

## Record of Decision

### Navajo Nation Integrated Weed Management Plan U.S. Department of the Interior BIA Navajo Regional Office

- AGENCY** Bureau of Indian Affairs, Navajo Regional Office
- ACTION** Record of Decision for the Navajo Nation Integrated Weed Management on Navajo Trust Land and Navajo Indian Allotments in Arizona, New Mexico, and Utah.
- SUMMARY** In 2012, the Bureau of Indian Affairs determined the need for an integrated weed management plan to use science-based strategies to monitor and control noxious weeds. Development of a region-based plan would allow the BIA to streamline planning, participate in large-scale cooperative projects, and apply for project funding through various organizations. The impacts of a region-wide integrated weed management plan were analyzed through a programmatic environmental impact statement (PEIS) due to the size and complexity of implementing weed projects on the Navajo Nation. The Draft PEIS was issued for public review on October 29, 2021. The Final PEIS was issued for public review on September 2, 2022. The documents analyzed the potential effects of various weed treatment methods on the human environment for the Navajo Nation. With the issuance of this Record of Decision (ROD), the BIA announces that Alternative 2, is the action to be implemented. The BIA decision is based on its review of the Draft PEIS, the Final PEIS, and comments received from the public, federal agencies, state agencies, the Navajo Nation, and local governmental entities.

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## 1.0 Introduction

### 1.1 Summary

In 2012, the Bureau of Indian Affairs (BIA) began development of an integrated weed management plan to improve coordination and prioritization of weed management projects using science-based strategies to control and reduce noxious weeds. The Proposed Action would authorize annual treatments of weed infestations on the Navajo Nation using an integrated management plan. The various methods analyzed for the plan include manual, mechanical, cultural, chemical, and biological control methods. Initial treatments would focus on areas where current weed inventories indicate a prevalence of noxious weeds including roads, riparian areas, utility and road rights-of-way, designated farmland or croplands, designated rangeland or range units, and Community Development Areas. The Final Plan encompasses a 10-year period with a project review after five years.

Since the Plan would encompass the entire Navajo Nation, with the ability to plan and implement projects in areas yet to be identified, the BIA prepared a programmatic environmental impact statement (PEIS) pursuant to the National Environmental Policy Act (NEPA) under the direction and supervision of the BIA Navajo Regional Office. The BIA issued the Draft PEIS for public review and comment on October 29, 2021. During the public review period, the BIA held five virtual public hearings to present the Draft PEIS and take comments and questions from attendees. The BIA also accepted comments via email, fax, mail, and through a website comment form. After consideration of comments received during the public comment period, the BIA issued the Final PEIS on September 2, 2022. The Draft and Final PEIS evaluated three alternatives that would meet the purpose and need for the Proposed Action, analyzed the potential effects of those alternatives, and identified feasible mitigation measures.

With this ROD, the BIA has determined that Alternative 2 would best meet the purpose and need for the Proposed Action. The BIA's decision is based on a thorough review and consideration of each of the alternatives and their potential impacts to resources on the Navajo Nation as assessed in the Draft and Final PEISs, the administrative record, and comments received from federal, state, and tribal government agencies, and the public.

### 1.2 Project Location

The Navajo Nation Integrated Weed Management Plan (NNIWMP) addresses weed management needs for lands under the direct administration of the BIA Navajo Regional Office and includes all Navajo Indian Allotments and Navajo Trust Lands. The Navajo Nation covers approximately 16.3 million acres across northeastern Arizona, southeastern Utah, and northwestern New Mexico. The BIA manages trust responsibilities for these lands under the Navajo Region, which is divided into six BIA agency areas:

- Western Navajo Agency
- Eastern Navajo Agency
- Fort Defiance Agency
- Shiprock / Northern Navajo Agency
- Chinle / Central Navajo Agency
- Navajo Partitioned Lands

The Navajo Partitioned Lands are unique as they manage natural resource concerns within the Former Joint Use Area awarded to the Navajo Nation. Weed management activities conducted in the New Lands area are also included. While New Lands is currently managed by the Office of Hopi and Navajo Indian Relocation, it may come under BIA in the foreseeable future. Additionally, there are approximately a million acres of land that may be in transition from allotment or trust lands on the Navajo Nation as part

of the Land Buy-Back Program, where the federal government purchases land from allottees and returns them to Tribes.

### 1.2.1 Priority Weed Management Areas

While weed management may occur anywhere on the Navajo Nation, the following areas are identified as priority weed management areas. Weeds currently cause serious problems in these areas and the BIA Navajo Region's Noxious Weed Program has identified several projects in similar sites.

- Roads
- Riparian areas
- Community Development Areas
- Rights-of-way
- Designated rangelands
- Designated farmlands
- Commercial farmlands

### 1.3 Purpose and Need for Weed Management

Under 54 Indian Affairs Manual (IAM) 7, the BIA has a responsibility to manage noxious weeds on the Navajo Nation. Noxious weeds impact every habitat on the Navajo Nation, affecting the economic, historic, and cultural livelihood of the Navajo people. Noxious weeds can alter soil temperature, soil salinity, water availability, nutrient cycling and availability, native seed germination, water infiltration, and precipitation.

The purpose of weed management is to manage 45 noxious weed species on the Navajo Nation through an integrated management approach that combines treatment methods to improve their effectiveness. Control of the priority weed species will improve ecological function by increasing native plant productivity and diversity, preventing further noxious weed spread, and enhancing wildlife habitat.

### 1.4 Cooperating Agencies

The following entities served as cooperating agencies for this project, providing technical guidance for weed management planning and implementation. The starred agencies (\*) intend to conduct weed management on the Navajo Nation under the NNIWMP in their area of jurisdiction:

- Arizona Department of Transportation\*
- Bureau of Land Management
- DOI National Park Service
- Navajo Nation\*
- Navajo Nation Soil and Water Conservation Districts\*
- USDA Animal and Plant Health Inspection Service\*
- USDA Natural Resources Conservation Service\*
- Utah Department of Transportation\*
- San Juan Soil and Water Conservation Districts\*

### 1.5 Public Involvement

The Proposed Action requires compliance with the National Environmental Policy Act (NEPA), 43 C.F.R. Part 46. The BIA issued the Notice of Intent (NOI) for the Navajo Nation Integrated Weed Management Plan on January 14, 2013 (78 Fed. Reg. 2685) describing the Proposed Action, announcing its intent to prepare an EIS for the Proposed Action, and inviting public and agency comments. The

comment period was open until February 28, 2013, with five public scoping meetings held at Chapter Houses in Crownpoint, NM; Shiprock, NM; Chinle, AZ; Fort Defiance, AZ; and Tuba City, AZ. The scoping period was extended until March 20, 2013, after the BIA issued an NOI to Extend the Comment period, published in the Federal Register on March 8, 2013 (78 Fed. Reg. 15039), with additional meetings held in Kayenta, AZ; Many Farms, AZ; Pinion, AZ; and Window Rock, AZ. The Scoping Report summarizes major issues and concerns identified in the comments received during the scoping process. The BIA considered the scoping comments when developing project alternatives and the PEIS analysis.

The BIA circulated an administrative version of the Draft PEIS to the cooperating agencies in August 2015 for review and comment. The BIA considered comments and revised the Draft PEIS as appropriate. Due to unforeseen delays, the BIA was unable to release the Draft PEIS at the time. On April 29, 2021, the BIA opened an additional 30-day public scoping period ending on May 29, 2021, through the release of a public notice on its website. This was done to update public feedback when the project was restarted in 2019. The BIA published the Notice of Availability (NOA) for the Draft PEIS in the *Federal Register* on October 29, 2021 (86 Fed. Reg. 60065) to start the 45-day public review period. The NOA provided information concerning the Proposed Actions, the public comment period, and public hearings on the Draft EIS. Due to COVID restrictions, the BIA held five virtual public hearings on Zoom. The hearings were held at the following dates and times:

- Monday, November 15, 2022, at 10:00 am
- Tuesday, November 16, 2022, at 10:00 am
- Wednesday, November 17, 2022, at 6:00 pm
- Thursday, November 18, 2022, at 6:00 pm
- Saturday, November 20, 2022, at 10:00 am

The BIA considered comments received during the Draft PEIS comment period, including those recorded during the public hearings, in preparing the Final PEIS. The BIA revised the Final PEIS as appropriate to address those comments. The BIA published the NOA for the Final EIS in the *Federal Register* on September 2, 2022 (87 Fed. Reg. 54241) along with the U.S. EPA's NOA (87 Fed. Reg. 54213). A copy of the Final PEIS is included as Attachment II of this ROD. The comments received during the 30-day waiting period are included in Attachment III of this ROD which ran from September 2, 2022, to October 4, 2022. The BIA received three comments on the Final PEIS. However, none of the comments raised objections to the analysis or the BIA making a decision on for this action.

## 1.6 Issues

During scoping and the public review of the Draft EIS, a few issues were raised by the public and the cooperating agencies. Each of the alternatives considered in the FEIS was evaluated relative to these and other issues. The most substantive issues were:

- Potential impacts to native plants and wildlife from the use of biological control agents.
- Water resources, including ground and surface water quality from the use of herbicides
- The role of grazing in the introduction, spread, and efficacy of noxious weed treatments
- Human health impacts related to the application and concentration of herbicides used

## 2.0 Analysis of Alternatives

### 2.1 Alternatives Considered

The BIA considered several possible alternatives to meet the purpose and need for the Proposed Action in the EIS. These considered the best management options based on species, impacts to natural resources, concerns regarding herbicide and biological control agents, and the geographic distribution of weeds. Alternatives other than the No Action Alternative were screened based on three criteria: 1) extent to which the alternative meets the purpose and need for the Proposed Action, 2) feasibility, and 3) ability to reduce environmental impacts.

#### 2.1.1 Alternative 1 – No Action Alternative

Under the No Action Alternative, the BIA would continue its current approach for the Navajo Region's noxious/invasive weed management program. Under this alternative, projects are developed on a case-by-case basis, often in a reactionary manner based on land user concerns. Projects would address 21 noxious weed species prioritized by the BIA in 2009. These species were selected based on species included in previous requests for project funding for the Navajo Region. Based on previous project data, projects could treat anywhere from 200 to 4,000 acres annually with most treatments using mechanical and chemical methods and ad hoc use of manual and cultural methods. Mitigation measures would be developed separately for each project with individual NEPA, ESA, and Section 106 compliance processes. Prevention of weed infestations through early detection and rapid response measures would not be addressed. Monitoring and mapping work to detect new populations or evaluate the success of projects would also be done on an ad hoc basis.

#### 2.1.2 Alternative 2 – Proposed Action

Alternative 2 would prioritize the treatment of 45 noxious weed species, which expands the current BIA list to include several problematic range and riparian weeds. Treatments could occur on up to 50,000 acres, to leverage the BIA's resources with other agencies, partners, land users, and neighboring lands. The Alternative establishes priority weed management areas, which are land use types where most weed infestations occur. These include community development areas, roads, rights-of-ways, designated rangeland, designated and commercial farmland, and riparian areas. Weeds would be treated with a combination of chemical, mechanical, manual, cultural, and biological control methods. The plan provides coverage for 21 U.S. EPA approved herbicides and 33 USDA APHIS approved biological control agents. Project planning would use a standardized process to address potential impacts to natural resources, human health, and cultural resources by preparing a tiered site-specific EA and using a standardized Section 106 process. All projects will also abide by standard mitigation measures to protect, water, human health, protected plant and animal species, soils, and air (Attachment I). If projects abide by the mitigation and avoidance measures outlined for federally and tribally listed species, project-specific biological assessments are not required. However, surveys will be conducted to determine where to place species-specific avoidance measures to avoid adverse effects (Attachment IV). Alternative 2 also includes early detection and rapid response measures to prevent new weed infestations. Monitoring of projects is recommended annually to evaluate project success and to adaptively manage weeds based on project outcomes. Periodic weed mapping is recommended in priority weed management areas every 5-10 years to evaluate changes in existing populations and document new infestations not previously detected.

#### 2.1.3 Alternative 3 – No Biological Control

Alternative 3 would exclude the use of biological control agents on the Navajo Nation. Eliminating the use of biological control agents would limit treatments to no more than 45,000 acres per years, while still allowing the BIA to leverage resources with other agencies, partners, land users, and neighboring lands.

Alternative 3 was developed at the request of the Navajo Nation Department of Fish and Wildlife out of concern that biological control agents could negatively impact endangered species and related native plants. While rare, there are documented cases where biological control agents switched host plants to native plant species and where they indirectly impacted listed species by altering the availability of resources (Louda et al., 2003). Alternative 3 includes the same mitigation and species-specific avoidance measures included in Alternative 2 except for those specific to biological control agents, along with project monitoring and periodic weed mapping to evaluate changes in existing populations and documentation of new infestations.

## 2.2 Alternatives Eliminated from Detailed Analysis

The BIA considered but eliminated from detailed study two alternatives. The first alternative, Alternative 4, would have excluded herbicide use for treating weeds. This alternative was originally developed during scoping and requested by the Navajo Nation Department of Fish and Wildlife (NNDFW). However, excluding the use of herbicides would significantly reduce the number of areas treated annually and reduce the effectiveness of treatments. Without herbicides, the costs for weed management would increase and become economically and technically impractical. Herbicides can treat large areas and can increase the effectiveness of treatments when used under an integrated approach, which pairs chemical treatments with other weed treatment methods. Additionally, weed projects are more likely to receive funding when chemical treatments are included as part of integrated weed management. Excluding herbicides would likely increase noxious weeds on the Navajo Nation, failing to meet the purpose and need of this project.

The second alternative, Alternative 5, would address noxious weeds through grazing management. This alternative was developed in response comments received during public scoping. As a result, overgrazing resulted in degraded rangelands where noxious weeds could spread. While grazing management is an important issue on the Navajo Nation, it would not adequately address weed management on the Navajo Nation. Weeds are not exclusive to rangelands as problematic populations also exist in riparian habitats, farmlands, along roads and rights-of-way, and in developed areas. Rangeland management would not address weed populations in these areas. While the weed management alternatives proposed do include some rangeland-specific methods as part of cultural treatment methods, such as rangeland deferment and native plant restoration, rangeland practices alone will not adequately address many of the priority noxious weeds. Studies indicate that deferment alone may not be sufficient to reduce the cover and density of noxious weed species, especially in areas where native seedbanks are no longer present (Davies et al. 2014, Briske et al. 2011, Young and Mangold 2008, Harris 1967, Melgoza et al. 1990). As a result, Alternative 5 was dismissed from further analysis as it did not meet the purpose and need of the project.

## 3.0 Preferred Alternative

For the reasons discussed below and in the Final PEIS, the Navajo Region has determined that Alternative 2, which would implement the full Navajo Nation Integrated Weed Management Plan, is the agency's Preferred Alternative because it best meets the purpose and need for the Proposed Action. Of the alternatives evaluated within the PEIS, Alternative 2 would best meet the purpose and need of the Proposed Action by providing a wider range of management options, including passive weed management with APHIS-approved biological control agents, and providing the means for the BIA to manage and monitor areas impacted by these organisms.

Under Alternative 2, the BIA would have the widest range of weed management options to address the priority weeds on the Navajo Nation. While most other treatment options would be available under Alternative 3, there is the potential for some biological control agents to already exist on the Navajo

Nation, as some neighboring entities have implemented projects using agents in areas near the Navajo Nation. Under Alternative 3, the BIA would be unable to monitor, transport, or manage these organisms or address collection and transportation needs from such areas. Alternative 2 would provide the BIA the methods and means to monitor biological control agents along with their effectiveness when combined with other control methods. Use of biological control would also be conducted in consultation and coordination with NNDFW and USFWS.

Use of biological control methods would also reduce project costs as the use of agents is free through the USDA APHIS program and most costs are related to travel and staff time to monitor and transport agents between project sites. Biological control programs are designed to release the organisms in specified areas and then allow them to consume and use the plants, slowing limiting their growth and reproductive potential. Over time, the plants lose their competitive advantage in treated areas with limited impacts to surrounding vegetation. This allows for passive control of target species with reduced costs and resource investments. When paired with other treatments, biological control can increase the effectiveness of other control methods by increasing stress on the target species.

Additionally environmental impacts under Alternative 3 would be slightly higher. Alternative 3 would require more active control methods, such as herbicide use, mechanical removal, or manual removal, for projects where biological control could be used which could increase impacts to soils, water, native vegetation, and/or livestock and increase direct project costs for personnel, equipment, and supplies. Ultimately, Alternative 2 best meets the purpose and need of the Proposed Action while having lower impact risks for soils, native vegetation, livestock, and project costs as a result, with most impacts addressed through the mitigation measures adopted in this ROD.

## 4.0 Environmental Impacts

### 4.1 Paleontological Resources

The proposed action could impact below-ground fossils and paleontological resources if ground-disturbing equipment is used, such as bulldozers or tillers. Prescribed burning may also affect resources on the surface or close to the surface, resulting in cracking or breaking. Herbicides have the potential to stain or damage surface fossils. Manual, cultural, and biological control methods have the lowest potential for negative impacts. While some methods may disturb surface fossils, they are not likely to damage such resources. Such impacts would have been highest under Alternative 1. Surveys and clearance for paleontological resources are required by the Navajo Nation Minerals Department for all weed projects under Alternative 2 and would have been required for Alternative 3 to avoid and reduce potential impacts to such resources. Surveys would identify surface fossils prior to treatments to allow for proper protection and avoidance measures. Use of biological control methods, included under Alternative 2, allows for passive treatment of weeds in such areas without the risk of damage to fossils in these areas.

### 4.2 Cultural Resources

The proposed action could impact cultural resources by uncovering or damaging surface or sub-surface artifacts or by removing or damaging nearby traditional cultural properties such as plant collection sites. Alternative 1 would have had the risk of such impacts due to inconsistent monitoring and mitigation. Under Alternative 2, ethnographic studies and cultural resource surveys per the Navajo Nation's cultural resource clearance process are required and were also included for Alternative 3. Ethnographic studies with the local community would identify culturally important plant collection sites and work with communities to identify treatment alternatives and ways to avoid or reduce impacts to these important

sites. Cultural resource surveys would identify and document artifacts and resources within the treatment sites so avoidance measures can be implemented to protect them.

### 4.3 Soils, Water, and Air

#### Soils

The proposed action would affect soil resources in the short-term as the removal of weed populations and the use of manual and mechanical methods can disturb soils and increase erosion in treated areas. Such impacts were highest under Alternative 1 due to inconsistent mitigation measures and planning. The use of targeted grazing, as included in Alternatives 2 and 3, could also increase erosion in areas where livestock are used to consume large stands of weeds. However, the native plant restoration work required under both Alternatives would improve soils over time by stabilizing soils and increasing soil organic content. Further, the use of biological controls under Alternative 2 would result in a lower risk of soil erosion as control agents do not affect the roots of the target weeds, thus maintaining soil stability while reducing plant vigor and growth.

#### Water

The proposed action could affect both ground and surface water quality. Mechanical, manual, active plant restoration, and targeted grazing control methods can increase the risk of water turbidity as erosion increases near water when weeds are removed. Chemical methods increase the risk of chemical contamination to open surface water and shallow ground aquifers in some areas. These risks were highest under Alternative 1 due to inconsistent planning and coordination with NNEPA and a lack of monitoring to determine impacts to water quality. Under Alternatives 2 and 3, erosion control measures near open water are required, along with several limitations on the use and application of the approved herbicides. Only U.S. EPA aquatic-approved herbicides can be used within 25 feet of open water and wells and for aerial applications, while only non-toxic herbicides can be used within 300 to 25 feet of open water. All other herbicides require a minimum buffer of 300 feet from open water to reduce the risk of contamination. Mechanical methods, along with targeted grazing, require a buffer of 200 feet from open water to comply with the Navajo Nation EPA's water quality buffer zones. The least impactful methods, biological control, and manual control are both only included under Alternative 2 and have the least impacts to water quality and erosion.

#### Air

All alternatives could impact air quality in and near treatment sites. While travel to and from sites would result in carbon emissions and road dust, there would be little variation between Alternatives. Prescribed burning has the most potential to impact air quality, as the resulting smoke increases common air pollutants, such as carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), and particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>). However, all Alternatives must follow the BIA's current protocols for planning burns, which includes smoke modeling, development of a burn and smoke management plan, and coordination with Navajo Nation EPA Air Quality Program and regional fire support programs. These measures can reduce potential emissions and inform the public about potential air quality issues related to burning projects.

Aerial herbicide applications have a greater potential for spray drift than ground-based application methods, increasing the risk to native vegetation in areas near treatment sites. Under Alternatives 2 and 3, all herbicide applications must consider weather conditions, such as humidity, air temperature, and wind speed, to reduce the potential for drift. Additionally, aerial applications must monitor and document where herbicide is applied and abide by buffers for native plant communities.

Greenhouse gas emissions were also analyzed to determine if there were any significant differences in emissions between Alternatives. The analysis indicates that while there are some emissions related to the



use of various weed treatment methods, emissions under Alternatives 2 and 3 would only be slightly higher than current emissions. However, the restoration of native plant communities could reduce carbon losses for some projects through increased carbon sequestration. Ultimately, the use of biological control under Alternative 2 would have the least impact on greenhouse gas emissions as agents have little to no effect on emission or sequestration rates.

#### 4.4 Vegetation

The proposed action could significantly impact vegetation, as the treatments used on noxious weeds can have similar impacts on native plants at treatment sites and neighboring areas. Negative impacts include damage from herbicides, uprooting or damaging nearby native plants, and trampling from increased traffic at project sites. Of greatest concern are federally and tribally listed plant species that are protected under the federal Endangered Species Act and the Navajo Nation Endangered Species Act. Under Alternative 1, inconsistent mitigation measures, coordination, and avoidance measures increase the risk of impacting native and protected vegetation. Under Alternatives 2 and 3, standard mitigation and avoidance measures must be used for all projects. Surveys are required for all projects to determine if protected species occur within or near projects along with standardized avoidance buffers to avoid and minimize damage to these species during treatments. All projects are also required to restore native vegetation, which would improve native plant cover and diversity at treated sites. The use of biocontrol under Alternative 2, however, would reduce potential impacts to native or desired plant species, as the proposed agents have shown no signs of preferring or using native plants in areas where they have been released. When paired with other weed control methods, biological control can also reduce the duration and intensity of more impactful methods, such as mechanical or chemical treatments, while increasing the effectiveness of these control measures.

#### 4.5 Wildlife

##### Terrestrial and Aquatic Wildlife Species

No direct treatments will occur in aquatic habitats as the proposed action focuses on terrestrial weed species. While the priority weed management areas receive frequent disturbance, they may also provide wildlife habitat, particularly in riparian areas. Weed management treatments, such as mechanical, manual, and cultural treatment methods, would temporarily displace wildlife and cause short-term impacts to fish and aquatic habitats from increased soil erosion and surface runoff. Biological control may affect some nectar plants used by the Great Basin Silverspot butterfly. However, this species relies on a diverse mix of plants, which would return after noxious weeds are removed. Aerial applications may impact wildlife, but this method would only use herbicides approved for aquatic use. Implementing the mitigation measures listed in Attachment I would minimize impacts to terrestrial and aquatic wildlife. Over the long-term, Alternatives 2 and 3 would improve wildlife habitat by increasing cover of native plants while Alternative 1 could increase the risk of negative impacts through inconsistent mitigation and coordination.

##### Hunting and Fishing

Game may be temporarily displaced during treatments. Treatments near fishing sites may improve access for visitors but would not impact aquatic species due to the mitigation measures. There may be temporary increases in soil erosion from mechanical and chemical treatments near fishing sites; however, these would be temporary and have no long-term impacts. Such impacts would be highest under Alternative 1 due to inconsistent mitigation and coordination efforts. Overall, Alternatives 2 and 3 would provide long-term ecological benefits through more palatable, native vegetation and access to fishing areas.

## Terrestrial and Aquatic Wildlife Species – Endangered, Threatened, Proposed, Candidate, and Sensitive Species

The Navajo Nation supports 39 special status terrestrial wildlife species, four of which are also federally listed. These species' habitats are threatened by noxious weeds, which alter structure, breeding and nesting habitat, and food resources. Therefore, implementing noxious weed treatments would improve wildlife habitat. Minimal impacts may occur and are described above in the Terrestrial and Aquatic Wildlife Species section. Listed species have specific species conservation measures that will be employed when completing weed treatments in their habitat. Implementing the mitigation measures listed in Attachment I, as required under Alternatives 2 and 3, would minimize impacts to special status species. Impacts to protected species under Alternative 1 would be higher due to inconsistent mitigation and planning measures and the ability of noxious weeds newly listed under Alternatives 2 and 3 to continue to spread and impact habitat.

## Threatened, Endangered, and Sensitive Fish Species and Designated Critical Habitat

There are seven fish species with special status based on their sensitivity, rarity, and restricted ranges on the Navajo Nation. Five species are federally listed as endangered. There would be no direct impacts to aquatic species since there are no treatments proposed for weeds in aquatic habitats. Treatments may occur adjacent to critical habitat for Colorado pikeminnow, humpback chub, and razorback sucker. Similar to protected terrestrial species, Alternative 1 would have a higher risk of impacting protected fish species due to inconsistent mitigation measures and the continued spread of species not currently listed by the BIA. However, implementing the mitigation measures listed in Attachment I as required under Alternatives 2 and 3, would minimize impacts to special status species.

## Migratory Birds

Noxious weed treatments would impact migratory birds in the short term when treatments are conducted and over the long term as monocultures of noxious weed trees, such as tamarisk or Russian olive, are removed. Some migratory birds use these monocultures for foraging and nesting habitat, but migratory birds would benefit from native species restoration by having more diverse habitat. The lack of native plant restoration and inconsistent avoidance and coordination requirements under Alternative 1 would increase the potential risks to migratory birds. Implementing the mitigation measures listed in Attachment I, as required under Alternatives 2 and 3, would minimize impacts to migratory birds.

## 4.6 Agriculture

### Livestock

The proposed action could impact livestock and rangelands as animals would be removed from treated sites to reduce and avoid negative impacts. Herbicides and mechanical removal methods would be the most likely to affect livestock as herbicide use could have health impacts on animals depending on the herbicide use, the application method, and the frequency of treatments. Mechanical removal could remove forage used by livestock once they are reintroduced to treated sites. Such impacts would likely be higher under Alternative 1 due to inconsistent mitigation measures, deferment periods, and the increased spread of several noxious weeds currently not listed by the BIA. Under Alternatives 2 and 3, if livestock are trained and used for targeted grazing, improper timing or application could harm the animals by ingesting plants at the wrong growth phase. For example, grazing on plants like kochia can increase the amount of sodium oxalates ingested, which can damage the kidneys or rumen walls. Grazing on yellow starthistle or Russian knapweed at later plant growth stages can increase the risk of nigropallidial encephalomalacia, or "chewing disease." Indirectly, improper application of targeted grazing can also increase erosion and reduce native plant cover, reducing forage and carrying capacity in treated sites. Further, treatments using herbicide and/or mechanical methods would use mitigation measures that would reduce the risks of these

impacts by requiring livestock deferment for a minimum of one year or more until native plants are restored at treatment sites. Deferments would also reduce the risks of herbicide exposure and forage impacts on livestock. Targeted grazing also will require adherence to several parameters, such as timing of treatments, fencing and quarantine of animals, and use of trained animals to reduce potentially negative impacts.

The use of biological control would allow for passive reductions of noxious weeds on rangelands and would treat weeds that are largely found in rangelands, such as knapweeds and brome grasses. While biological control agents could be used on a case-by-case basis under Alternative 1, only Alternative 2 would provide consistent guidance and mitigation for their use. This includes monitoring of populations and native plant restoration to improve the growth and cover of more desirable forage as weeds are weakened. Additionally, the use of biological control could reduce project costs, as the BIA would work with APHIS to obtain and place the agents in treated sites for minimal costs. Under Alternative 3, biological control agents would not be permitted and the BIA would need to use other less passive methods to treat the same weed species.

### Farming

Similar to livestock and vegetation, the proposed action could impact farmlands as treatments using herbicide use and mechanical removal could damage crops without proper avoidance or mitigation measures. Under Alternative 1, several noxious weeds that currently impact farmlands would not be treated, such as several annual brome species, kochia, and Russian thistle. There would also be limited coordination and mitigation measures to avoid impacts to crops and native plants. Under Alternatives 2 and 3, mitigations would reduce potential impacts to reduce impacts from herbicide use along with the use of less impactful methods such as manual removal, cultural practices such as crop rotation and use of cover crops, and coordination with related agencies and communities.

### 4.7 Public Health

The proposed action could impact the health of populations living near treatment sites. Most human health risks, however, would be most likely to impact workers who implement the treatments as they have an increased exposure risk. Herbicide use and prescribed burning pose the greatest risk to the general population. Herbicides vary in their risk to human health depending on the toxicity of the active ingredient and formulation. The BIA evaluated the risks of each of the approved herbicides under Alternative 2 by reviewing U.S. EPA data and herbicide risk assessments prepared by the BLM and the U.S. Forest Service. Based on these assessments, herbicides were ranked and sorted based on their toxicity rates and risk to human health. Most of the herbicides currently used under Alternative 1 and those proposed for use under Alternatives 2 and 3 are non-toxic to slightly toxic, posing little to no risk of harmful short- or long-term exposures to the public via oral and inhaled routes. The risk assessments indicate that only paraquat was found to be moderately toxic to humans. Risk of harmful exposures to herbicides would be low under all alternatives, but Alternative 1 could have the highest due to inconsistent mitigation measures and public involvement and a lack of prioritization of herbicides based on human safety risks. Such risks would be reduced through the implementation of mitigation measures for Alternatives 2 and 3, which would provide the public with alternative travel routes around treated sites, limitations on where, when, and how herbicides can be applied to reduce exposure risks, and selection of herbicides based on effectiveness against the target weed species and potential human health risks.

Prescribed burning can affect the general population as any burn operations can impact air quality, with the most impacts affecting communities closest to the burn site. Increased smoke can affect those with

respiratory issues while also hindering visibility. Any prescribed burning operations should be coordinated with NNEPA Air Quality Program, local fire departments, BIA Branch of Forestry, Navajo Forestry Department, and BIA Branch of Fire and Aviation Management to reduce potential safety risks, especially to the public.

Overall, Alternatives 2 and 3 provide more guidance to avoid and reduce potentially harmful impacts to local communities and workers through the outlined mitigation measures. Alternative 1 would develop such mitigations on a project-by-project basis, which could result in inconsistent protection measures.

#### **4.8 Socioeconomics**

The proposed action will affect various socioeconomic factors on the Navajo Nation, both in terms of economic losses and economic opportunities. Weed management could also indirectly affect socioeconomics due to site closures and the use of alternative routes, which could affect access to certain sites and services in some areas. These impacts would vary by alternative. Under Alternative 1, piecemeal weed management projects could result in increased economic losses as fewer species would be treated, with many weeds that currently reduce rangeland productivity not being treated, such as several annual brome grasses, kochia, and Russian thistle. In terms of economic opportunities, funding through the BIA Noxious Weed Program would provide some job opportunities for skilled and unskilled workers.

Under Alternative 2, project could result in short-term economic losses from limited access to treated areas, such as reduced livestock production from prolonged deferment, limited access to sites that may be used for recreation or commerce. Treatments most likely to cause such impacts are those using herbicides, prescribed burning, targeted grazing, mechanical treatments, and native plant restoration. However, passive treatments, like using biological control agents or passive plant restoration, could reduce such impacts by eliminating the need for closures and deferments. In terms of economic opportunities, Alternative 2 would have the same impacts as Alternative 1, with the additional benefits of leveraging Program funds and having more opportunities for more permanent work positions for monitoring and consistent mapping work.

Alternative 3 would have many of the same impacts in terms of economic losses and opportunities. However, project costs for some sites may be higher as treatments would not be allowed to use biological control, which have lower project costs than many of the other treatment methods. This would result in longer deferment periods in rangelands and potentially lengthen the amount of time treatment sites may be closed.

#### **4.9 Environmental Justice**

Weed management through the proposed action would carry the most risks for Navajo residents, with the impacts varying by alternative. Alternative 1 would be the most impactful, as many weeds that currently cause economic damage to rangelands, homesites, watersheds, and agricultural fields would not be treated, resulting in reduced property values and reduced land productivity. Weeds such as Russian thistle can increase damage from wildfire, increasing the risk of property damage and air pollution in nearby communities. If not coordinated by an overarching plan, local community involvement in planning and implementing projects would be inconsistent between projects as such participation is done on an ad hoc basis, based on limited communication protocols. There could also be increased impacts to sensitive plants, surface water and wells, plant collection areas, and customary use areas as mitigation measures intended to protect such sites would be applied inconsistently if at all. Alternative 1 also carries higher

risks for cumulative impacts due to inconsistent coordination and collaboration with neighboring agencies and projects.

Alternatives 2 and 3 would have the least impacts for Navajo residents as mitigation measures would provide consistent consultation and involvement of local communities affected by weed treatments and require notification and coordination with neighboring agencies and communities. Consistent mitigation would also provide protection for sensitive plant and animal species, surface water and wells, and customary use areas. The alternatives also include a requirement for ethnographic studies to identify plant collection areas and to work with communities to identify treatment alternatives to avoid impacting such areas.

#### 4.10 Areas with Special Designations and Uses

For the National Park Service and Navajo Nation Tribal Parks (NNTP), weed management is the joint responsibility shared by these agencies and the BIA on their properties. Weed treatments in these parks are developed in cooperation with the BIA through cooperative management plans. For Forest Management Units, weed treatments would be completed in alignment with the 10-Year Navajo Nation Forest Management Plan. In general, weed treatments would have short-term negative impacts and long-term positive impacts to areas with special designations and uses. The short-term impacts of weed treatments include temporary closures to treated areas, visual impacts from brown or dead vegetation directly after treatments, and increased dust and soil erosion, which would vary depending on the size of the treated area. Temporary closures may lead to lost recreational opportunities, including sightseeing, hiking, and photography. Implementing the best management practices would minimize impacts from dust and soil erosion and other impacts of weed treatments. Under Alternative 1, such areas may have increased impacts due to inconsistent public closures, which could affect recreational opportunities if done for too long or increase public exposure to herbicides if not done for long enough. Alternatives 2 and 3 would provide more consistent planning and mitigation measures to protect the public, improve and balance avoidance measures based on land management concerns, and allow for monitoring of projects.

#### 4.11 Cumulative Impacts

The Proposed Action, when added to past, present, and reasonably foreseeable future actions, does not pose significant impact to environmental resources. Below is a list of projects that were analyzed for cumulative impacts.

##### Roads and Rights-of-ways

Rights-of-way projects include the installation of utility lines and maintenance along railroad tracks. Also, the Navajo-Gallup Water Supply Project is under construction and will convey municipal and industrial water supply from the San Juan River to the eastern section of the Navajo Nation. While these construction projects would increase disturbance and foster weed germination, the Proposed Action would be implemented in these areas to combat weed infestations. Cumulative impacts would be reduced under the Preferred Alternative as coordination between projects would occur between agencies/land managers and best management practices and species conservation measures would be implemented.

##### Vegetation Management

Forest management is planned in five forestland areas, including the Chuska Mountains, Defiance Plateau, Carrizo Mountain, Mount Powell, and Navajo Mountain under the Navajo Nation Forest Management Plan. Forest management includes commercial timber harvesting and non-commercial or pre-commercial thinning. Also, state, and federal agencies implement integrated weed management programs on lands adjacent to the Navajo Nation. Such programs in addition to the BIA's Preferred Alternative have the potential to result in cumulative impacts by increasing erosion, disturbance, and

water quality issues. These cumulative impacts would be reduced by implementing cooperative weed management projects that use consistent best management practices and conservation measures.

### Community Development

Each chapter on the Navajo Nation has developed a Land Use Plan. As Chapters develop and construct new facilities and infrastructure or repair existing ones, such activities impact soils, vegetation, and wildlife. Construction activities remove vegetation, disturb soils, and have temporary noise impacts that could disturb wildlife. If weed treatments are conducted adjacent to community development there may be cumulative impacts from mechanical methods that increase soil erosion and compaction, removal of native vegetation, and noise effects on wildlife. Implementing best management practices and conservation measures will reduce cumulative impacts. Wildlife impacts would still occur; however, they would be short-term.

### Mining Operations and Reclamation

Currently, Navajo Mine is the only active coal mine on the Navajo Nation. In 2014, the Office of Surface Mining and Reclamation and Enforcement (OSMRE) approved the Pinabete Permit Area to expand coal mining on approximately 5,600 acres of the Navajo Mine property. Additionally, there are two approved active leases for sand and gravel mining on Indian trust lands at Emma Brown Pit near Chinle, AZ and one at Wheatfield, AZ. Two more proposed sand and gravel leases are under consideration for the Teec Nos Pos Gravel Pit and Greasewood Spring, AZ. BIA NRO, in cooperation with BLM, proposes development of oil and gas leases on approximately 900,000 surface and mineral estate acres on tribal trust lands and individual Indian Allotments through the Farmington Mancos-Gallup Draft Resource Management Plan Amendment and EIS (BLM and BIA 2020). Recent funding from the U.S. EPA has also been used to reclaim 219 abandoned uranium mines on the Navajo Nation. Additionally, the Office of Surface Mining manages the reclamation of three decommissioned coal mines on the Navajo Nation.

Mining operations, in general, create large amounts of ground disturbance as topsoil is removed from mining sites to access soil and mineral resources beneath the earth's surface. Adjacent areas are also cleared for spoil areas. Active mines are often devoid of vegetation due to heavy ground disturbance and modifications. The topsoil is removed, making them poor sites for native plant establishment even when mine reclamation is implemented, and topsoil may be replaced.

Cumulative impacts from mining and mine reclamation and mechanical weed treatments may increase soil erosion and compaction, disturb native vegetation, increase sedimentation in adjacent drainages, and provide wildlife impacts. Under the Preferred Alternative, cumulative impacts would be minimized as best management practices and conservation measures would be implemented when compared to Alternative 1. Soil erosion and sedimentation in nearby drainages would be minimized with the installation of erosion control structures. Native vegetation would be replanted to stabilize soil, enhance wildlife habitat, and provide livestock forage resources. Wildlife cumulative impacts would be short-term during weed treatment activities and as native vegetation establishes. Alternative 3 would have similar impacts as Alternative 2, but some impacts, such as soil erosion, water quality, and native plant impacts could be higher without the use of biological control.

## 5.0 Mitigation Measures

All practicable means to avoid or minimize significant environmental impacts from the Preferred Alternative have been identified and adopted. The mitigation measures and related enforcement and monitoring programs proposed in the Final PEIS have been adopted as part of this decision. Where applicable, mitigation measures would be monitored and enforced pursuant to federal law, tribal

regulations, and agreements between the Navajo Nation and appropriate governmental authorities, as well as this ROD. Specific BMPs and mitigation measures adopted pursuant to this decision are included in Attachment I.

## 6.0 Decision to Implement the Preferred Alternative

### 6.1 Preferred Alternative Results in Beneficial Impacts

The Preferred Alternative was selected as it provides the least amount of risk through the implementation mitigation measures (Attachment I), planning and coordination requirements, and prioritization of methods and treatment sites while providing the widest range of effective options for treating weeds. By using an integrated approach, several weed management methods can be combined, reducing the time and duration needed to effectively treat weeds with each method. Under the Preferred Alternative, consistent avoidance and mitigation measures are required to protect vegetation, soils, wildlife, livestock, native plants, and the public. These include buffers based on the treatment method and the resource being protected. Seasonal windows for when treatments would also be implemented, and buffers and selection criteria for determining when, where, and which herbicides can be used. There are also more consistent measures for engaging and involving the local community in project planning and implementation. The local community and neighboring agencies must be contacted and involved in the project to reduce impacts to cultural plant collection sites, identify human health and socioeconomic factors that could be impacted by treatments, and to develop alternatives to avoid or reduce impacts.

The most significant difference between the Preferred Alternative and the other alternatives considered is the inclusion of biological control. Biological control would treat several species currently impacting rangeland areas, such as several knapweed species, field bindweed, toadflax, and leafy spurge. It also has the lowest cost of all the treatment methods included as it only requires costs related to collecting and moving organisms between treatment sites. The organisms are provided free of charge from the USDA APHIS program, which conducts extensive testing of each organism to ensure they do not affect related native species, wildlife, or other resources. Many of the organisms used have been permitted by APHIS for over fifteen years and have been well documented since, showing limited impacts to native plants, wildlife, and ecosystems. Use of biological control would result in lower treatment costs while allowing passive control and species reductions. When paired with other control methods, biological control can improve the effectiveness of other treatment methods by reducing the vigor and cover of species, reducing the competitive advantages of noxious weeds, and by making weeds more susceptible to other treatment methods such as chemical use or mechanical removal.

### 6.2 Alternative 1 Fails to Meet the Purpose and Need

Alternative 1, or the No Action Alternative, would maintain the ad hoc planning and implementation methods used for noxious weed management on the Navajo Nation, which fail to meet the purpose and need of the action. Under the No Action Alternative, weed projects would continue to focus on 21 noxious weed species, with no consideration for several species currently impacting rangelands and farmlands, such as annual brome species, Russian thistle, and kochia. Projects would be planned on an as-needed basis with separate planning and compliance work, resulting in inconsistent mitigations and protection measures which could increase the risk of negative impacts to soils, water, vegetation, wildlife, and the public. Coordination of projects would also be inconsistent as no protocols are established to engage the community, neighboring land management agencies, or tribal and federal agencies as part of project planning and implementation. Mapping of weed populations and monitoring of projects are also currently done inconsistently, limiting the BIA's ability to plan and prioritize projects and understand which methods work best. These reasons would limit the BIA's efforts to control and manage noxious

weeds and could result in increased negative impacts to natural and cultural resources and communities where weed treatments occur.

### 6.3 Alternative 3 Would Limit Noxious Weed Management

While Alternative 3 would include many of the mitigation and protection measures that reduce impacts to soils, vegetation, cultural resources, wildlife, and water, the prohibition against the use of biological control would limit some of the options available for addressing many harder to treat species. For example, field bindweed can be hard to control. Manual and mechanical treatments must remove as much of the roots as possible as it begins resprouting 2-3 weeks after removal. The species is also known to develop herbicide resistance after prolonged use. Using biological control can provide the consistent pressure needed to keep bindweed under control, which can improve the effectiveness of the other methods used.

Alternative 3 was developed based on concerns raised by the Navajo Nation Department of Fish and Wildlife about whether organisms could inadvertently affect native species or habitats. They cited an informal policy that prevented the introduction of non-native species on the Navajo Nation. However, the policy was based on a Memorandum of Agreement between the Navajo Nation Department of Fish and Wildlife and the Arizona Fish and Game Commission prohibiting the use of non-native fish when stocking lakes and rivers on the Navajo Nation. The analysis reviewed in the Draft and Final PEIS investigated the potential risks of biological control organisms affecting native species and noted a few instances where one previously approved biological control agent had indirect impacts on food webs. However, that agent is no longer available for use and none of the agents proposed in Alternative 2 were found to have similar impacts. Additionally, neighboring entities, such as the City of Flagstaff and the Bureau of Land Management, have released biological control agents for noxious weeds in areas near the Navajo Nation. There is the potential that these agents could migrate onto the Navajo Nation where large weed populations exist that could support these organisms. Alternative 3 would provide no means for the BIA to monitor and move these populations, which could make it difficult to determine if they do negatively impact native plants or ecosystems. Under Alternative 2, the BIA is also required to coordinate and consult with NNDFW and USFWS on any projects using biological control with proper monitoring of native plant communities where treatments are implemented.

Finally, the lack of biological control would increase the use of more impactful and less passive control methods. Based on the environmental impact analysis in the Draft and Final PEIS, Alternative 3 could result in higher treatment costs for projects that would otherwise use biological control. Use of biological control can decrease the risk of erosion as root systems remain intact while organisms damage and weaken above ground parts. They can also reduce the risk of drift or damage to native vegetation in treatment sites if used in place of herbicide. Biological control would also pose little to no harm to livestock in treated areas. While these impacts would be less under Alternative 3 than those determined for Alternative 1, under Alternative 2, they would be much less of a concern.

## 7.0 Implementation and Appeal Procedures

This decision is subject to administrative review (appeal) pursuant to 25 C.F.R. Part 2. Any person who may be adversely affected by this decision may appeal the decision to:

Interior Board of Indian Appeals (IBIA)  
801 N. Quincy Street, #300,  
Arlington, Virginia, 22203



in accordance with the regulations set forth at 25 C.F.R. Part 2. The notice of appeal must be signed and postmarked within thirty days of the date of this decision. The notice will clearly identify the decision being appealed, and a copy of the decision will be attached to the notice of appeal. Copies of the notice must be sent to:

Assistant Secretary for Indian Affairs  
MS 4140-MIB  
U.S. Department of the Interior  
1849 C. Street, N.W.  
Washington, D.C., 20240

as well as to my office and to all other interested parties known to the person appealing the decision. The notice of appeal to the IBIA must also certify that the appealing party sent copies to each of these parties. The IBIA will notify the appealing party of further appeal procedures. If no appeal is timely filed, this decision will become final for the Department of the Interior.

### Contact for Further Information

For further information regarding this project, contact Leonard Notah at (505) 863-8287, or via email [Leonard.Notah@bia.gov](mailto:Leonard.Notah@bia.gov).

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Gregory C. Mehojah  
Regional Director, Navajo  
Bureau of Indian Affairs

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Date

## **Attachment I. Mitigation and Species Conservation Measures**

## **Attachment II. Final PEIS**

## **Attachment III. Public Comments on Final PEIS**

## **Attachment IV. Section 7 Consultation Findings**