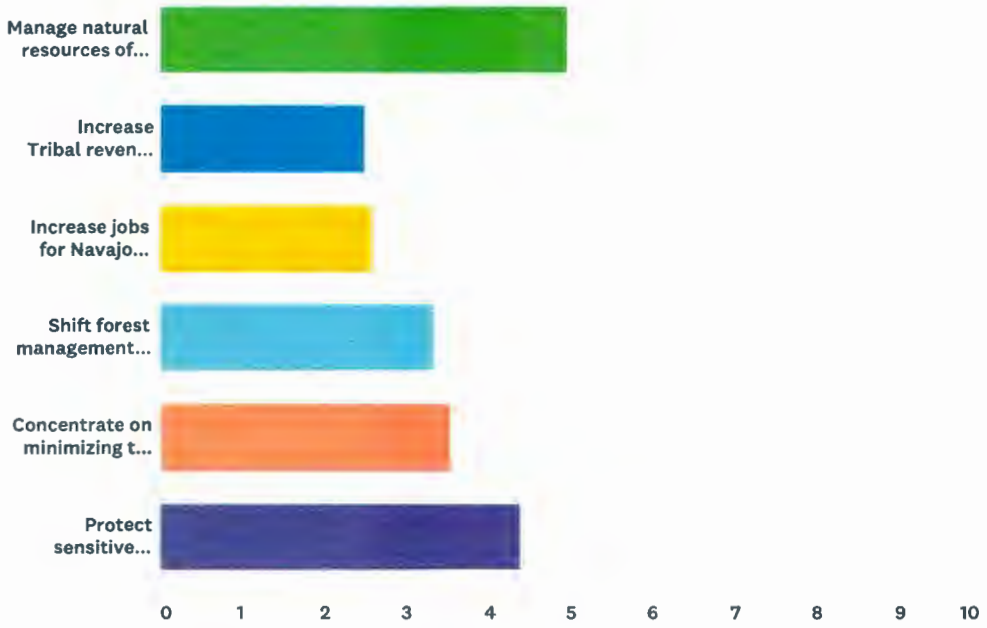
ANSWER CHOICES	RESPONSES	
Hunting	24.22%	31
Fishing	40.63%	52
Recreation: Hiking, Biking, Horseback Riding	68.75%	88
Off-Road Vehicles	21.09%	27
Skiing	6.25%	8

Snowmobiling	2.34%	3
Medicinal Plant Gathering	46.09%	59
Collecting Firecwood	80.47%	103
Cultural Activities	58.59%	75
Nature Viewing and Education	65.63%	84
Ranching/Grazing	55.47%	71
Water Access	46.88%	60
Other (please list)	14.84%	19

Total Respondents: 128

Q11 Consider the five forestland areas and their importance to you and the Navajo Nation. Rank the following forestland management goals from 1 to 6, beginning with 1 as the MOST IMPORTANT and 6 as the LEAST IMPORTANT. Each goal should receive a specific rank; for example, there will only be one #1 ranking, only one #2 ranking, etc.

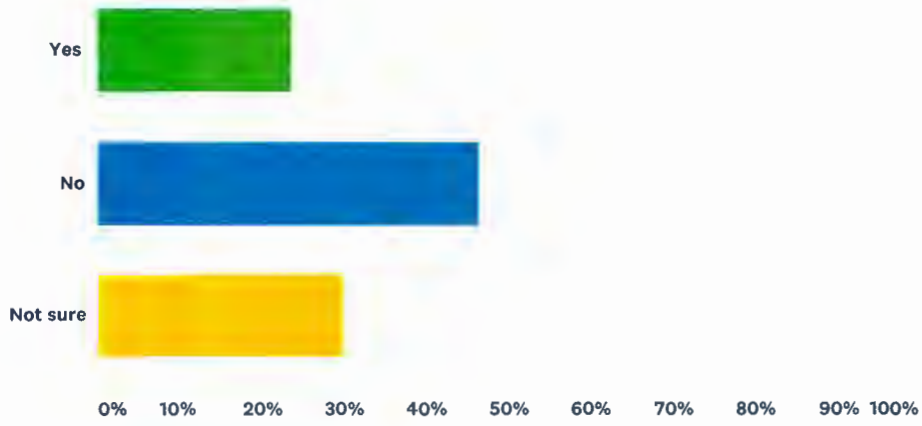
Answered: 67 Skipped: 61



	1	2	3	4	5	6	TOTAL	SCORE
Manage natural resources of the forestland areas for long-term health and sustainability for future generations	52.54% 31	22.03% 13	8.47% 5	6.78% 4	5.08% 3	5.08% 3	59	4.95
Increase Tribal revenue through development of different uses of our forestlands	6.56% 4	6.56% 4	6.56% 4	21.31% 13	27.87% 17	31.15% 19	61	2.49
Increase jobs for Navajo Nation members	10.00% 6	5.00% 3	8.33% 5	20.00% 12	23.33% 14	33.33% 20	60	2.58
Shift forest management focus to a multi-use management strategy	1.64% 1	13.11% 8	34.43% 21	26.23% 16	16.39% 10	8.20% 5	61	3.33
Concentrate on minimizing the negative effects of forestry practices and timber harvests	4.92% 3	21.31% 13	29.51% 18	21.31% 13	13.11% 8	9.84% 6	61	3.54
Protect sensitive cultural and natural resources	29.69% 19	32.81% 21	14.06% 9	4.69% 3	7.81% 5	10.94% 7	64	4.39

Q12 Do you think the forestlands should be allowed to return to their natural state with no management or fire suppression strategies?

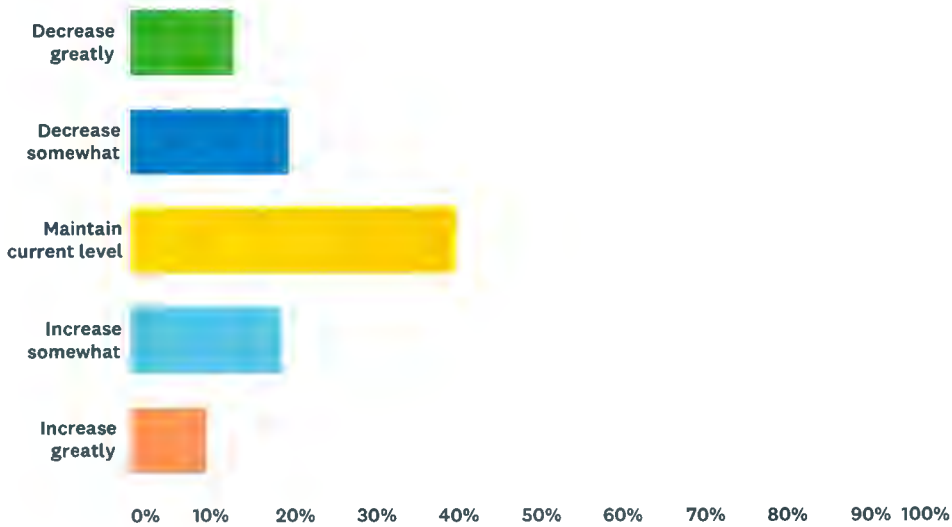
Answered: 127 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	23.62%	30
No	46.46%	59
Not sure	29.92%	38
TOTAL		127

Q13 Do you think the Navajo Nation should work to decrease, increase or maintain the current level of timber harvests?

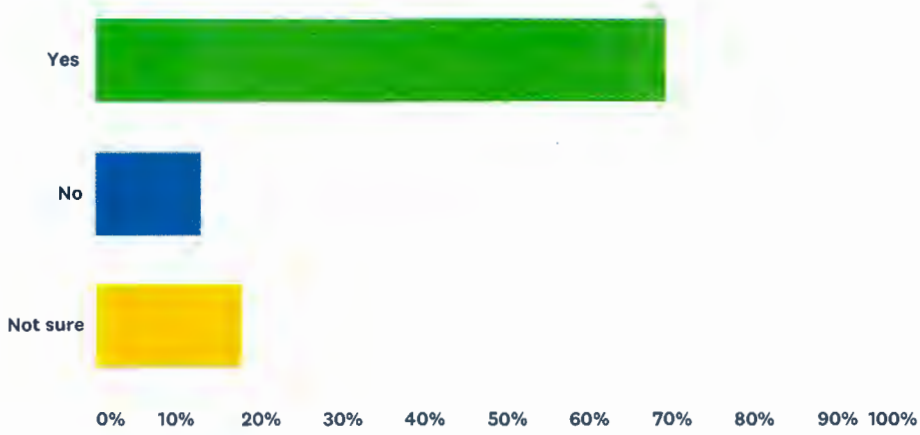
Answered: 118 Skipped: 10



ANSWER CHOICES	RESPONSES	
Decrease greatly	12.71%	15
Decrease somewhat	19.49%	23
Maintain current level	39.83%	47
Increase somewhat	18.64%	22
Increase greatly	9.32%	11
TOTAL		118

Q14 Should the Forestry Department use prescribed burns as a means of forest management to reduce fuel buildup and to maintain forest health?

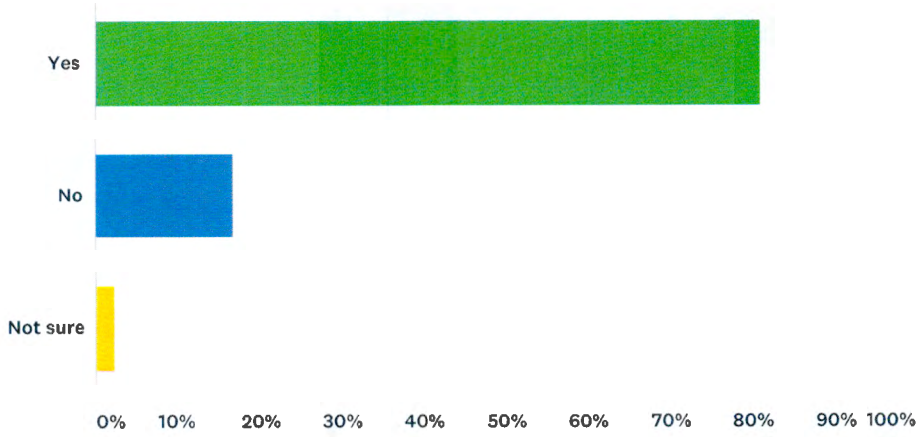
Answered: 124 Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes	69.35%	86
No	12.90%	16
Not sure	17.74%	22
TOTAL		124

Q15 Do you collect firewood for your home from the forestlands areas?

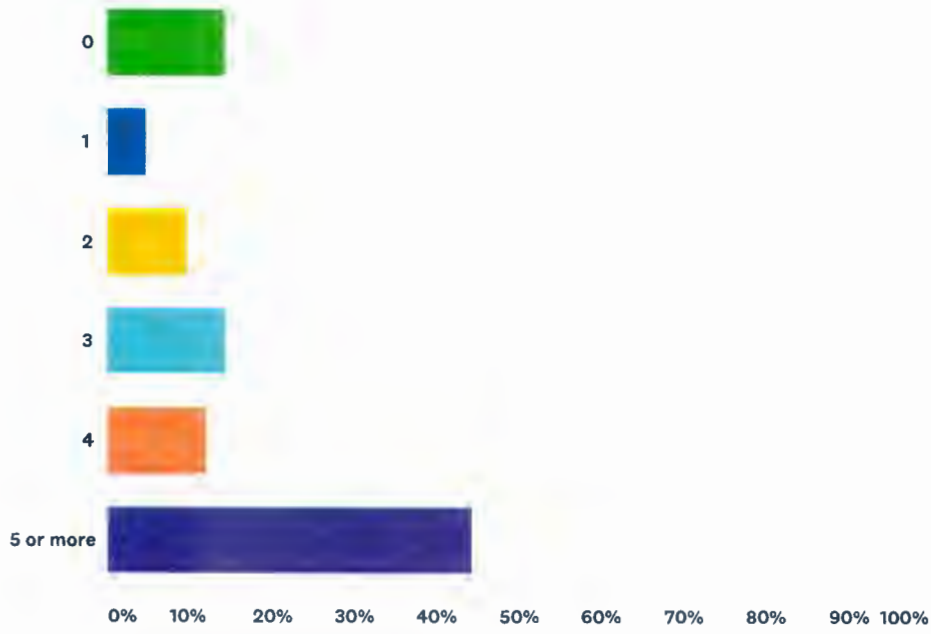
Answered: 126 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	80.95%	102
No	16.67%	21
Not sure	2.38%	3
TOTAL		126

Q16 How many cords of woods do you collect each year?

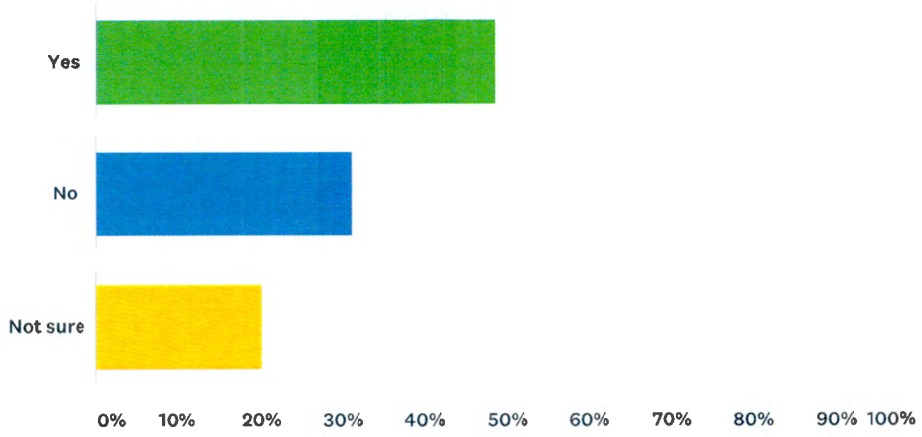
Answered: 124 Skipped: 4



ANSWER CHOICES	RESPONSES	
0	14.52%	18
1	4.84%	6
2	9.68%	12
3	14.52%	18
4	12.10%	15
5 or more	44.35%	55
TOTAL		124

Q17 Have natural resource activities in the forestlands, such as mining, timber harvests, or others, ever caused an issue for you with air quality?

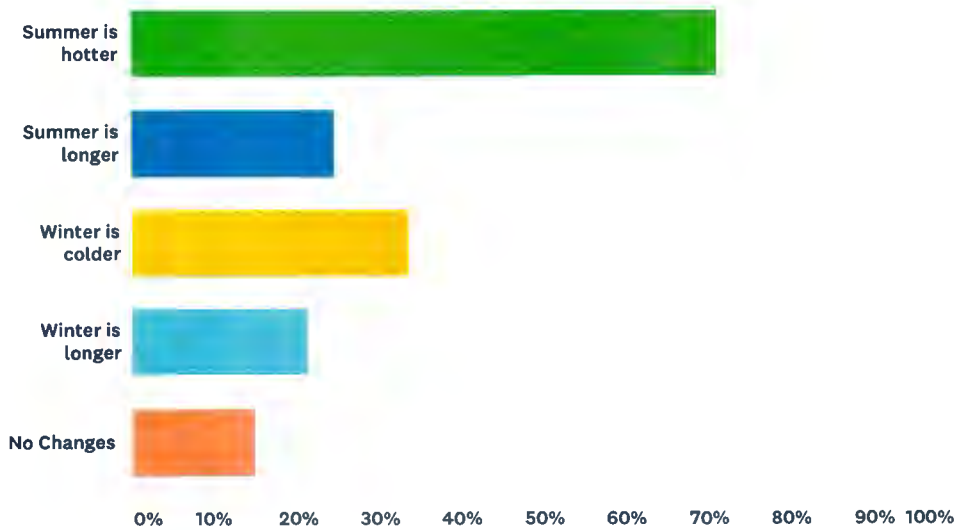
Answered: 125 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	48.80%	61
No	31.20%	39
Not sure	20.00%	25
TOTAL		125

Q18 Over time, have you observed changes to the seasons on the Navajo Nation? Check all that apply.

Answered: 122 Skipped: 6

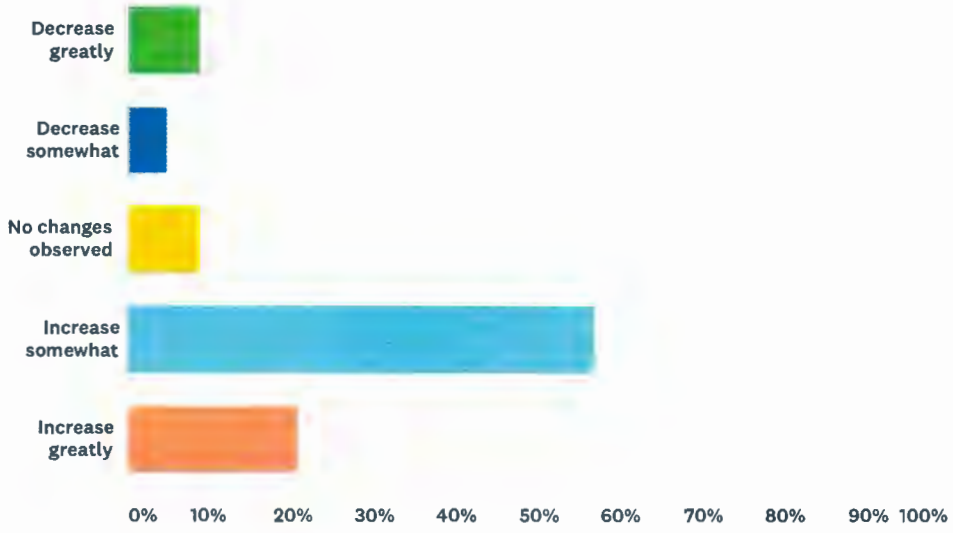


ANSWER CHOICES	RESPONSES	
Summer is hotter	71.31%	87
Summer is longer	24.59%	30
Winter is colder	33.61%	41
Winter is longer	21.31%	26
No Changes	14.75%	18

Total Respondents: 122

Q19 Over time, have you observed changes in seasonal temperatures in your area?

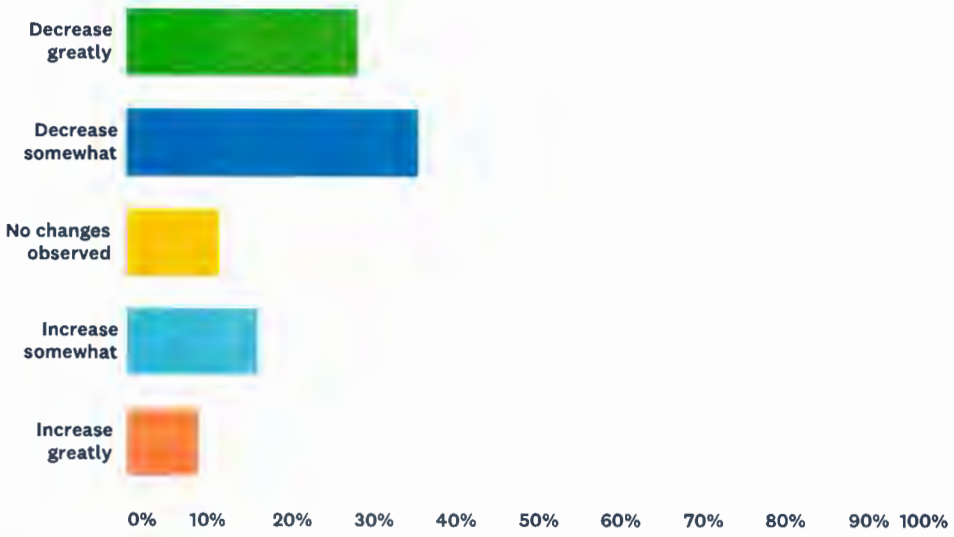
Answered: 125 Skipped: 3



ANSWER CHOICES	RESPONSES	
Decrease greatly	8.80%	11
Decrease somewhat	4.80%	6
No changes observed	8.80%	11
Increase somewhat	56.80%	71
Increase greatly	20.80%	26
TOTAL		125

Q20 Over time, have you observed changes in annual precipitation in your area?

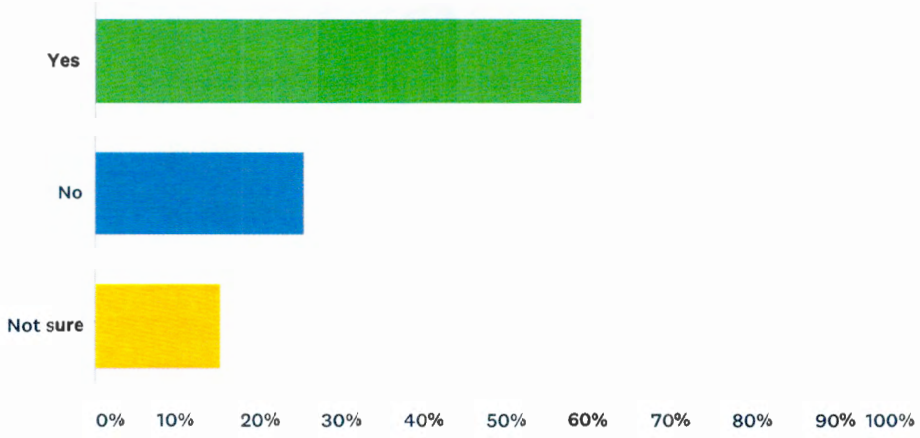
Answered: 124 Skipped: 4



ANSWER CHOICES	RESPONSES	
Decrease greatly	28.23%	35
Decrease somewhat	35.48%	44
No changes observed	11.29%	14
Increase somewhat	16.13%	20
Increase greatly	8.87%	11
TOTAL		124

Q21 Do you have sufficient potable water for you, your family, and your business needs?

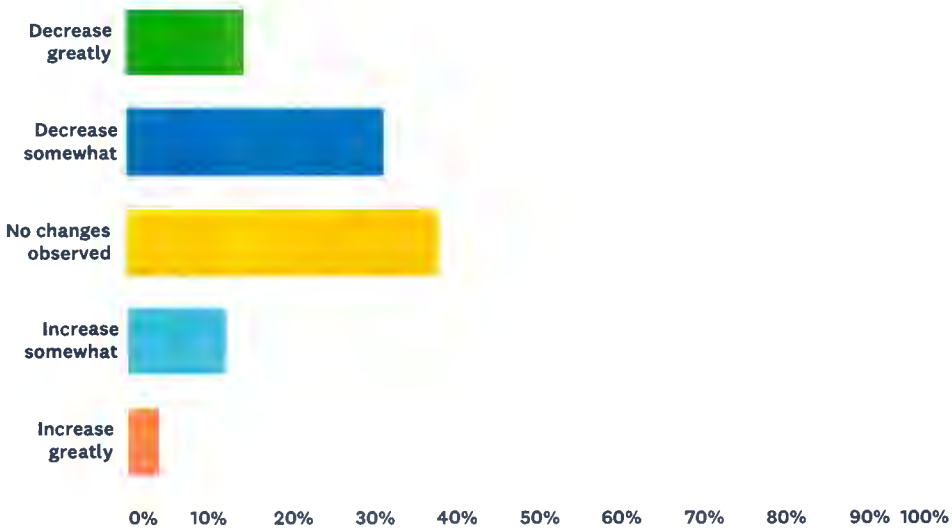
Answered: 125 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	59.20%	74
No	25.60%	32
Not sure	15.20%	19
TOTAL		125

Q22 Over time, have you observed changes in the amount of water available to your home and/or business in your area?

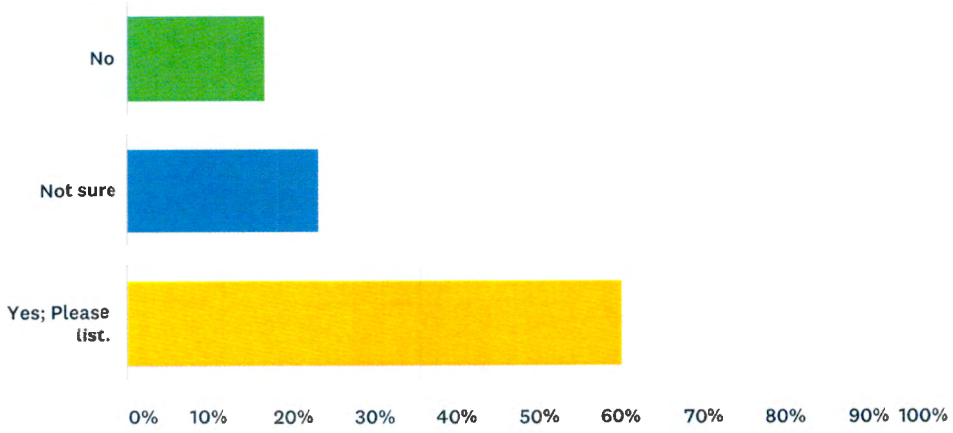
Answered: 124 Skipped: 4



ANSWER CHOICES	RESPONSES	
Decrease greatly	14.52%	18
Decrease somewhat	31.45%	39
No changes observed	37.90%	47
Increase somewhat	12.10%	15
Increase greatly	4.03%	5
TOTAL		124

Q23 Do you have concerns about the water quality in your area? Please list.

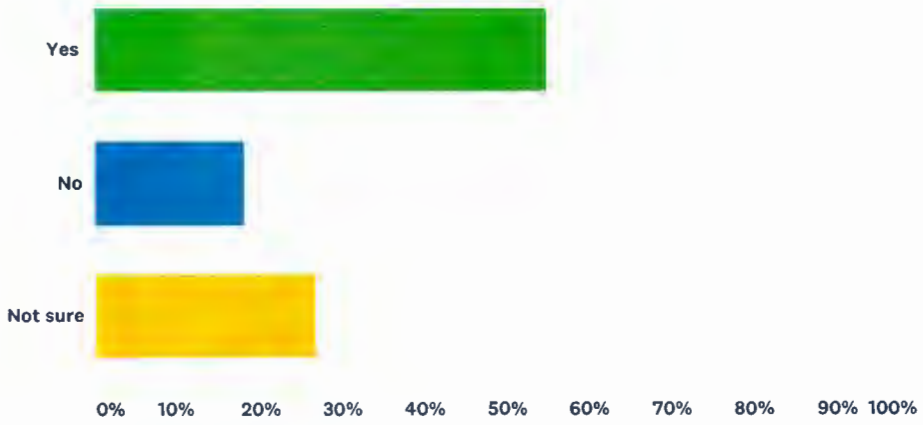
Answered: 125 Skipped: 3



ANSWER CHOICES	RESPONSES	
No	16.80%	21
Not sure	23.20%	29
Yes; Please list.	60.00%	75
TOTAL		125

Q24 Should water delivery infrastructure be developed in the forestland areas?

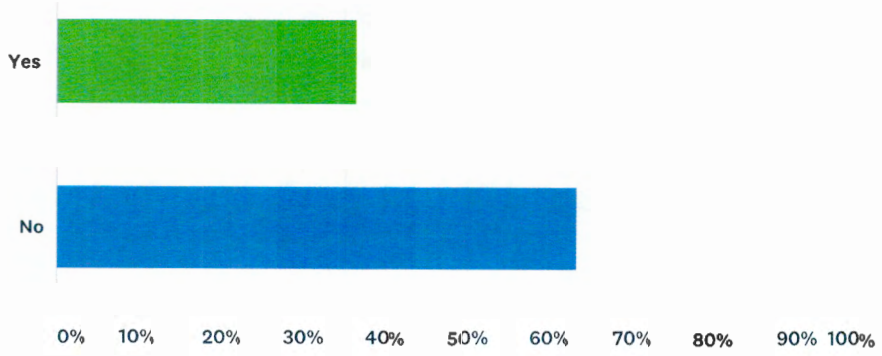
Answered: 127 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	55.12%	70
No	18.11%	23
Not sure	26.77%	34
TOTAL		127

Q25 Is fishing in the forestlands a source of food for you and your family?

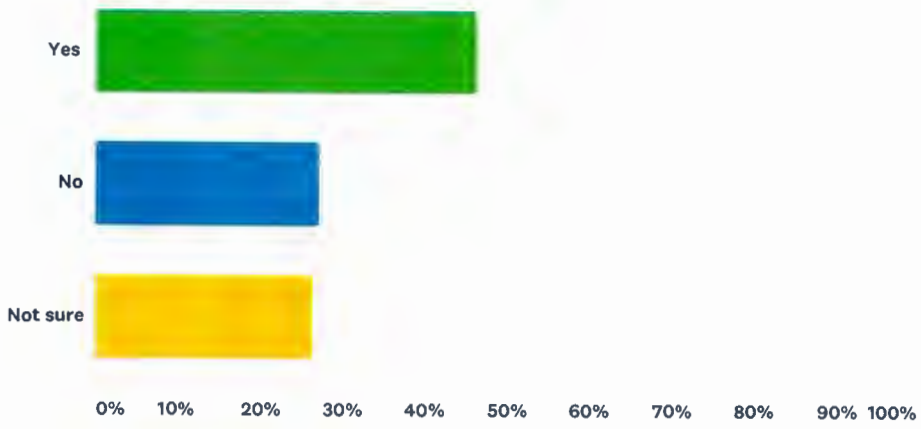
Answered: 126 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	36.51%	46
No	63.49%	80
TOTAL		126

Q26 Should the forestlands areas be developed for fishing?

Answered: 125 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	46.40%	58
No	27.20%	34
Not sure	26.40%	33
TOTAL		125

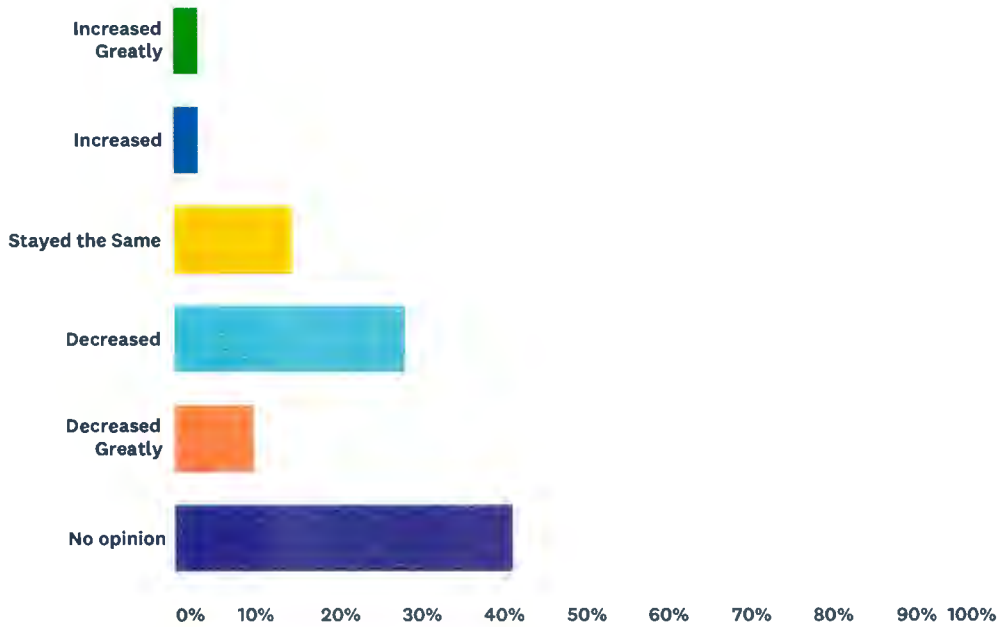
Q27 How should the Navajo Nation regulate fishing in the forestlands areas?

Answered: 124 Skipped: 4

	DECREASE GREATLY	DECREASE SOMEWHAT	NO CHANGES OBSERVED	INCREASE SOMEWHAT	INCREASE GREATLY	TOTAL	WEIGHTED AVERAGE
Regulations	8.13% 10	4.07% 5	43.09% 53	30.89% 38	13.82% 17	123	3.38
Enforcement	4.63% 5	2.78% 3	30.56% 33	38.89% 42	23.15% 25	108	3.73

Q28 Do you think the fish population has increased, decreased or stayed the same in the forestlands in the last 10 years?

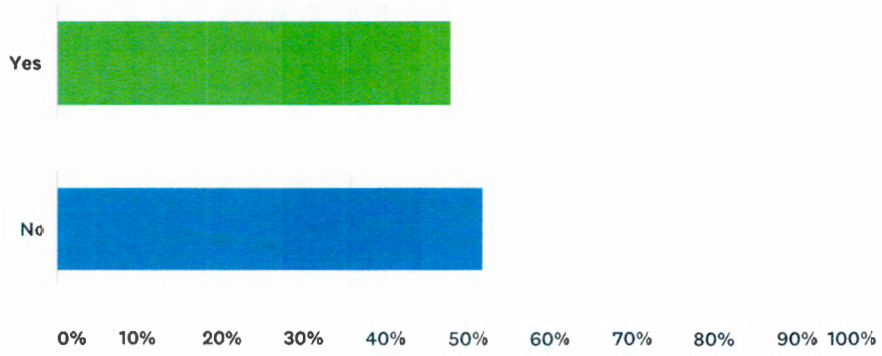
Answered: 124 Skipped: 4



ANSWER CHOICES	RESPONSES	
Increased Greatly	3.23%	4
Increased	3.23%	4
Stayed the Same	14.52%	18
Decreased	28.23%	35
Decreased Greatly	9.68%	12
No opinion	41.13%	51
TOTAL		124

Q29 Is hunting in the forestlands a source of food for you and your family?

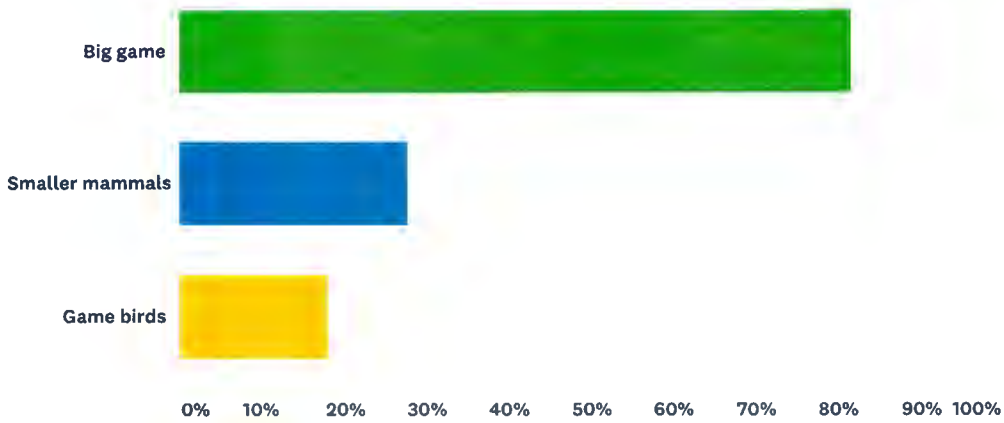
Answered: 127 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	48.03%	61
No	51.97%	66
TOTAL		127

Q30 For which animal(s), do you hunt? Check all that apply.

Answered: 72 Skipped: 56

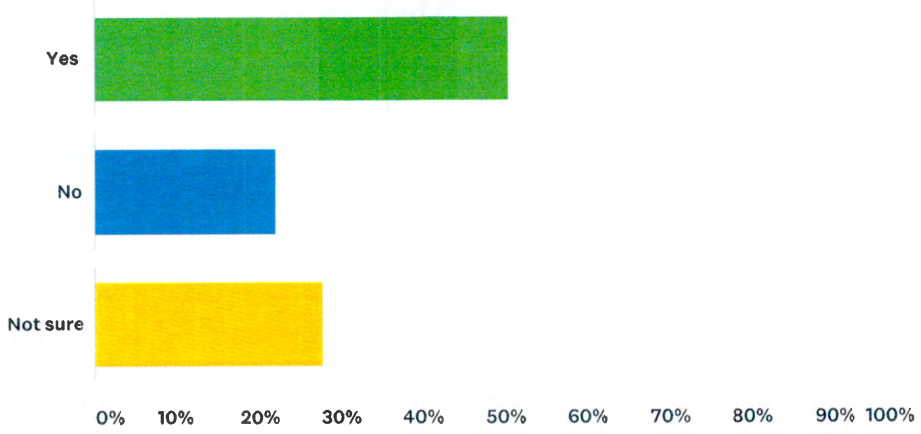


ANSWER CHOICES	RESPONSES	
Big game	81.94%	59
Smaller mammals	27.78%	20
Game birds	18.06%	13

Total Respondents: 72

Q31 Should the forestlands areas be developed for hunting?

Answered: 127 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	50.39%	64
No	22.05%	28
Not sure	27.56%	35
TOTAL		127

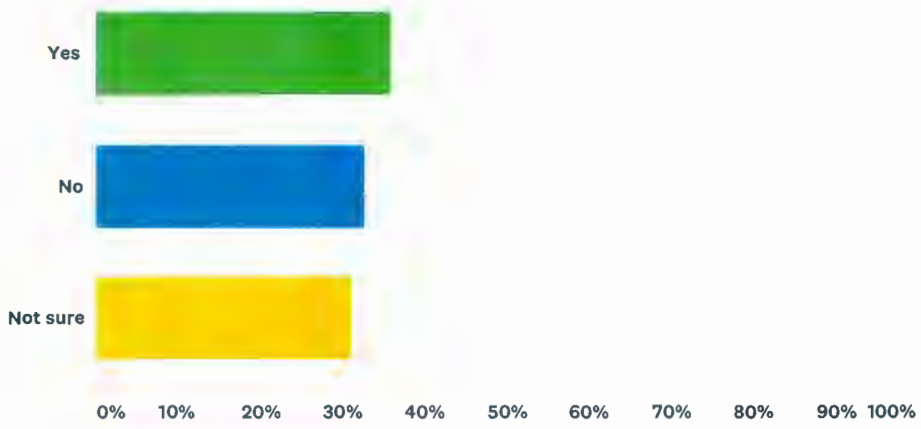
Q32 How should the Navajo Nation regulate hunting in the forestlands areas?

Answered: 123 Skipped: 5

	DECREASE GREATLY	DECREASE SOMEWHAT	NO CHANGES OBSERVED	INCREASE SOMEWHAT	INCREASE GREATLY	TOTAL	WEIGHTED AVERAGE
Regulations	6.56% 8	9.02% 11	32.79% 40	31.15% 38	20.49% 25	122	3.50
Enforcement	7.08% 8	3.54% 4	28.32% 32	28.32% 32	32.74% 37	113	3.76

Q33 Do you think the forestlands adequately support the wildlife species that are important to you?

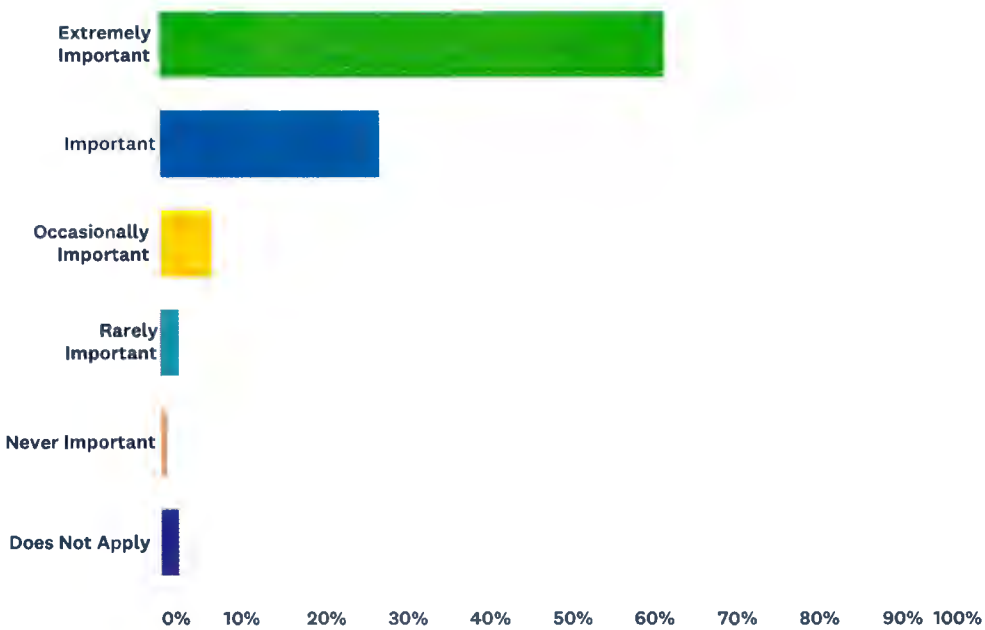
Answered: 125 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	36.00%	45
No	32.80%	41
Not sure	31.20%	39
TOTAL		125

Q34 How important do you think it is for the Navajo Nation to monitor wildlife populations, habitat conditions and harvest data in the forestlands?

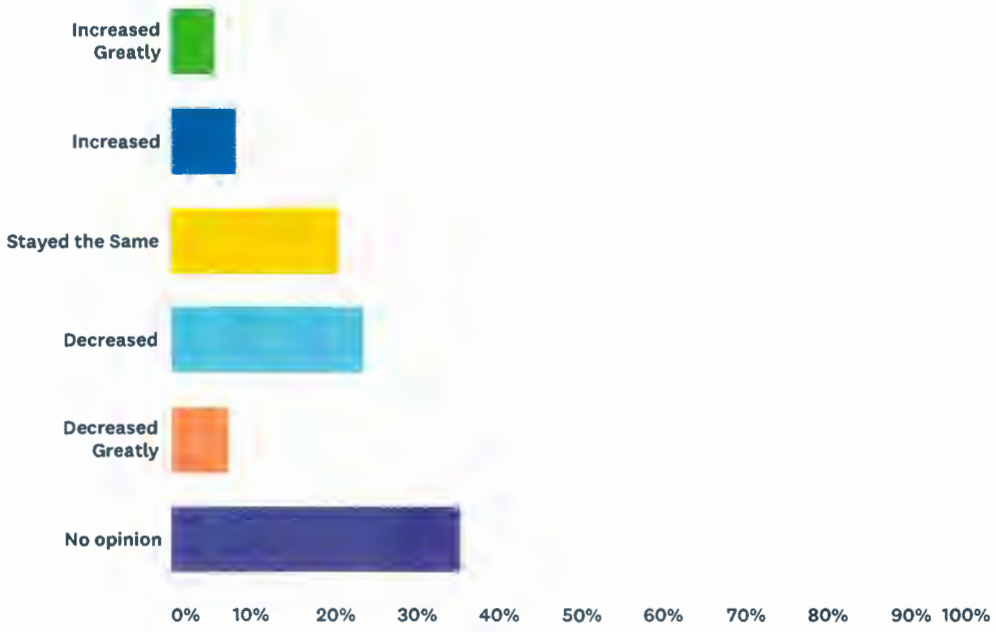
Answered: 127 Skipped: 1



ANSWER CHOICES	RESPONSES	
Extremely Important	61.42%	78
Important	26.77%	34
Occasionally Important	6.30%	8
Rarely Important	2.36%	3
Never Important	0.79%	1
Does Not Apply	2.36%	3
TOTAL		127

Q35 Do you think the population of animals that you hunt has increased, decreased or stayed the same in the forestlands in the last 10 years?

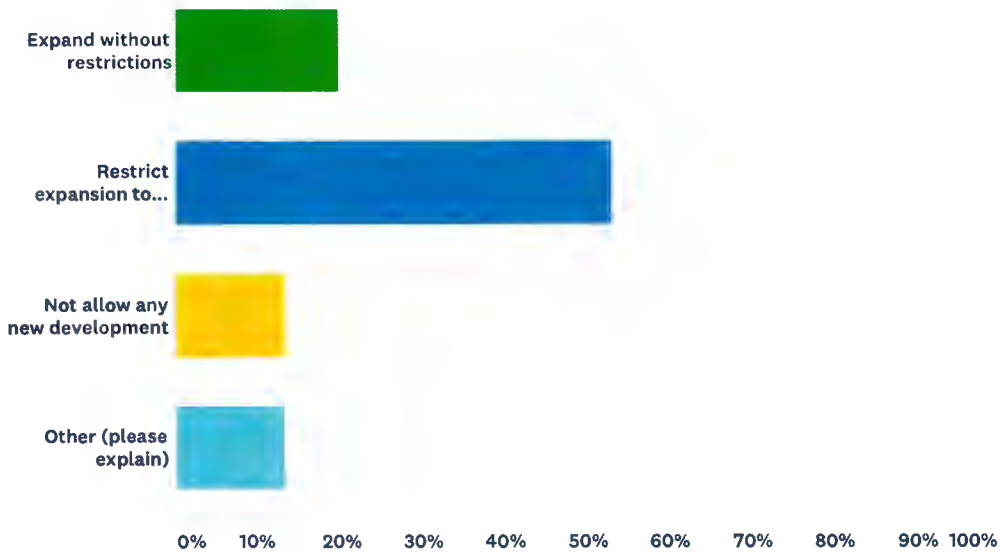
Answered: 127 Skipped: 1



ANSWER CHOICES	RESPONSES	
Increased Greatly	5.51%	7
Increased	7.87%	10
Stayed the Same	20.47%	26
Decreased	23.62%	30
Decreased Greatly	7.09%	9
No opinion	35.43%	45
TOTAL		127

Q36 How do you think the Navajo Nation should manage home site development within the forestlands?

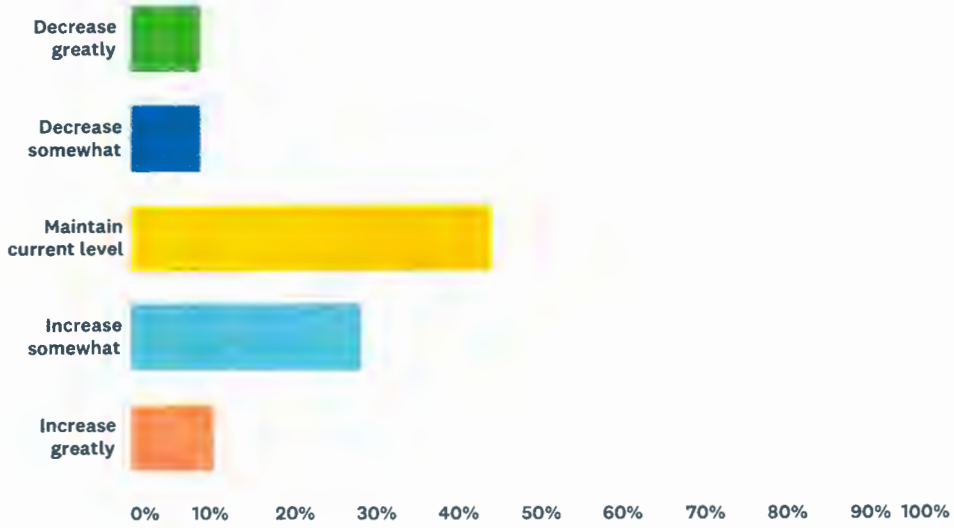
Answered: 126 Skipped: 2



ANSWER CHOICES	RESPONSES	
Expand without restrictions	19.84%	25
Restrict expansion to certain designated areas	53.17%	67
Not allow any new development	13.49%	17
Other (please explain)	13.49%	17
TOTAL		126

Q37 Do you think access to the forestlands areas for individual recreation uses (hiking, biking, camping, etc.) should be decreased, increased or maintained at the current levels?

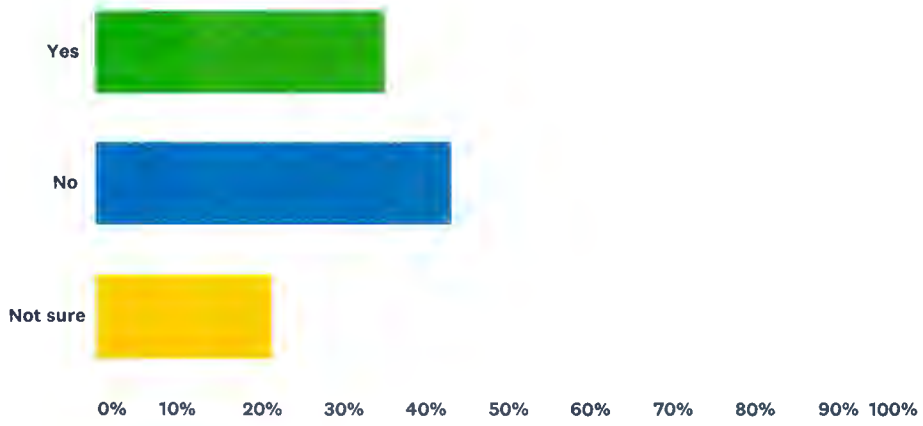
Answered: 127 Skipped: 1



ANSWER CHOICES	RESPONSES	
Decrease greatly	8.66%	11
Decrease somewhat	8.66%	11
Maintain current level	44.09%	56
Increase somewhat	28.35%	36
Increase greatly	10.24%	13
TOTAL		127

Q38 Do you think the Navajo Nation should allow businesses to develop recreational tourism opportunities in designated areas of the forest?

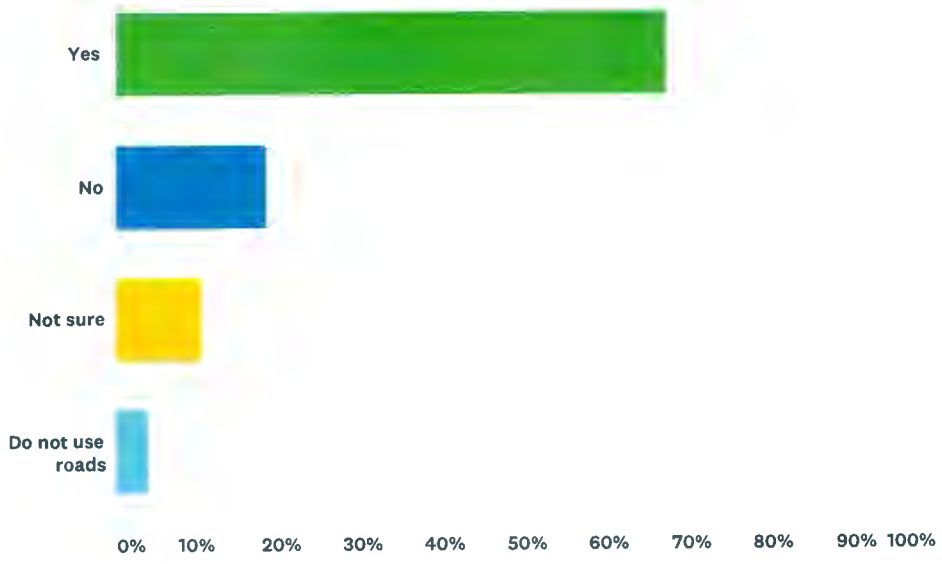
Answered: 127 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	35.43%	45
No	43.31%	55
Not sure	21.26%	27
TOTAL		127

Q39 Do the primary roads in the forestlands areas allow you to access the areas you desire?

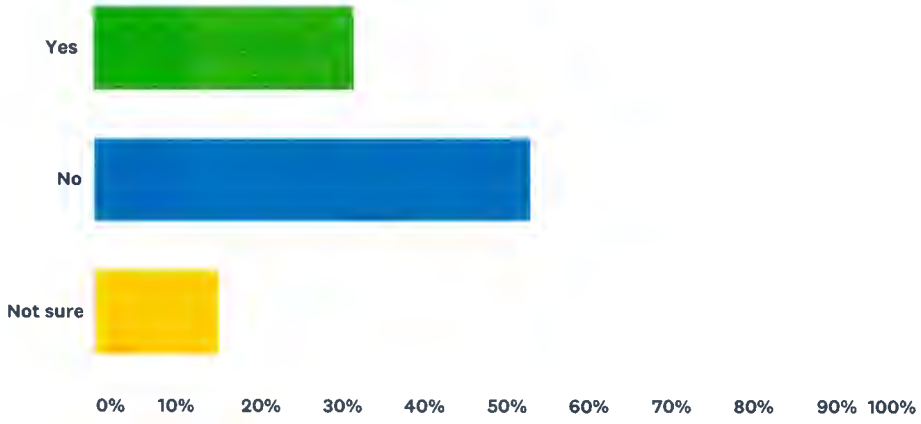
Answered: 125 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	67.20%	84
No	18.40%	23
Not sure	10.40%	13
Do not use roads	4.00%	5
TOTAL		125

Q40 Should old logging roads be opened for recreational activities?

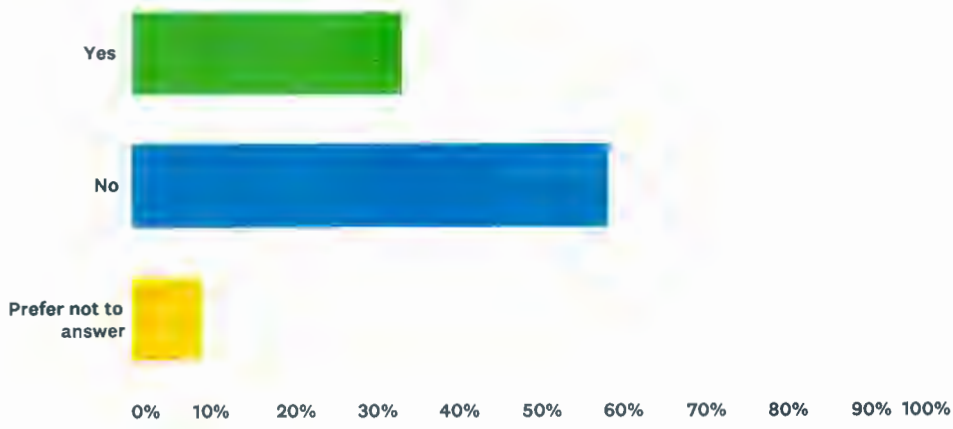
Answered: 126 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	31.75%	40
No	53.17%	67
Not sure	15.08%	19
TOTAL		126

Q41 Do you graze cattle on the forestlands?

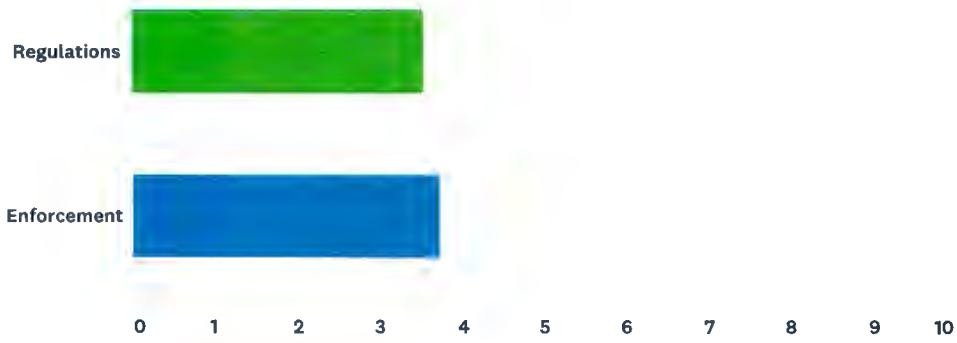
Answered: 124 Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes	33.06%	41
No	58.06%	72
Prefer not to answer	8.87%	11
TOTAL		124

Q42 How should the Navajo Nation regulate grazing in forestlands areas?

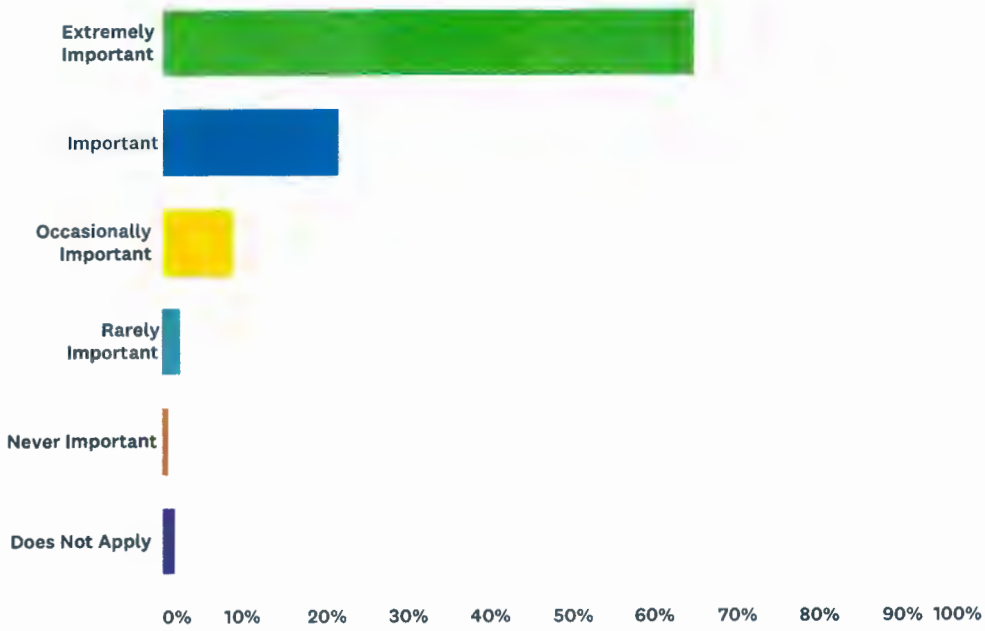
Answered: 122 Skipped: 6



	DECREASE GREATLY	DECREASE SOMEWHAT	NO CHANGES OBSERVED	INCREASE SOMEWHAT	INCREASE GREATLY	TOTAL	WEIGHTED AVERAGE
Regulations	5.83% 7	9.17% 11	31.67% 38	30.83% 37	22.50% 27	120	3.55
Enforcement	4.72% 5	6.60% 7	27.36% 29	32.08% 34	29.25% 31	106	3.75

Q43 How important is it to you that cultural resources are protected in the forestlands?

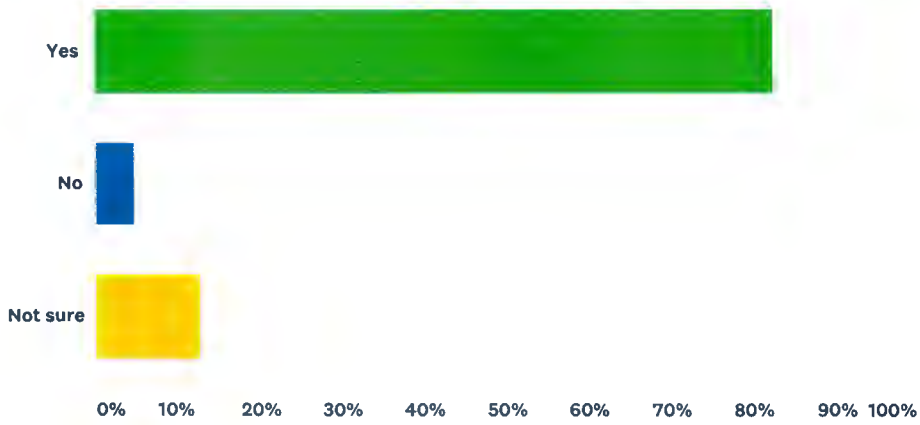
Answered: 125 Skipped: 3



ANSWER CHOICES	RESPONSES	
Extremely Important	64.80%	81
Important	21.60%	27
Occasionally Important	8.80%	11
Rarely Important	2.40%	3
Never Important	0.80%	1
Does Not Apply	1.60%	2
TOTAL		125

Q44 Should the Forestry Department do more to prevent soil erosion ?

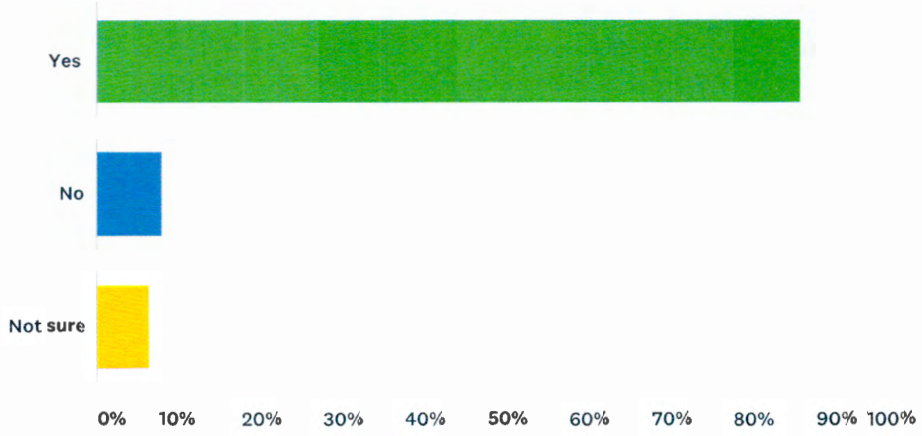
Answered: 126 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	82.54%	104
No	4.76%	6
Not sure	12.70%	16
TOTAL		126

Q45 Should the Forestry Department have policies and plans to address waste dumping within the forestlands area?

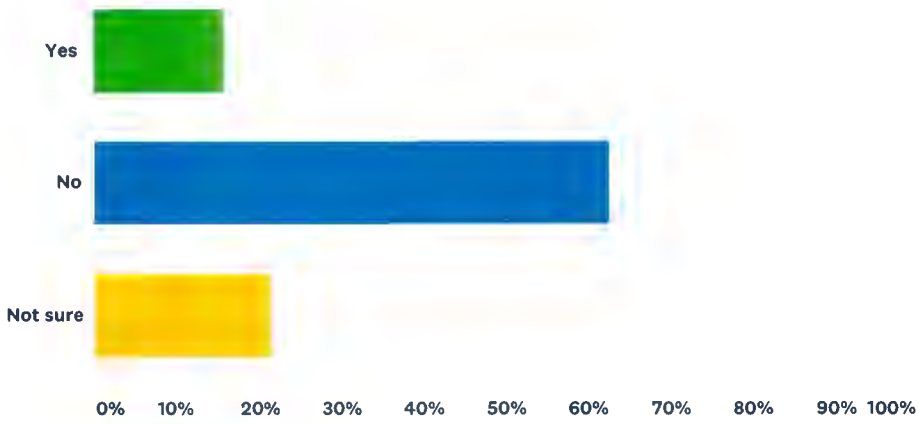
Answered: 126 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	85.71%	108
No	7.94%	10
Not sure	6.35%	8
TOTAL		126

Q46 Should the Forestry Department allow gravel pits to be opened in the forestlands areas?

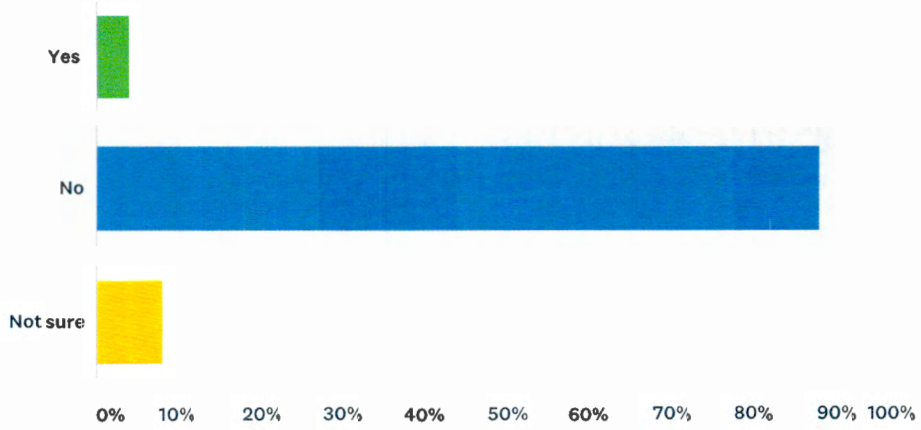
Answered: 126 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	15.87%	20
No	62.70%	79
Not sure	21.43%	27
TOTAL		126

Q47 Should the Forestry Department allow mines to operate in the forestlands?

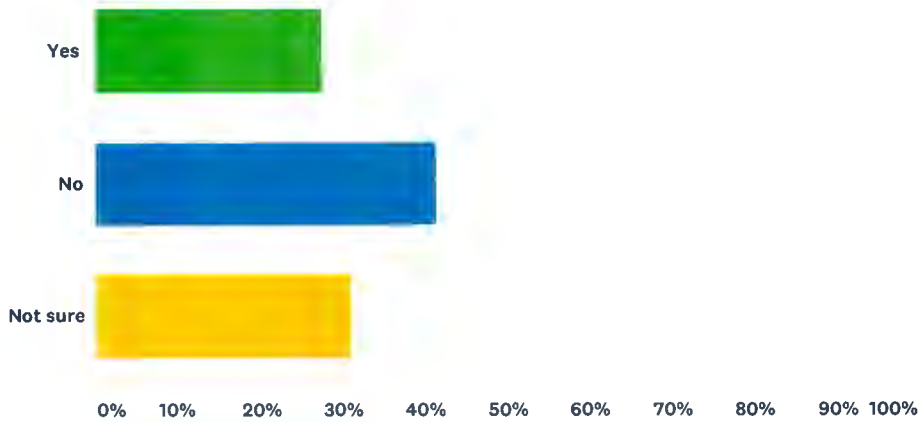
Answered: 126 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	3.97%	5
No	88.10%	111
Not sure	7.94%	10
TOTAL		126

Q48 Are current efforts to control weeds in the forestlands adequate?

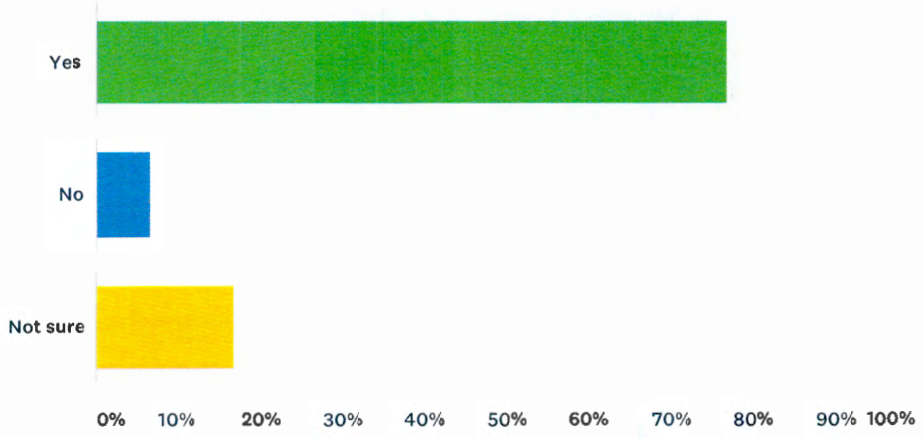
Answered: 123 Skipped: 5



ANSWER CHOICES	RESPONSES	
Yes	27.64%	34
No	41.46%	51
Not sure	30.89%	38
TOTAL		123

Q49 Should the Navajo Nation work to conduct active restoration of areas that have been impacted by activities in our forestlands?

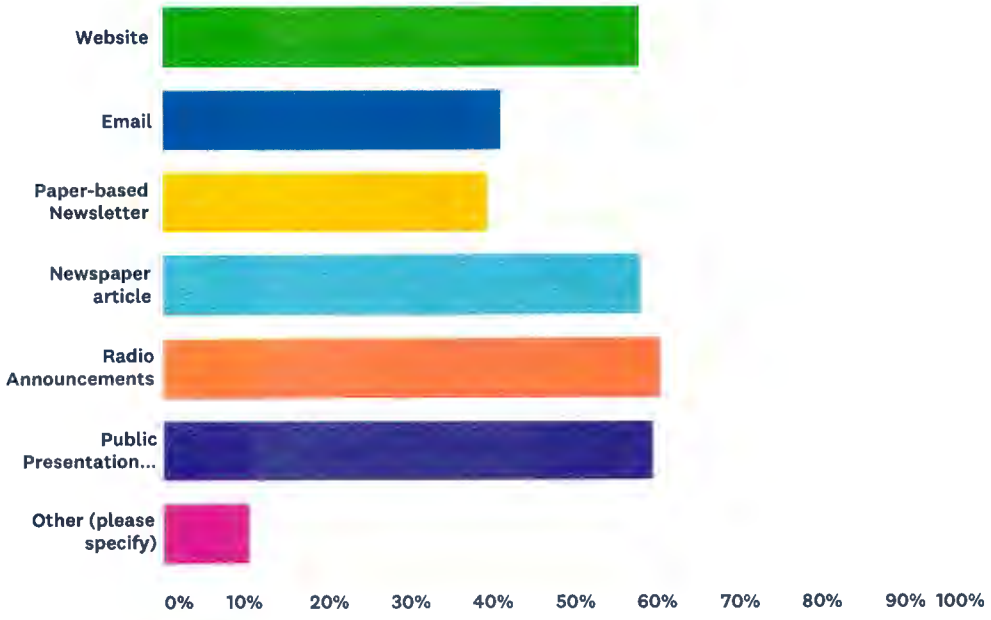
Answered: 125 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	76.80%	96
No	6.40%	8
Not sure	16.80%	21
TOTAL		125

Q50 How would you generally prefer to receive future information about Navajo Nation management activities? (Please select all that apply.)

Answered: 124 Skipped: 4



ANSWER CHOICES	RESPONSES	
Website	58.06%	72
Email	41.13%	51
Paper-based Newsletter	39.52%	49
Newspaper article	58.06%	72
Radio Announcements	60.48%	75
Public Presentation / Chapter Meeting	59.68%	74
Other (please specify)	10.48%	13
Total Respondents: 124		

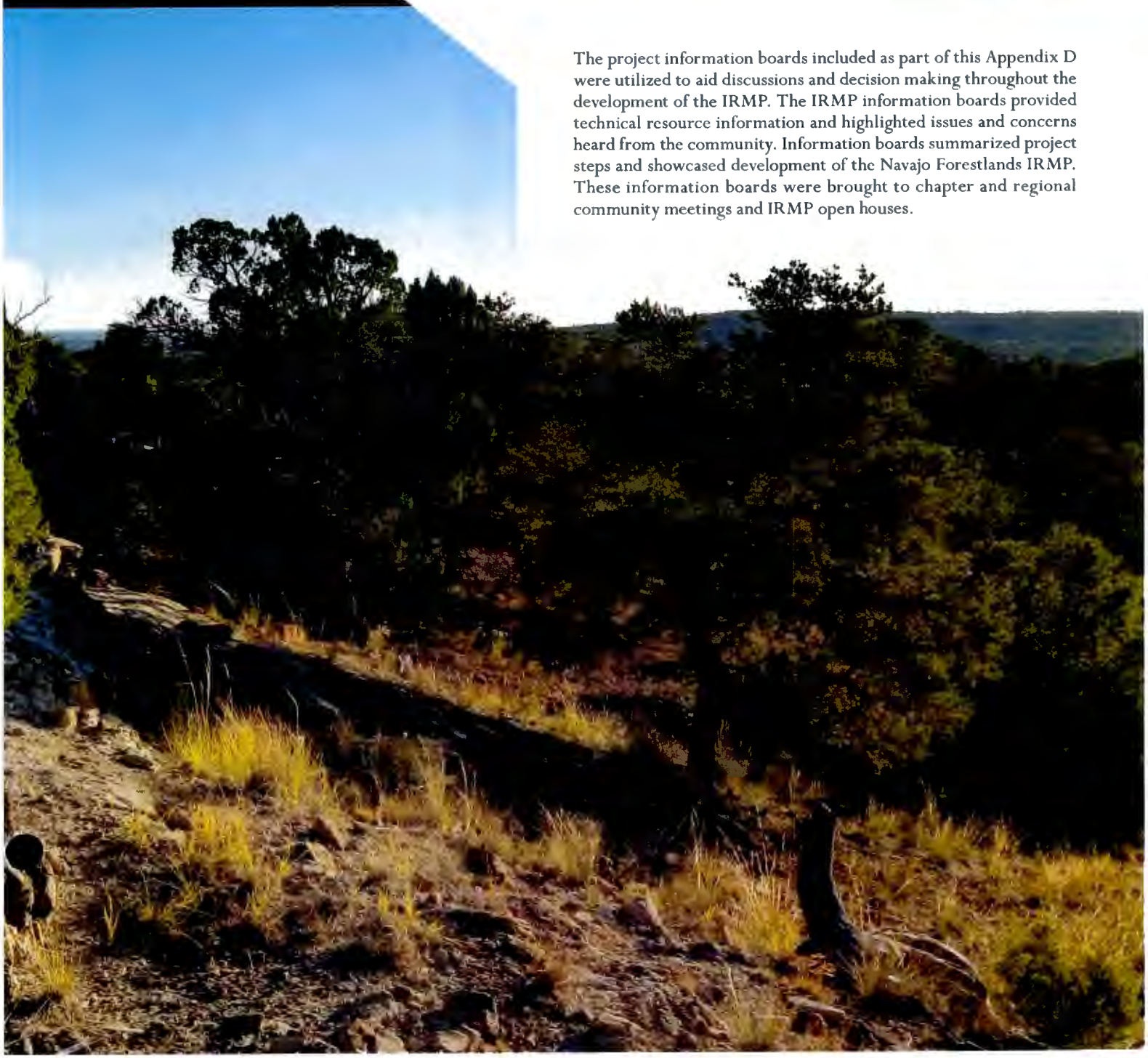
Q51 Please add any other comments regarding natural resource management that you would like considered as the Navajo Nation's draft Integrated Resource Management Plan is developed.

Answered: 53 Skipped: 75

APPENDIX D

COMMUNITY MEETING POSTER BOARDS

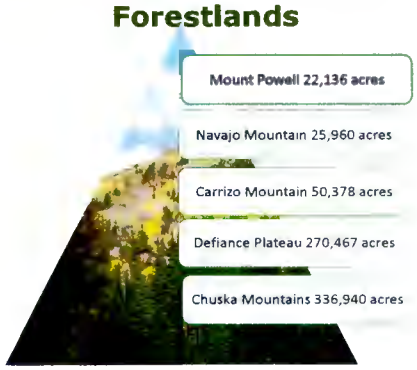
The project information boards included as part of this Appendix D were utilized to aid discussions and decision making throughout the development of the IRMP. The IRMP information boards provided technical resource information and highlighted issues and concerns heard from the community. Information boards summarized project steps and showcased development of the Navajo Forestlands IRMP. These information boards were brought to chapter and regional community meetings and IRMP open houses.

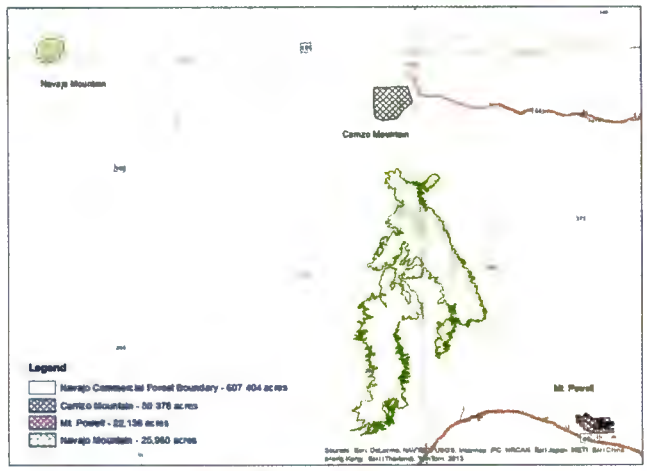


Forest Resources

NAVAJO FORESTLANDS IRMP

The IRMP Project includes the following Navajo Nations Forestlands





Did you know?

The Navajo Forestry Department manages approximately 607,407 acres of commercial forest and 4,818,815 acres of woodlands.
These lands not only provide forest/woodland products, but they provide wildlife habitat, forage for grazing, recreational opportunities, and water resources.

Did you know?

The Navajo Forestry Department has four priority program areas that focus their resource management activities:

Forest Services
- Compliance with Woodland & Forest Regulations
- Wildland Fire Education

Research & Development
- Sustaining Forest Health
- Development of Regulations & Management Plans for Specific Areas
- Forest Inventory
- Commercial Forest Stand Improvement (Pole Marking and Thinning)

Timber Management
- Preparation & Administration of Timber Sales
- Timber Marketing & Sales

Reforestation & Disease Control
- Seed Collection & Storage
- Reforestation
- Pest Management
- Native Plant Education

CURRENT ISSUES

- Green Cutting
- Firewood Harvesting
- Reseed/Replant Degraded Areas
- Closed Sawmills Impede Harvest Plans
- Homesite Locations
- Pest Management
- Wildfire Management
- Habitat Protection
- Forest Product Permitting
- Forest Access

We Need Your Feedback!

Please submit your answers on the cards provided.

QUESTION 1:
How could the Forestry Department better handle firewood harvesting in your forestlands?

QUESTION 2:
How do we protect the forests for wildlife, water supply and future generations while still providing economic opportunities?

STAY INFORMED! STAY INVOLVED!
WE WANT TO HEAR FROM YOU!

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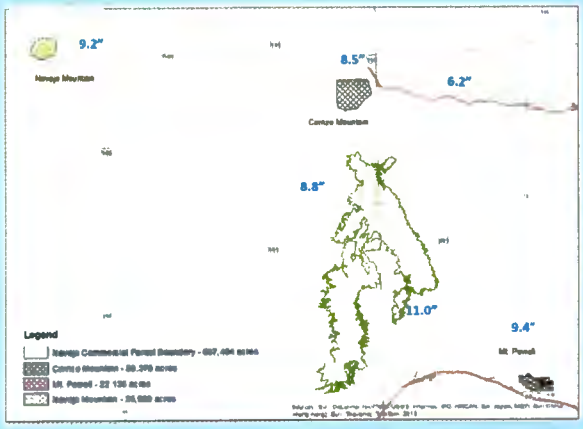
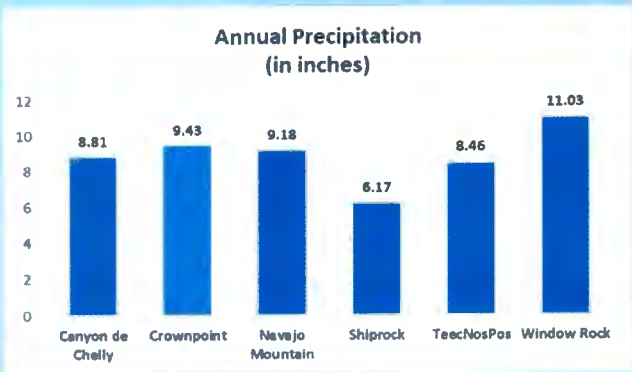
Water Resources & Air Quality

NAVAJO FORESTLANDS IRMP





Sources: Navajo Nation Drought Contingency Plan, 2003; Western Region Climate Center

Did you know?
Water resources in the forestlands include: San Juan River, Colorado River, streams in the mountains, 17 lakes for livestock & fishing, and 5 to 20 inches of annual precipitation.

Did you know?
Air pollution can come from vehicles, fires, oil & gas production, power plants, feed lots, and concrete batch plants.

Did you know?
Water Resources is responsible for and regularly monitors water supply and watershed health to evaluate Navajo Nation water needs:

- Resources: Reservoirs/lakes, stock ponds, wind mills
- Supply: Climate data, precipitation, snow levels, stream levels
- Watershed Protection: Stream sedimentation, stability of river banks, health of riparian and wetland species

CURRENT ISSUES

- Limited Water Supply
- Limited Water Infrastructure Across the Nation and in Homes
- Water Quality
- Air Pollution
- Dumping/Burning of Trash
- Increased Erosion, River Sedimentation
- Need for Watershed Restoration
- Drought

We Need Your Feedback!

Please submit your answers on the cards provided.

QUESTION 1:
What programs or rules should we put in place to protect our watershed and reduce water contamination?

QUESTION 2:
How can we reduce air pollution from burning of trash?

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Agricultural Resources

NAVAJO FORESTLANDS IRMP

Managing Our Land

The raising of livestock on Navajo rangelands holds deep traditional, cultural, spiritual, and economic significance for the Navajo People.

Navajo Nation Department of Agriculture oversees land used for agriculture, tribal ranches and grazing. They provide technical assistance to District Grazing Committees, Farm Boards and Eastern Navajo Land Board members. They develop, review and recommend policies, procedures and regulations for grazing on trust, ranch and leased lands. Local grazing committees recommends to the BIA grazing permits. Seasonal Grazing is allowed in commercial forestland areas through coordination with the local grazing committee, BIA and Navajo Nation Department of Agricultural and BIA.

Local Population Assessments of Wildlife are conducted by the Navajo Nation Fish and Wildlife Department to determine the amount of available forage, water, and any other necessities that should be set aside for wildlife purposes (the "wildlife set-aside"). Wildlife set asides determine which land is available for grazing and which should be set aside for wildlife sustainability.

Did you know?

The number of grazing permits issued is determined by evaluating the *carrying capacity* of the land. Carrying capacity determines how many animal units can sustainability graze an area without compromising the health of the land. Carrying capacity factors in the availability of water resources to support livestock and land health. Carrying Capacity Assessments are completed every 5 years by the BIA.

Did you know?

The Navajo rangeland is not being appropriately safeguarded. The ecological health and productivity of the Navajo rangeland has been degraded to the point that there is cause for significant concern. In 1950 it took an average of twenty-two (22) acres to support one sheep for one year. Today there are places in Navajo where it takes up to one-hundred (100) acres to support one sheep for one year, with a Navajo national average of around sixty (60) acres.

CURRENT ISSUES

- Overgrazing; Cross-Jurisdiction of Grazing Resources
- Lack of Grazing Permit Enforcement
- Grazing Without permits
- Farmland is designated but not widely used
- Medicinal Plants Protection Needed
- Wildlife Crossing Fence lines and Eating Crops
- Feral or Excessive Livestock

We Need Your Feedback!

Please submit your answers on the cards provided.

QUESTION 1:
How would you encourage farming on the Navajo Nation? What resources or information is needed to be successful?

QUESTION 2:
How should livestock grazing be regulated or enforced to support economic development but also conserve sensitive lands & restore overgrazed areas?

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Cultural Resources

NAVAJO FORESTLANDS IRMP

Managing Our Land Resources Collectively for the Diné

The Navajo Nation Heritage and Historic Preservation Department focuses on three primary activities:

- **Cultural Resources Compliance**

The Cultural Resources Compliance Section (CRCS) coordinates consultations involving cultural resources on the Navajo Nation. Program staff facilitates the BIA's compliance with tribal and federal preservation laws and provides technical support in cultural resource preservation to tribal members.

- **Traditional Cultural Practices (TCP)**

The Traditional Cultural Program has several functions within the NNH&HPD.

- Consultation under Archaeological Resources Protection Act (ARPA), National Historic Preservation Act (NHPA), Native American Graves Protection and Repatriation Act (NAGPRA) and the Navajo Nation Cultural Resources Protection Act (NNCRPA) laws to support the goals of the Navajo Nation Heritage and Historic Preservation Department by consulting with the Navajo people to ensure that Navajo values and traditions guide the Department's policies, procedures and activities for preservation and protection.
- TCP also consults with federal and state agencies regarding the protection and preservation of the natural and cultural resources
- RCP provides community education to the general public such as chapters, schools, and the NNH&HPD staff on cultural issues, federal and Navajo Nation laws affecting historic preservation.

- **Heritage Management**

Heritage management is the identification, interpretation, maintenance, and preservation of significant physical places of Navajo heritage and intangible aspects of Navajo heritage.

Did you know?

It is the policy of the Navajo Nation to protect all cultural resources that it owns or that are under its jurisdiction. Under its obligation to the *Diyin diné'é* (Holy People) and as an expression of its sovereignty, the Navajo Nation will treat its cultural resources in a manner consistent with *Diné* (Navajo) values.

Hózhó, a natural state of harmony, beauty, and balance, is the very heart of the *Diné* way of life.

The disturbance and/or removal of cultural resources disrupts *hózhó*. In order to avoid unnecessary disturbance to *hózhó*, it is the policy of the Navajo Nation to strongly discourage the excavation, disturbance or removal of any cultural resources unless there is a compelling need.

When such disturbance occurs either accidentally or out of necessity, it is Navajo Nation policy to implement all prudent and feasible measures to return its' cultural resources to the cultural landscape.

CURRENT ISSUES

- Protection for Sacred Sites
- Limited Information on Locations for Traditional Cultural Practices
- Summer Camps

We Need Your Feedback!

Please submit your answers on the cards provided.

QUESTION 1:
What efforts should the DNR undertake to preserve the Navajo Nation culture within the forestlands?

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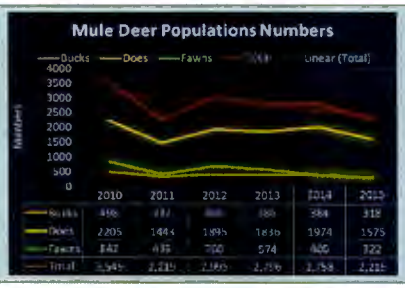
Fish & Wildlife Resources

NAVAJO FORESTLANDS IRMP

Mission of the Navajo Nation Fish and Wildlife Department:
Conserve, protect, enhance, and restore the Navajo Nation's fish, wildlife, and plants through aggressive management programs for the spiritual, cultural, and material benefit of present and future generations of the Navajo Nation.

Priority Species identified on the Navajo Nation are:
Golden Eagles,
Black Bears,
Mountain Lions,
Bighorn Sheep and
Mule Deer.
They suffer from loss of habitats, poaching, pressure from grazing practices and decreasing food supply.

Did you know?
The total number of Mule Deer on the Navajo Nation decreased by 37% from 2010 to 2015.
Source: NNFWL



Did you know?
The estimated number of feral horses in forested areas is 8,829 with 1,151 foals.
(Survey of Free-Ranging Horses on the Navajo Nation Final Report 2017)

CURRENT ISSUES

- Sensitive, Medicinal/Herbal Plant Species Protection
- Unregulated Grazing by Feral Horses & Trespass Livestock
- Degradation of Wetlands, Ponds & Streams by Livestock
- Illegal Trash Dumping
- Illegal Fences Not Wildlife Friendly
- Roads Causing Wildlife Mortality and Habitat Fragmentation
- Poaching
- Illegal Cutting of Snags and Green Trees Harming Habitats
- Decline in Mule Deer Population
- Invasive Plant Species

We Need Your Feedback!

Please submit your answers on the cards provided.

QUESTION 1:
What programs should be put in place to protect Fish & Wildlife species and their habitat?

QUESTION 2:
How do we control poaching of wildlife and declining wildlife populations?

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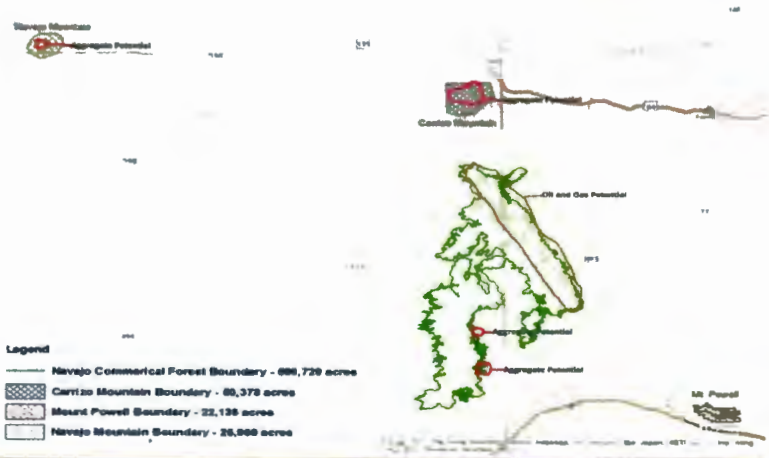
Mining/Mineral Resources

NAVAJO FORESTLANDS IRMP

Managing Our Land Resources collectively for the Diné

Forestland Areas with Potential Minerals Development



Did you know?
Development of Mineral Resources on the Navajo Nation has been a major contributor to quality job creation and providing operating revenue for the Navajo Nation

Did you know?
To date, coal and oil & gas development have had the most significant positive economic impact of all Navajo Mineral Resources.

CURRENT ISSUES

- Access Roads
- Air & Water Quality
- Habitat Fragmentation
- Scarred Landscape/Views

We Need Your Feedback!

Please submit your answers on the cards provided.

QUESTION 1: Should Mining Activities in Your Forestland Areas Be Explored to Support Economic Development Goals?

QUESTION 2: What Do You Consider to Be the Advantages and Disadvantages of Mining in Your Forestland Areas?

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Recreation Resources

NAVAJO FORESTLANDS IRMP

Managing Our Land Resources Collectively for the Diné

Navajo Nations Parks

Fishing Lakes in the Forestlands

Lake	Size (Acres at Full Capacity)	Location	Fish
Antelope Lake	3	16 m sw Window Rock	rainbow trout
Ganado Lake	36	Kinlichee	channel catfish, largemouth bass, bluegill
Many Farms Lake	1,500	north Defiance Plateau	channel cat and largemouth bass
Round Rock Lake	80	Round Rock	rainbow trout, cutthroat trout, channel catfish
Tsaile Lake	260	Tsaile/Wheatfields	rainbow trout
Wheatfield Lake	250	Wheatfields	rainbow trout
Red Lake	908	Red Lake	largemouth bass, bluegill, channel catfish
Asaayi Lake	36	Mexican Springs	rainbow trout, cutthroat trout
Chuska Lake	100	Tohatchi	brown trout, cutthroat trout, rainbow trout
Whiskey Lake	250	Mexican Springs	rainbow trout
Todacheene Lake	4	Crystal	rainbow trout
Aspen Lake	3	Crystal	rainbow trout
Berland Lake	7	Crystal, Naschitti	rainbow trout
Source	Fisheries Management Plan 2013		

Did you know?

Bowl Canyon is the only designated recreational area in the forestlands. Asaayi Lake and Camp Asaayi provide access to fishing, camping and picnicking. Camp Asaayi is currently closed for renovations.

Did you know?

The NN Parks and Recreation Department hosts events such as trail runs and fairs.

CURRENT ISSUES

- Trash from Visitors
- Access Roads in Poor Condition
- Limited Designated Areas

We Need Your Feedback!

Please submit your answers on the cards provided.

QUESTION 1: What types of recreation would you like to see developed in your forestlands?

QUESTION 2: How would you attract tourists/visitors to the Navajo Nation for recreation?

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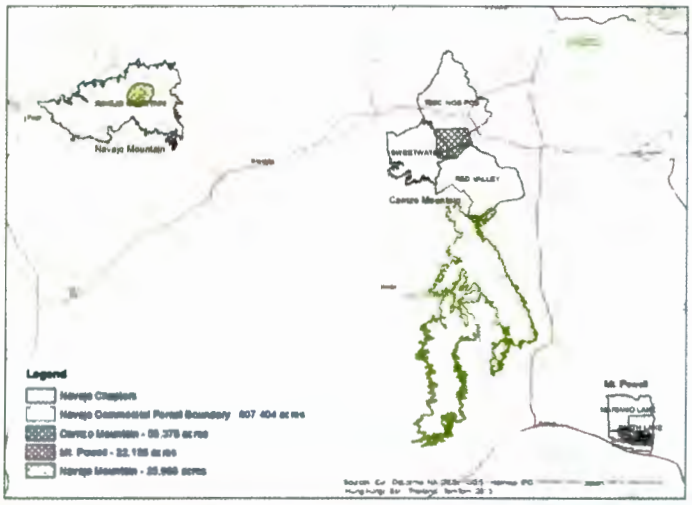
Navajo Nation Integrated Resource Management Plan (IRMP)

Integrated Resource Management

An approach to reservation resource management which takes a whole system approach, viewing all resources—natural, social, cultural, and economic—as being interrelated in such a manner that management actions directed at one resource also affect others.



FORESTLANDS PROJECT AREAS:

Over 700,000 acres of Navajo Forestlands

Commercial Forest

Chuska Mountain: 336,940.5 acres

Defiance Plateau: 270,467.4 acres

Satellite Forest

Carrizo Mountain: 50,378 acres

Mount Powell: 22,136 acres

Navajo Mountain: 25,960 acres

What is an IRMP?

- A tribe's strategic plan for management of a reservation's resources
- A tribal policy document that lists the goals for the future, and develops recommended actions to better manage resources for the benefit of the Navajo
- Based on issues, concerns & solutions identified by the Community & Resource Department representatives
- Provides guidance for future development of resource plans & activities

Why are we doing this?

Promote Better Coordination across Resource Management Department's Goals & Activities

Forest Management | Agriculture & Grazing | Community | Fish & Wildlife

NEED FOR COMBINED APPROACH FOR MANAGING OUR LANDS HOLISTICALLY

Cultural Resource & Heritage Preservation | Parks & Recreation | Mining & Minerals | Water Resources

Managing Our Land Resources Collectively for the Diné

Resource Assessment

OBJECTIVE: To **build awareness** between the resource departments on **key issues, needs and initiatives**, and to **communicate the related community concerns**.

High overview of the Natural and Cultural Resources found within:

- Chuska Mountains
- Defiance Plateau
- Carrizo Mountain
- Navajo Mountain
- Mount Powell

Agriculture | Air Quality | Cultural Resources | Wildlife & Fisheries | Forest Resources | Housing & Land | Recreation

Water Resources | Weeds & Invasive Species | Wetlands & Riparian | Forest Roads | Visual Resources & Viewsheds | Human Resources | Minerals

COLLECTIVE CONCERNS AND CHALLENGES IDENTIFIED:

- Livestock Management
- Farming Support & Infrastructure
- Abandoned Mines & Resource Extraction
- Invasive Species
- Dissemination of Information
- Enforcement
- Natural Hazards & Extreme Weather Events
- Habitat Loss & Fragmentation
- Resource Economies
- Recreation
- Roads & Transportation
- Water Rights
- Water Infrastructure
- Water Quality
- Water Use & Conservation
- Climate Change
- Cultural Respect

Managing Our Land Resources Collectively for the Diné

Community Engagement

NAVAJO FORESTLANDS IRMP

Where We've Been

15	128	20	
Community & Chapter Meetings	Community Surveys Returned	Community Land Use Plans Reviewed	Project Website, Social Media Posts & Updates

What We've Heard

"The mountains are sacred."

Water Security

60% Have Sufficient Potable Water

Water Quality is an Issue Due to Various Contaminants

45% Have Seen Decreases in the Amount of Water Available

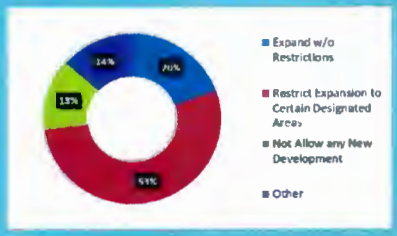
Water Delivery Infrastructure Needs Improvement

Increase Regulations & Enforcement

- Grazing Regulations
- Trash Dumping
- Homesite Expansion
- Firewood Extraction
- Hunting / Fishing

"I wish all Navajos would learn to plan for our future generations."

Homesite Development



86% Feel that it is "Extremely important/Important to Protect Cultural Areas"

88%	• Extremely Important/Important to Monitor Wildlife Populations and Habitats
65%	• No/Not Sure for the Navajo Nation to Allow Businesses to Develop Recreational Tourism
88%	• No to Mines in the Forestlands
77%	• Yes to Active Restoration in the Forestlands
83%	• Yes to More Soil Erosion Prevention

Using the Forestlands as a Source for Food

37% Fish

48% Hunt

"Navajo Nation and BIA need to work together to accomplish our goal for Mother Nature."

Who We've Heard From

Community Survey
- All 5 Forestlands Represented in Responses
- 84% Live on Navajo Nation
- Even Split between Males/Females
- 28% Age 44 and Under; 45% Age 45-64; 25% Age 65+

- Community & Chapter Meetings
  - Attendance > 300 People
  - All 5 Forestlands Visited

Forestlands Management Options Developed from Community and Resource Staff Inputs

NAVAJO FORESTLANDS IRMP

Management Option A: Increase Resiliency Through Conservation/Protection	Management Option B: Active Management & Enforcement	Management Option C: Culture, People & Partnerships
Focus is on **land stewardship** and involves a **longer term focus on improving forest health.** Option A looks for ways for resource departments: • To increase their capability to respond to changes in resource health • How forestlands are used • Its ability to regenerate over time Option A minimizes human disruption of our natural landscapes to satisfy human needs. Rather, it uses techniques that mimic nature's processes to promote long-term health of the forestlands and their native ecosystems.	Identifies changes that can be made within the parameters and constraints of federal and state regulations and within Navajo Nation Codes to better regulate the use and protection of Navajo Nation Natural Resources. Option B focuses on **implementation of active resource management projects** and **enforcement of existing regulations** to improve the use, conditions and state of Navajo Nation Forestlands.	Places the **Navajo people's needs** for infrastructure, employment, information and community development as the **priority** for its management approach. It acknowledges the core of the Navajo people's identity lies in its heritage and traditional lifeways, and emphasizes protection of its cultural resources, heritage and history. Option C emphasizes strategic partnerships and coordination opportunities across agencies, departments and divisions to implement changes over time.

Community & Resource Department Feedback for Design of a Preferred Management Option

Preferred IRMP Management Option

NAVAJO FORESTLANDS IRMP

Active Land Stewardship By and For the Diné

Preferred Management Option (Option D) Description

- **Reflects the deep cultural relationship** of the Navajo people with the Forestlands and the resources within them.
- Recognizes the role the forestlands play in the Navajo Peoples' **economic livelihood, their traditions and in helping to meet local community needs.**
- **Emphasizes an ethic of land stewardship & wise use of resources** to ensure they can remain resilient to changing conditions and to be available for families and future generations.
- Provides guidance to the Navajo Resource Departments to address needs for **more active management** of natural resources and **enforcement of existing regulations** to restore and rehabilitate degraded forestland areas; and to **maintain future revenue generation potential of key resources.**

GOALS: *The following nine goals will be advanced through the management philosophy.*

Strengthen the preservation and incorporation of Navajo culture, traditional ways and values	Increase active forest management for the benefit of multiple natural resources	Conservation and protection of wildlife and their habitat
Create economic development opportunities	Strengthen the ability of the forestlands to recover from disturbances, changing environmental conditions and climate changes	Improve rangeland management to ensure adequate grazing for wildlife and livestock
Provide an adequate, safe water supply for people, livestock and wildlife to ensure water security for the future	Provide education and outreach to Navajo communities	Improve enforcement of current laws and regulations

Recommendations

- Communicate with communities through educational programs; current rules and regulations, etc.; develop and utilize Navajo speakers
- Identify forest harvest areas and implement select forest treatments to ensure and promote forest health
- Conduct thorough inventories of cultural resources sites, traditional and medicinal plants, wildlife, grazing animals, water retention areas, etc. to better understand resources
- Work with the Chapters on natural resource projects
- Work to maintain the diversity and heterogeneity of wildlife habitats
- Reduce the feral horse population
- Educate the public and enforce current policies and regulations
- Adjust and enforce grazing permits to support current range conditions and carrying capacity
- Foster and grow traditional Navajo land stewardship ethic across all generations in our communities with a focus on building resilience and restoring the land
- Share data and information across NN Division of Natural Resource Departments, Federal Government agencies, Chapters
- Develop and implement an Adaptive Planning Process
- Establish a funding source for natural resource projects
- Involve the youth in conservation and land stewardship projects
- Introduce land zoning and permitted uses within different zones, apply to all local Chapters

Managing Our Land Resources Collectively for the Diné

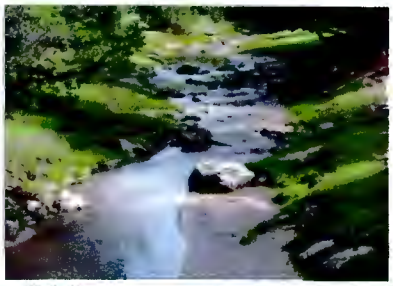
Navajo Nation Natural Resources Issues & Concerns

NAVAJO FORESTLANDS IRMP

During the summer and autumn of 2017, NN DNR Department and IRMP Project staff reached out to the Forestlands communities to understand what issues and concerns the people had concerning the Forestlands areas. In addition, the Resource Department staff provided more information as subject matter experts.

Listening to All Voices:

- Firewood Collection without Permits and by Vendors
- Demand for Homesite Locations, Repairs and Access
- Declining Mule Deer Population
- Watershed Protection
- Need for the Restoration & Replanting of Burned Areas
- Lack of Communication about Habitat Changes
- Threats to Traditional & Medicinal Plants
- Policies & Practices of Timber Harvesting
- Updated Resource Data/Information & Sharing Across Departments
- Need for Forest Thinning Activities to Manage Forest Density
- Invasive Species & Resource Impacts
- Agency. Department and Community Coordination on Resource Management Activities
- Poaching
- Review & Application of Resource Management Activities & Plans Across Departments
- Habitat Fragmentation
- Overpopulation of Feral Horses and their Impacts
- Illegal Trash Dumping
- Unregulated and Over Grazing of Trespass Livestock
- Green Cutting of Trees
- Access Roads Conditions & Impacts
- Identification & Protection of Cultural Resources, Practices & Places
- Inconsistent Water Supply, Access and Quality
- Degradation of Wetlands, Ponds & Streams by Livestock
- Soil Erosion



Managing Our Land Resources Collectively for the Diné

APPENDIX E

POTENTIAL INTEGRATED RESOURCE MANAGEMENT OPTIONS VOTING RESULTS

During three community regional meetings held in April 2018, the three Potential Integrated Resource Management Options developed as part of the project were presented to the audience. Attendees were given an opportunity to vote on aspects of each of the options as well as name a Preferred Integrated Resource Management Option. This Appendix D contains the combined voting results from the community participants.

Navajo Forestry IRMP Management Option Regional Meetings Survey Results– April 2018

Phase 2 Regional Community Meetings were held from April 2-4, 2018 in Window Rock, AZ; Crownpoint, NM and Shiprock, NM as part of the development of the Navajo Forestry Department IRMP. The following information below represents the combined results of the electronic voting that occurred during the meetings. The results indicate preferences for different management options for the Navajo Forestlands, and accompanies the information included in the PowerPoint presentation. In addition, community comments were captured and are included.

Option A: Increase Resiliency through Conservation/Restoration

Description:

Management Option A is focused on land stewardship and involves a longer term focus on improving forest health.

Mimic nature's processes to promote long term health of the forestlands and their native ecosystems

Goals Supported:

- **Strengthen the ability of the forestlands to recover from disturbances, changing environmental conditions and climate change**
- **Conservation and protection of wildlife and their habitat**
- **Increase active forest management for the benefit of multiple natural resources**
- **Provide an adequate, safe water supply for people, livestock and wildlife to ensure water security for the future**
- **Increase rangeland management to ensure adequate grazing for wildlife and livestock**

Recommendations:

- **Update and adopt the Forest Management Plan; schedule updates for every 5-years**
- **Improve and streamline the drought management plan; implement a scheduled 5-year review**
- **Develop, refine and implement land management designation system for forestland areas**
- **Utilize information from existing conditions reporting & resource assessments to identify opportunities for restoration activities (along streambanks, in burned areas, near roadsides, and in sensitive wildlife and vegetation areas)**
- **Secure funding to conduct resource inventories and close data gaps across different resource areas**
- **Conduct forest thinning activities within the forestlands to provide room for tree growth and to help diversify vegetation base for wildlife species**
- **Conduct controlled burns in areas overtaken by invasive species and pests**
- **Implement grazing policies in wetland areas and riparian corridors based on carrying capacity and forage**
- **Determine schedules for conducting wildlife population counts**
- **Monitor and manage sensitive wildlife species to improve habitat conservation efforts**
- **Develop & Implement an Adaptive Planning Process to increase capability to respond to Climate Change events**
- **Develop a watershed based management approach to forestland management, supported by a Watershed Management Plan**

- Seek funding for water mitigation and remediation projects

Voting Results:

Option A: Do You Support Goals?	
Yes	20
No	5
Somewhat; some goals are missing	20
Some goals don't include	1

Option A: Which Recommendations Do You Like?	
Focus on conservation	2
Land stewardship	11
Restoration	5
All	20
None	1

Option A: What Do Like About Option A?	
Description	4
Goals Supported	6
Recommendations	9
All	18
Nothing	1

Community Comments:

- Would like to have group for managing allotments similar to private management; are allotments included in plan? No
- Need to include culture
- Define "access" in regard to forestlands
- Customary use stops a lot of what needs to be done; NN doesn't manage land as trust
- Emphasis on preserve (not use) or conserve (wise use)
- Need to think about ROI
- Recommendations need to incorporate rain water harvesting at community level
- Include Education & Outreach, especially to young people
- Include enforcement—inactive permits but not updated, update to be able to use
- Should factor in natural disasters as they can change everything, need adaptive mechanisms, community preparedness
- Change on reservation is very slow
- Oil & Gas well sites: enforcement of cleanups and emissions
- Missing housing and its impacts
- Option A is the most logical option; open to harvests where needed

- Needs to be in relation to holistic land management to achieve sustainability
- Add to recommendations:
    - Introduce land zoning and permitted uses within different zones, apply to all local gov't chapters
    - Develop regular monthly meetings and communications protocols between BIA depts. And Navajo DNR to coordinate resource management and project implementation
    - Establish educational programs for the teaching of cultural/traditional way to younger generations for the protection of cultural and natural resources
    - Improve lake conditions to reintroduce trout populations for fishing opportunities
    - Establish localized hunting permit quotas to allow for variations in wildlife populations
    - Develop and maintain areas for recreation opportunities including picnicking, hiking and camping
- Like to bring the natural resources back to its resilient status, to restore and conserve what we have now and future. Let's all work together; we have a good combination of people here those who use the land (forest) on a daily base, the technical staff and people who want to participate in the plan

Option B: Active Management & Enforcement

Description:

Management Option B identifies changes to better regulate the use and protection of Navajo Nation Natural Resources.

Focuses on implementation of active resource management projects and enforcement of existing regulations to improve the use, conditions and state of Navajo Nation Forestlands.

Goals Supported:

- Improve enforcement with current laws and regulations
- Improve compliance with current laws and regulations regarding permits
- Increase active forest management for the benefit of multiple natural resources
- Identification and maintenance of key forestlands access roads
- Provide an adequate, safe water supply for people, livestock and wildlife to ensure water security for the future
- Increase rangeland management to ensure adequate grazing for wildlife and livestock

Recommendations:

- Update and adopt the Forest Management Plan; schedule updates for every 5-years
- Improve management of forest product permitting system to ensure that permits cannot be sold or transferred. Increase enforcement of forest product permit violations to prevent re-sell of wood and cutting of green trees
- Evaluate enforcement mechanisms for violations against trash dumping, firewood collection, and grazing permit regulations
- Conduct timber harvests in select management units to promote forest health and generate resource revenue
- Develop a watershed based management approach to forestland management, supported by a Watershed Management Plan

- Evaluate methods of significantly reducing the feral horse population including roundups, entrapments, harvests, right-of-way emergency pickups
- Re-evaluate grazing management system to streamline regulatory, management and enforcement authority for different levels of government (federal, Nation and local chapters)
- Re-evaluate grazing management system to establish appropriate counts and variety of stock supported. Establish rotation grazing to allow for the recovery of grazing areas
- Identify key forest access and homesite access roads within the forestlands for regular maintenance and repair activities

Voting Results

Option B: Do You Support Goals?	
Yes	20
No	4
Somewhat; goals are missing	11
Some goals don't include	0

Option B: Which Recommendations Do You Like?	
Regulatory Support	5
Timber Harvests	2
Feral Horses	4
All	24

None

Option B: What Do Like About Option B?	
Description	4
Goals Supported	4
Recommendations	1
All	18

Community Comments:

- Accommodations for allotments is missing
- Add Economic Development opportunities
- Figure out appropriate increments for plan updates
- Need way for public to track programs
- Enforcement is wishful thinking, sounds like what they need but current NN doesn't have enough revenue to do it; don't have the money to hire officers; need to be more realistic but we do need it so maybe someone will listen
- Consolidation of enforcement agencies so individuals aren't spread so thin, streamline
- Addressing feral horses should be in all 3 options
- Eating horse is not as predominant as it once was, if it's tradition, where is it?

- Doesn't like option except horse management
- Only 3 compliance officers for all NN; need one for each Chapter (115) especially for wood hauling
- Add Education & Outreach to get involvement of community
- Include land stewardship
- How feasible is this option without funding?
- Inconsistency among areas and between governments
- Need to know how to handle burial sites
- Lot of people hold on to the past
- People don't know the difference between live and dead trees
- Education needs to be part of enforcement
- Need more official signs
- Need to limit wood hauling during hunting season, too many chain saws scare animals away
- Increase cost of permits to pay for officers for those making money from wood hauling
- Want action
- Need to restore the damaged areas, reseed the burn area
- Losing wildlife habitats, ecosystems and wetlands
- I've been trying to get my mother's grazing permit handed down to me; it is very difficult to obtain it. However, there is no enforcement concerning the grazing permit, sheep numbers and transferring the permit when it's not being used, (deceased owner)
- There is also a need to consider Air Quality
- Update the regulations, laws and tribal codes concerning resources

Option C: Culture, People and Partnerships

Description:

Management Option C places the Navajo people's needs for infrastructure, employment, information and community development as the priority for its management approach.

Emphasizes protection of it cultural resources, heritage and history.

Emphasizes strategic partnerships and coordination opportunities across government agencies.

Goals Supported:

- Strengthen the preservation and incorporation of Navajo culture, traditional ways and values
- Create economic development opportunities
- Balanced recreation development with sound management of areas
- Improve communication and coordination between NN Departments and BIA/Federal Government
- Provide an adequate, safe water supply for people, livestock and wildlife to ensure water security for the future
- Increase rangeland management to ensure adequate grazing for wildlife and livestock
- Provide education and outreach to Community

Recommendations:

- Update and adopt the Forest Management Plan; schedule updates for every 5-years
- Water infrastructure and water quality improvements to provide stable water supply for people, plants and animals
- Introduce land use zoning and permitted uses within different zones – apply to all local government chapters
- Road maintenance to support infrastructure needs -determine critical infrastructure projects that are needed to support communities – water security, food security, jobs, food desert
- Create funding opportunities/grants to facilitate development of local infrastructure improvements at the Chapter level
- Develop regularly monthly meetings and communication protocols between BIA departments & Navajo DNR departments to coordinate resource management planning and project implementation
- Provide communities with contact information of authorities to improve communication between Chapters/local officials and NN Departments. Include emergency phone numbers
- Improve relationships with local Chapters with regular communication of policies and upcoming activities
- Understand local Chapter desires for future community and economic development for possible mutual benefits
- Create a centralized GIS data sharing system with reporting and open data requirements for DNR & BIA departments. Utilize foundation developed through the Navajo Nation Land Department
- Inventory of cultural resource sites & medicinal plants. Develop method for sharing and educating local communities about protection of places, traditions and sensitive areas
- Develop educational curriculum to increase understanding of resource use impacts and conservation measures
- Provide ongoing skills & safety training to resource department personnel to increase ability to respond to changing conditions, industry trends and management of extreme events associated with natural hazards and climate change
- Conduct dry farming education classes in communities to encourage personal and local food production. Revise farm permit system to accommodate new farmers
- Establish educational programs for the teaching of cultural/traditional ways to younger generations for the protection of cultural and natural resources
- Improve lake conditions to reintroduce trout populations for fishing opportunities
- Establish localized hunting permit quotas to allow for variations in wildlife populations
- Develop and maintain areas for recreation opportunities including picnicking, hiking and camping
- Work with communities to control homesite development to minimize impact to forestland

Voting Results

Option C: Do You Support Goals?	
Yes	13
No	4
Somewhat;goals are missing	15
Some goals don't include	3

Option C: Which Recommendations Do You Like?	
Cultural Resource Protection	1
Comm & Infrastructure Development	0
Education & Outreach	3
All	19
None	1

Option C: What Do Like About Option C?	
Description	3
Goals Supported	3
Recommendations	2
All	15
Nothing	2

Community Comments:

- Add Chapters to communications between DNR and BIA
- Include enforcement
- Have adaptive plans to create balance as things change
- Include some active forest management
- Feels like this one is most holistic as it includes the community benefits
- Option seems to qualitative, not quantitative like Option A
- Repeat of the past
- Improve the forest for a purpose, increase its value
- Have bottom up management from the people
- Adding people into forestlands through recreation doesn't fit, need recovery/conservation first, recreation has too many negative impacts
- No sawmill as part of Economic Development, support low impact ED but not high impact

All Options Presented

Finally, the community was asked to vote for the management option that best met the goals that they personally held for the management of the forestlands.

Which Option Meets Your Goals Best?	
Option A	4
Option B	7
Option C	2

Mix	12

Community Comments:

- Management should depend upon severity of problems
- Do Option A for a certain amount of time, then add B; Option C: can later add economic development and recreation; phased approach
- Option A is good for the people since it takes forest health into consideration but include the people
- Don't polarize people, mix options
- Need to narrow perspective

General Community Comments:

- Need to make users accountable
- Have a shared agreement to manage land between users, allotted users and NN; include all for true land stewardship
- Timber sales on allotted lands needs to go through BIA
- Need fire hazard and protection program
- Appears that there is no current management
- Need to include feral horses
- Address pinon harvests: people cut trees and make roads
- It's good that the tribe is asking the people
- To do enforcement, include community through education and outreach, law enforcement must participate
- Enforcement needs to protect all the natural resources
- Why are woods in central NN part of project? No CFI plots, not solid woods
- Mt Powell was really devastated, people have cleared out all the dead trees, now harvesting green trees, very few seedlings left; only see livestock, no wildlife
- Need replanting to have trees for children
- Central area – Black Mesa – is main watershed, good area to grow seedlings as coal mines shut down, need economic opportunity
- Should have data on Black Mesa because lots of mining activities for years, leaving it out is big disservice
- Watershed is most important issue
- Need to get past strategy and into implementation
- Lots of people used to use area but many places have been abandoned
- NN needs to really have an accurate inventory
- People still claim land as theirs
- People don't build Hogans anymore because no product and must have homesite lease, educate people
- Hard to get information about areas, like maps
- Improve efficiency of process: takes too long to get clearances
- No one in Water works on Watersheds, makes it hard to address water issues, need to make Water Dept. full department and fill gaps
- Must define what is in the IRMP for the people
- Need to change mindset of people that they can do things for themselves, Navajo Pride

- People use burials to claim piece of land for themselves
- Customary use more of a Chapter issue, not part of NN codes and ordinances but recognized in courts
- Have laws that don't allow burials on homesites; burials must be in designated areas
- Need consequences because people resist change
- Not overcutting forests because forest is growing, most firewood cutting is in woodlands, overcut where the roads are, if open areas for cutting, do it where trees are thick, probably introduce issues like trash
- Livestock: have 563K, 186K is what land can carry, Over by 337K
- Eastern Agency has lots of fencing, takes care of permits when renewed, limit animals, only 1000 over
- Combine Option A&B with Education and Communication
- Should use the lands but do it well and thoughtfully
- How does the IRMP link together with the Navajo Forestry 10-Year Plan?

EXHIBIT B

Document No. 011482 Date Issued: 11/15/2018

SECTION 164 REVIEW FORM

Title of Document: Draft Navajo Forestlands IRMP Contact Name: BECENTI, ALEXIOUS CHARLES

Program/Division: DIVISION OF NATURAL RESOURCES

Email: acbecenti@navajo-nsn.gov Phone Number: 928-729-4007

Division Director Approval for 164A:

Check document category; only submit to category reviewers. Each reviewer has a maximum 7 working days, except Business Regulatory Department which has 2 days, to review and determine whether the document(s) are sufficient or insufficient. If deemed insufficient, a memorandum explaining the insufficiency of the document(s) is required.

Section 164(A) Final approval rests with Legislative Standing Committee(s) or Council

			Sufficient	Insufficient
☒	**Statement of Policy or Positive Law:**			
	1. OAG:	Date: 12/4/18	☒	☐
☐	**IGA, Budget Resolutions, Budget Reallocations or amendments: (OMB and Controller sign ONLY if document expends or receives funds)**			
	1. OMB:	Date:	☐	☐
	2. OOC:	Date:	☐	☐
	3. OAG:	Date:	☐	☐

Section 164(B) Final approval rests with the President of the Navajo Nation

☐	**Grant/Funding Agreement or amendment:**			
	1. Division:	Date:	☐	☐
	2. OMB:	Date:	☐	☐
	3. OOC:	Date:	☐	☐
	4. OAG:	Date:	☐	☐
☐	**Subcontract/Contract expending or receiving funds or amendment:**			
	1. Division:	Date:	☐	☐
	2. BRD:	Date:	☐	☐
	3. OMB:	Date:	☐	☐
	4. OOC:	Date:	☐	☐
	5. OAG:	Date:	☐	☐
☐	**Letter of Assurance/M.O.A./M.O.U./Other agreement not expending funds or amendment:**			
	1. Division:	Date:	☐	☐
	2. OAG:	Date:	☐	☐
☐	**M.O.A. or Letter of Assurance expending or receiving funds or amendment:**			
	1. Division:	Date:	☐	☐
	2. OMB:	Date:	☐	☐
	3. OOC:	Date:	☐	☐
	4. OAG:	Date:	☐	☐

Pursuant to 2 N.N.C. § 164 and Executive Order Number 07-2013

NAVAJO NATION DEPARTMENT OF JUSTICE

☐ RESUBMITTAL

DOCUMENT REVIEW REQUEST FORM

RECEIVED NOV 16 2018 DEPARTMENT OF JUSTICE RECEPTIONIST DESK

DOJ
11/16/18 4:27p.m
DATE / TIME
☐ 7 Day Deadline
DOC #: 011482
SAS #:
UNIT: NRU

*** FOR NNDOJ USE ONLY - DO NOT CHANGE OR REVISE FORM. VARIATIONS OF THIS FORM WILL NOT BE ACCEPTED. ***

CLIENT TO COMPLETE

DATE OF REQUEST:	11/15/2018	DIVISION:	Natural Resources
CONTACT NAME:	Alexious C. Becenti	DEPARTMENT:	Navajo Forestry
PHONE NUMBER:	928-729-4007	E-MAIL:	acbecenti@navajo-nsn.gov

TITLE OF DOCUMENT: *Draft Navajo Forestlands Integrated Resource Management Plan Document No. 11482*

DOJ SECRETARY TO COMPLETE

DATE/TIME IN UNIT: 11/16/18 5:00 pm REVIEWING ATTORNEY/ADVOCATE: Robert M. 11/29/18

DATE TIME OUT OF UNIT: 12/4/18 410 AM

DOJ ATTORNEY / ADVOCATE COMMENTS

sufficient

REVIEWED BY: (*Print*)	Date / Time	SURNAMED BY: (*Print*)	Date / Time
Robert Medina	12/4/18 1125	VBlackhat	12/4/18 1:20pm

DOJ Secretary Called: Jerry for Document Pick Up on 12/4/18 at 408pm By: MM

PICKED UP BY: (*Print*) DATE / TIME:

NNDOJ/DRRF-July 2013

RECEIVED DEC 5 2018 NAVAJO FORESTRY DEPARTMENT

THE NAVAJO NATION

RUSSELL BEGAYE PRESIDENT
JONATHAN NEZ VICE PRESIDENT

MEMORANDUM

TO: **ALL Departments Manager**
Division of Natural Resources

Bidtah N. Becker, Division Director
Division of Natural Resources

DATE: November 16, 2018

SUBJECT: Delegation of Authority

Please be advised that Rowena Cheromiah, Minerals Royalty/Audit Manager, Division of Natural Resources is hereby given the authority to oversee activities of the Division of Natural Resources, starting at 8:00 am, Friday, November 16, 2018 and ending 5:00 pm Friday, November 16, 2018.

Rowena Cheromiah, Minerals Royalty/Audit Manager is responsible for reviewing all documents and for directing and signing off on routine duties except for those that she feels needs my attention.

Your cooperation with, Ms. Cheromiah is appreciated. Should you have any questions, please contact me.

ACKNOWLEDGED:

Rowena Cheromiah, Minerals Royalty/Audit Manager
Minerals Department
Division of Natural Resources

THE NAVAJO NATION

Navajo Forestry Department

P.O. Box 230 Fort Defiance, Arizona 86504 • 928.729.4007 • Fax 928.729.4225

Russell Begaye
President

Jonathan Nez
Vice-President

November 15, 2018

M E M O R A N D U M

TO : **ALL 164 Reviewers**
Navajo Nation Government

FROM : **Alexious C. Becenti, Sr.**, *Forest Manager*
Navajo Forestry Department
Division of Natural Resources

SUBJECT : **Document No. 11482 – Draft Navajo Forestlands Integrated Resource Management Plan**

The Navajo Forestry Department [DEPARTMENT] requests your assistance. Attached herewith for review is the *Draft Navajo Forestlands Integrated Resource Management Plan {Forestlands IRMP]* that was developed for the Navajo Nation. This document is a strategic planning document that sets the foundation to guide future natural resource management plans being developed within the areas specified within the document.

The Department wishes to present this *Draft Forestlands IRMP* to the Resources and Development for their approval to make this a finalized document that can be utilized for future resources management planning.

Your assistance in reviewing 164 Document No. 11482 for sufficiency is greatly appreciated. Should you have any additional questions and/or comments, do not hesitate to contact our office at tribal ext. 4007.

Attachment: Draft Forestlands IRMP with Appendices

cc: Navajo Forestry Department Files

RESOURCES AND DEVELOPMENT COMIMTTEE
Special Meeting
December 31, 2018

ROLL CALL
VOTE TALLY SHEET:

Legislation # 0433-18: An Action Relating to Resources and Development Committee; Approving the Navajo Forestlands Integrated Resources Management Plan for the Navajo Nation. *Sponsor: Honorable Benjamin Bennett*

NOTE: Walter Phelps signed on as co-sponsor.

MAIN MOTION:

M: Walter Phelps S: Davis Filfred Vote: 2-1-0 (CNV)
YEAS: Walter Phelps and Leonard Pete
NAYS: Davis Filfred
EXCUSED: Benjamin Bennett and Jonathan Perry

Date: December 27, 2018 – Special Meeting
Meeting Location: Navajo Nation Council Chambers, Window Rock, Arizona
MOTION TO TABLE: Davis Filfred S: Walter Phelps Vote: 4-0-1(CNV)
YEAS: Benjamin Bennett, Walter Phelps; Jonathan Perry and Davis Filfred
NAYS:
EXCUSED: Leonard Pete

MAIN MOTION: Walter Phelps Second: Davis Filfred

Honorable Alton Joe Shepherd, Presiding Chairman
Resources and Development Committee

Shammie Begay, Legislative Advisor
Office of Legislative Services