

## APPENDIX F. MITIGATION AND SPECIES CONSERVATION MEASURES

### Mitigation Measures

---

The following measures are required when implementing weed management projects. These measures should be printed and checked off when implementing a project.

#### 1. General Measures

##### Project Planning

- Complete all necessary permits and authorizations prior to implementing a project (see Section 7.0 and Appendix C of the NNIWMP).
- If treatments are planned for allotment lands, the project sponsor must obtain consent from the Indian owner(s) as the law requires.
- Noxious tree treatments require consent of the majority Indian interest of the beneficial Indian owner(s), documented by their signature(s) on a Power of Attorney for the Sale of Allotment Timber, contract, or permit.
- Surveys and clearance for paleontological resources are required before any surface disturbing activities, mechanical treatments, or chemical treatments in coordination with the Navajo Nation Minerals Department.
- Conduct surveys for cultural resources by a qualified cultural resource specialist before treatments in coordination with the Navajo Nation Historic Preservation Department (NNHPD).
- Conduct ethnographic inquiries with local community members to identify plant gathering sites and other traditional cultural properties (TCPs) that may be affected by weed treatments. If TCPs and gathering sites are identified, the project sponsor will work with the community to identify alternative sites, treatment options, or other mitigation measures.
- Complete and submit two copies of the Archaeological Inventory Report and all site forms to the NNHPD Cultural Resource Compliance Section for review. The BIA NRO Regional Director will approve the CRCF to provide Section 106.
- Avoidance of all cultural resources is the preferred mitigation measure to avoid adverse effects, as well as identifying alternative plant gathering areas. All work must be coordinated with NNHPD to ensure compliance with Section 106 and NHPA.
- Complete and submit a Data Request Form for the project area to NNDFW NNHP (<https://www.nndfw.org/nnhp/drs2012.pdf>) and obtain a Biological Resource Compliance Form (BRCF) from NNHPD.

- If potential habitat for endangered or threatened species is present, conduct a habitat assessment by a qualified biologist. If potential habitat is found, protection measures, including species buffers will be applied to the habitat or additional surveys for species presence will be conducted by a qualified biologist. If the species is present at the site, species protection measures will be employed, NNDFW will be notified, and a biological monitor will be present during all phases of project implementation (Appendix F of the NNIWMP).
- Develop a Safety and Communications Plan that identifies specific safety measures for all treatment methods used in the project, including equipment handling, required Personal Protection Equipment (PPE), and emergency response communication protocols.
- Removal of invasive trees requires a forest product harvesting permit or contract and may require a silvicultural prescription to authorize a treatment in forest lands, including woodlands. Special provisions associated with the harvest document(s) should be reviewed and modified when appropriate to address unforeseen resource issues associated with the harvesting activities.
- All project personnel will be trained on the use of Personal Protection Equipment (PPE), equipment handling, and safety protocols. Personnel will be required to use PPEs during herbicide and mechanical (chainsaw, control burn, etc.) applications.

### **Prior to Project Implementation**

- Designate staging areas and/or equipment wash stations for cleaning and prep work before and after treatments. These sites will be used to mix herbicides, refuel equipment and vehicles, and store materials for the duration of the treatment. Equipment wash stations may be temporary and will have a filter system, for example at least 6 inches of large cinder or gravel spread over an area 10 feet x 30 feet. Filter cloth may be used for temporary stations. The area will be a perched drainage to allow excess moisture to drain after being filtered and will be located at least 300 feet away from surface water, natural drainages or wellheads.
- Notify adjacent landowners, authorized land users, local authorities, and/or the public of treatments, treatment duration, and post-treatment measures before implementation to prevent exposure and limit re-infestations through education and outreach with the local grazing official, posting public notices, radio announcements, and/or chapter meeting announcements. Weed treatment flyer and/or forest harvest sales permits should be posted locally before projects start.
- To reduce the risk of weed spread, access routes will avoid heavy infestation areas. Access routes will be closed when the project is completed.
- Clearly mark boundaries of treatment sites (such as posting visible flags or signs) before and during treatments.

- Sites will be inspected, and potential hazards will be removed to ensure safety prior to treatments.

### **During Project Implementation**

- Vehicles will use only established roads for accessing project sites. Vehicles will be parked at designated parking spots near established roadways during treatments.
- If camping, project personnel will use designated and established campsites, with approval from NNHPD or a qualified archeologist.
- On-site safety briefings will be given prior to any treatments to review required PPE, safety and emergency response measures, and what to do in the case of an injury or emergency.
- Inspect and clean equipment, heavy machinery, and clothing after treatments for mud, dirt, and plant parts to prevent spread to other project sites by the field crew.
- Minimize soil disturbance to the extent practical.
- No mechanical treatments or use of heavy mechanized equipment will be used in archeological sites or traditional cultural property boundaries.
- If potential habitat for an endangered or threatened species is present a qualified biological monitor will be on site during all phases of project implementation.
- Vehicles and equipment should be turned off if periods between use are longer than 15 minutes.

### **Post Project Implementation**

- Post-treatment monitoring will evaluate treatment effectiveness, potential re-infestations or new introductions, and impacts to resources (Appendix D of the IWMP)
- Limit the number of people and trips to sensitive areas for follow-up treatments and/or monitoring.

## **2. Chemical Treatments**

### **Project Planning**

- The on-site Pesticide Applicator will develop a Spill Contingency Plan that meets the minimum requirements specified by the BIA to eliminate contamination of water or soil resources in the case of accidental spills.
- If using herbicide, notify NNEPA Pesticide Enforcement of project, including location, herbicides used, and treatment dates. Submit a Pesticide Use Proposal (PUP) for approval.

- If wellheads or source water areas are identified within the project area, notify NNEPA Public Water System Safety Program to determine protection zones for herbicide applications and alternative treatment methods to be used in the protection area.
- For aerial herbicide treatments, native vegetation communities in or near treatment sites should be documented with GPS, especially cottonwood-willow woodlands and native sagebrush communities.

### **Prior to Project Implementation**

- All herbicides must be U.S. EPA approved and mixed and applied according to label instructions.
- Treatment sites will be closed according to label specifications when limiting exposure to humans, livestock, and pets is recommended.

### **During Project Implementation**

- All herbicides must be used according to the U.S. EPA approved label.
- Certified Pesticide Applicators must be on site to supervise projects during herbicide treatments. Pesticide Applicators must be certified by the U.S. EPA for the Navajo Nation.
- Use dye markers with herbicides to identify the physical spray location on weeds.
- An emergency spill kit must be present when herbicides are used to contain, absorb, and dispose of spill materials.
- Material Safety Data Sheets (MSDS) for herbicides and adjuvants must be accessible in the event of accidental exposure or spill.
- Avoid applying chemicals during times of high wind speeds, high temperature, and low humidity to prevent chemical drift to areas off site. Read the herbicide label for specific conditions.
- Use Water Quality Protection Zones (WQPZ) set by the NNEPA for mechanical treatments and broadcast herbicide treatments when using a vehicle in or near riparian and wetland areas. The WQPZ is at least 200 feet unless a greater buffer is needed for a listed species or if indicated on the herbicide label. Refer to the Water Quality Protection Guidelines for the Navajo Nation Forest (2000) and the Navajo Nation Aquatic Resource Protection Program Guidance (1994) on distance guidelines. Wells and wellheads will also require a 100-foot buffer based on the NNEPA PWSSP's Source Water-Wellhead Protection Guidance.
- *Near riparian areas*, only aquatic formulations of 2,4-D, glyphosate, triclopyr, and imazapyr will be used within 25 ft of the daily high-water mark.
- Herbicides that are practically non-toxic to fish and mollusks (White 2007) require a 25-foot (7.6 m) buffer from the daily high-water mark, including: aminopyralid, chlorsulfuron

methyl, clopyralid, imazapic, and thifensulfuron-methyl. They must be applied using spot treatment methods in this zone.

- Native plant communities, such as cottonwood-willow woodlands and native sagebrush, require a 300-foot buffer during aerial herbicide treatments.
- Aerial herbicide treatments should use GPS monitoring to track the aircraft's position, provide a record of where herbicide was applied, and ensure all applicable avoidance buffers were enforced.
- Non-aquatic approved and moderate to high aquatic toxicity herbicides (White 2007) require a 300-foot (91 m) buffer from the daily high-water mark.
- Only aquatic approved herbicides will be used for aerial applications by either fixed wing or rotary aircraft applications.
- Water for mixing herbicide and cleaning herbicide equipment will be potable water obtained off-site or through a Water Use Permit. For remote sites, there is a possibility of a Water Use Permit with the local water code. An anti-siphon and back flow preventer device are required to prevent contamination of the water source.
- Store equipment and materials away from riparian areas in safe and secure upland sites in close proximity of the project site. Herbicide containers and equipment must be stabilized with straw bales, filter cloth, or other appropriate means to prevent release into waterways or wetlands.
- Herbicides will be stored in a secondary containment storage unit with impermeable materials such as concrete or metal so leaks, and spills do not reach soils. Storage containers will be coordinated with BIA Safety Officer and Environmental Services.

### **Post Project Implementation**

- Herbicide containers and application equipment will be triple rinsed at designated washing stations to minimize chemical residues left as per the MSDS and herbicide labels. Do not pour rinse water from empty containers or sprayer cleaning onto ground or any drainage system. Dispose as hazardous waste.
- Properly dispose of pesticide waste and containers according to federal, state, and tribal regulations.

## **3. Mechanical**

### **Prior to Project Implementation**

- If mechanical treatments increase the risk of erosion near waterways, erosion control measures will be implemented to stabilize and limit erosion.
- Establish and implement a burn plan if prescribed burning is used as a control method.

- Prescribed burning will not be conducted during migratory bird breeding season.

### **During Project Implementation**

- Keep areas without vegetation wet to prevent fugitive dust. This can be accomplished with a sprayer mounted to a water truck.
- Use lightest/smallest off-road vehicle, utility vehicle, or tractors will be a priority for treatments. No such equipment will be used on wet soils or cryptobiotic soil crusts.
- No mechanical treatments within 200 feet of open water sources.

## **4. Cultural**

### **During Project Implementation**

- Projects using targeted grazing treatments will develop a grazing treatment plan for review by NNHP.
- Targeted grazing must use fencing around the perimeter of the treatment area to contain livestock.
- Use targeted grazing only in sites where weeds are palatable and non-toxic and where desired native species will not be damaged.
- After targeted grazing is implemented, livestock will be placed in a separate fenced location for 48 hours to collect animal waste. Animal waste will be burned to destroy plant parts and seeds.
- Targeted grazing will not exceed more than 10 days on a range and/or wildland project site or 365 days on a cropland site.
- Targeted grazing shall not be used in areas where weed comprise less than 50% of total vegetative cover.
- Passive restoration is preferred when native vegetation comprises >75% of the treated area. If natural re-vegetation fails, then active restoration is necessary. Active restoration includes planting of native species poles, root stocks, and seeds.
- Reseeding will be timed with precipitation events and at least 7 days after herbicide treatments are completed. Reseed disturbed areas with native vegetation to minimize opportunities for weed establishment and soil erosion.
- Only native vegetation, certified weed-free and preferably locally sourced, will be used for restoration activities.

### **Post Project Implementation**

- Livestock grazing will be deferred during the growing season or until seeding has established.

## Species Conservation Measures

---

The species conservation measures below are intended for the proposed action and serve as a guide for mitigating impacts to Navajo Endangered species (NESL) and Federally Threatened and Endangered species when conducting weed treatments on Navajo Nation. However, the Navajo Natural Heritage Program (NNHP) encourages treatment of noxious weeds within sensitive species populations as a tool to improve habitat for NESL species, with proper consultation with NNHP and USFWS, as applicable. Therefore, if the goal of the weed treatment project is to improve habitat for threatened and sensitive species, the conservation measures below can be modified for individual species through consultation with NNHP and USFWS on a project-specific basis. Buffers for mechanical, cultural, manual (low impact), and non-aerial herbicide use can be modified on a project-by-project basis with approval from NNHP but will require the presence of a qualified Biologist on-site during all stages of project implementation. Flagging and fencing around listed plant species will also be required.

### Species Conservation Measures (Project Design Features)

The Recommended Protection Measures for Pesticide Applications (RPR) in USFWS Region 2 (White 2007) and the Avoidance Measures listed in the Navajo Nation Endangered Species List, Species Accounts (NNDFW 2020) were used as a starting point for the conservation measures. The BIA requires the most conservative avoidance measures of the two documents be implemented for IWMP projects. BIA conducted nine informal discussions with the USFWS and the NNHP, NNDFW to help refine the conservation measures.

## Federally Listed Species

### General Project BMPs

1. Submit a Biological Consultant Data Request Form to the NNHP NNDFW to initiate the BRCF process prior to project implementation for background information on species habitat and occupancy (the form and instructions can be accessed here: <https://www.nndfw.org/nnhp/drs.htm>). A brief report should be submitted with the BRCF request that includes the following:
  - a. Description and map of the project location and treatment activities proposed
  - b. Consideration of the intersection of the project site with potential habitat of potential and known species listed in the Data Response.
  - c. Description of survey timing and methodology (including buffers) and species-specific surveys performed.
  - d. Conservation measures that will be applied for the project, if applicable.
2. If preliminary analysis based on maps, aerial photos, and other knowledge of the project site indicates that potential habitat for listed species is present, a qualified biologist will

conduct a habitat assessment and a qualified Biologist may be required on site during all stages of project implementation as determined by the BRCF process.

3. If suitable habitat is present, the project will apply the conservation measures, including buffers established for that species or a qualified biologist will conduct additional surveys for species' presence.
4. Qualified biologists should obtain federally listed species permits from USFWS and be on the permitted consultants list for NNDFW prior to conducting species surveys on Navajo Nation land.
5. If the species is present at the site, the species-based protection measures will be employed. If protocol surveys do not detect the species, there will be no buffers.
6. Where specified, species breeding season timing restrictions and buffers apply to all treatment methods.
7. Where two or more species' habitats overlap, the more restrictive measures will take priority.
8. Consult the Required Protection Measures for Herbicide applications for federally and Navajo Nation-listed species below for herbicide-specific mitigation and avoidance measures.

## Navajo Nation Endangered Species List

### General Project Best Management Practices (BMPs)

1. Submit a Biological Consultant Data Request Form to the NNHP NNDFW to initiate the BRCF process prior to project implementation for background information on species habitat and occupancy (the form and instructions can be accessed here: <https://www.nndfw.org/nnhp/drs.htm>). A brief report should be submitted with the BRCF request that includes the following:
  - a. Description and map of the project location and treatment activities proposed
  - b. Consideration of the intersection of the project site with potential habitat of potential and known species listed in the Data Response.
  - c. Description of survey timing and methodology (including buffers) and species-specific surveys performed.
  - d. Conservation measures that will be applied for the project, if applicable.
2. Include General Project BMPs species conservation measures listed above.



3. If preliminary analysis based on maps, aerial photos, and other knowledge of the project site indicates that potential for habitat for Group 2 and 3 species is present, a qualified biologist will conduct species surveys.
4. Species surveys are preferred for Group 4 species but not required. A qualified biologist will conduct Group 4 species surveys concurrently with Group 2 and 3 species surveys.
5. Obtain Biological Investigation Permits from NNDFW prior to conducting species surveys.



**Table 1.** Required species conservation measures for federally listed endangered and threatened and Group 2 and 3 Navajo Nation listed plant species.

Plants (Federally Listed and NNHP G3) – Species Conservation Measures																					
USFWS Status	E			T				T	Group 3												
NNDFW Group	G2	G3	G2	G2	G3	G3	G2	G2													
Conservation Measure	Brady pincushion cactus ( <i>Pediocactus bradyi</i> )	Fickeisen plains cactus ( <i>Pediocactus peeblesianus</i> ssp. <i>fickeiseniae</i> )	Mancos milk-vetch ( <i>Astragalus humillimus</i> )	Zuni (Rhizome) fleabane ( <i>Erigeron rhizomatus</i> )	Welsh' s milkweed ( <i>Asclepias welshii</i> )	Navajo sedge ( <i>Carex specuicola</i> )	Cutler' s milk-vetch ( <i>Astragalus cutleri</i> )	Mesa Verde cactus ( <i>Sclerocactus mesae-verdae</i> )	Aztec gilia ( <i>Aliciella formosa</i> )	Gooding' s onion ( <i>Allium goodingii</i> )	Alcove death camas ( <i>Anticlea vaginatus</i> )	Marble Canyon milk-vetch ( <i>Astragalus cremnophytax</i> var. <i>nevronii</i> )	Cronquist' s milk-vetch ( <i>Astragalus cronquistii</i> )	Naturita milk-vetch ( <i>Astragalus naturitensis</i> )	Acoma fleabane ( <i>Erigeron acomanus</i> )	Round dunebroom ( <i>Erigeron rotundata</i> )	Navajo Mountain Penstemon ( <i>Penstemon navajoa</i> )	Alcove rock daisy ( <i>Perityle specuicola</i> )	Navajo bladderpod ( <i>Physaria navajoensis</i> )	Alcove bog-orchid ( <i>Platanthera zothecina</i> )	Brack' s hardwall cactus ( <i>Sclerocactus cloverae</i> ssp. <i>brackii</i> )
Low and high aerial spraying of herbicides requires a 1-mile (1.6 km) buffer from identified listed species locations.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mechanical, cultural, chemical, and prescribed burn treatments require a 200 ft (60 m) buffer from identified listed plant species locations. A burn plan must be developed for each project using prescribed fire, which will include specific treatment buffers.	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X
Manual treatments (low impact treatments) require a 20 ft (6 m) buffer from identified listed species locations.	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Known plant locations will be flagged, and/or fenced during treatments	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
The NNDFW botanist will be notified of rare plant surveys and if weed treatments will be conducted near listed or sensitive plants. If treatments occur buffers and other avoidance measures will be implemented in consultation with the NNDFW botanist.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Conservation Measure	Brady pincushion cactus ( <i>Pediocactus bradyi</i> )	Fickeisen plains cactus ( <i>Pediocactus peeblesianus</i> ssp. <i>fickeiseniae</i> )	Mancos milk-vetch ( <i>Astragalus humillimus</i> )	Zuni (Rhizome) fleabane ( <i>Erigeron rhizomatus</i> )	Welsh' s milkweed ( <i>Asclepias welshii</i> )	Navajo sedge ( <i>Carex specuicola</i> )	Cutler' s milk-vetch ( <i>Astragalus cutleri</i> )	Mesa Verde cactus ( <i>Sclerocactus mesae-verdae</i> )	Aztec gilia ( <i>Aliciella formosa</i> )	Gooding' s onion ( <i>Allium goodingii</i> )	Alcove death camas ( <i>Anticlea vaginatus</i> )	Marble Canyon milk-vetch ( <i>Astragalus cremnophytax</i> var. <i>hevronii</i> )	Cronquist' s milk-vetch ( <i>Astragalus cronquistii</i> )	Naturita milk-vetch ( <i>Astragalus naturitensis</i> )	Acoma fleabane ( <i>Erigeron acoma</i> )	Round dunebroom ( <i>Erigeron rotundata</i> )	Navajo Mountain Penstemon ( <i>Penstemon navajoa</i> )	Alcove rock daisy ( <i>Perityle specuicola</i> )	Navajo bladderpod ( <i>Physaria navajoensis</i> )	Alcove bog-orchid ( <i>Platanthera zothecina</i> )	Brack' s hardwall cactus ( <i>Sclerocactus cloverae</i> ssp. <i>brackii</i> )
Vehicles will use only established roads for accessing project sites.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Vehicles will be parked at previously disturbed parking areas located at least 20 ft (6 m) from known populations when treating. Parking areas will be near established Navajo-BIA, tribal, State, or County roads that receive moderate to heavy use.	X	X	X	X	X	X	X	X													
Treatments occurring in the Mesa Verde Biological Preserves require additional consultation with USFWS and the NNHP botanist. A qualified biological is required on-site to monitor all phases of implementation.								X													
Manual treatments (low impact treatments) require a 50 ft (15 m) buffer from identified listed species locations.								X													
No pre-emergent herbicide applications will be used.						X															
Mechanical, cultural, chemical, and prescribed burn treatments require a 1-mile (1.6 km) buffer from identified listed plant species locations. A burn plan must be developed for each project using prescribed fire, which will include specific treatment buffers										X							X				

**Table 2.** Recommended species conservation measures for NNHP Group 4 plants.

<b>NNHP Group 4 Plants – Recommended Species Conservation Measures</b>														
<b>Conservation Measure</b>	<b>San Juan milkweed (<i>Asclepias sanjuanensis</i>)</b>	<b>Heils milk-vetch (<i>Astragalus heilii</i>)</b>	<b>Navajo saltbush (<i>Atriplex garrettii</i> var. <i>navajoensis</i>)</b>	<b>Atwoods camissonia (<i>Camissonia atwoodii</i>)</b>	<b>Welchs American-aster (<i>Symphotrichum welshii</i>)</b>	<b>Arizona rose sage (<i>Salvia pachyphylla</i> ssp. <i>eremopictus</i>)</b>	<b>Rydberg' s thistle (<i>Cirsium rydbergii</i>)</b>	<b>Utah bladder-fern (<i>Cystopteris utahensis</i>)</b>	<b>Sivinski' s fleabane (<i>Erigeron sivinskii</i>)</b>	<b>Sarah' s buckwheat (<i>Eriogonum lachnogynum</i> var. <i>sarahiae</i>)</b>	<b>Bluff phacelia (<i>Phacelia indecora</i>)</b>	<b>Cave primrose (<i>Primula specuicola</i>)</b>	<b>Marble Canyon dalea (<i>Psoralethamnus arborescens</i> var. <i>pubescens</i>)</b>	<b>Parish' s alkali grass (<i>Puccinella parishii</i>)</b>
Low and high aerial spraying of herbicides require a 1-mile (1.6 km) buffer from identified listed species locations.	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mechanical, cultural, chemical, and prescribed fire treatments require a 200 ft (60 m) buffer from identified listed plant species locations. A burn plan must be developed for each project using this technique, which will include specific treatment buffers.	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Manual treatments (low impact treatments) require a 20 ft (6 m) buffer from identified listed species locations.	X	X	X	X	X	X	X	X	X	X	X	X	X	X
When doing treatments, workers will place flagging, and/or fencing around listed or sensitive plant populations.	X	X	X	X	X	X	X	X	X	X	X	X	X	X

**Table 3.** Required species conservation measures for Federally listed endangered, threatened, and experimental population and NNHP Group 2 and 3 bird species.

Birds (NNHP G2, G3, and G4 Exp Pop) – Species Conservation Measures								
USFWS Status	T	E, Exp. Pop.*	E	T				
NNDFW Group	G3	G4	G2	G2	G2	G3	G3	G3
Conservation Measure	Mexican spotted owl ( <i>Strix occidentalis lucida</i> )	California condor ( <i>Gymnogyps californianus</i> )	Southwestern willow flycatcher** (SWFL) ( <i>Empidonax traillii extimus</i> )	Western yellow-billed cuckoo (YBCU) ( <i>Coccyzus americanus</i> )	Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	Golden Eagle ( <i>Aquila chrysaetos</i> )	Ferruginous hawk ( <i>Buteo regalis</i> )	American dipper ( <i>Cinclus mexicanus</i> )
Breeding season is March 1 through August 31.	X							
All treatments require a ¼ mile (0.4 km) buffer from protected activity centers (PACs) and suitable nesting habitat during the breeding season. A PAC is approximately 600 acres (240 ha) around an owl activity center (nest, roost, or best roost habitat).	X							
Specified herbicides may be applied along road and utility rights-of-way in MSO PACS during the breeding season, but applicators should make sure that pesticide spray drift does not occur beyond rights-of-way.	X							
Contact NNDFW for background information on known nesting sites, suitable nesting sites, or known communal roosting sites in species habitat.		X						
Mechanical, prescribed fire, and ground application of herbicide treatments require a one-mile (1.6 km) buffer from known nesting sites, suitable nesting sites, or known communal roosting sites in species habitat of canyon lands and mountain ridges.		X						
Aerial applications of herbicides require a 1.5-mile (2.4 km) buffer from release sites, suitable nesting sites, or known communal roosting sites in species habitat of canyon lands and mountain ridges.		X						
If a condor is present all weed treatment activities will cease and NNDFW will be contacted. Field crews will avoid interacting with condors if present on site.		X						
All trash and debris will be disposed of properly off site.		X						
No new populations biological control for saltcedar on the Navajo Nation.			X					
A permitted biologist will confirm occupancy during the breeding season (May 15 through July 17, "SWFL Recovery Plan") within a year prior to conducting treatments to determine suitable habitat, breeding habitat, important migration corridors, or potential territory for occupied habitat.			X					
A qualified SWFL biologist in coordination with NNDFW will determine breeding patch size for nesting areas per the "SWFL Recovery Plan" and identify sites on the ground prior to treatments.			X					

USFWS Status	T	E, Exp. Pop.*	F	T				
NNDFW Group	G3	G4	G2	G2	G2	G3	G3	G3
Conservation Measure	Mexican spotted owl ( <i>Strix occidentalis lucida</i> )	California condor ( <i>Gymnogyps californianus</i> )	Southwestern willow flycatcher** (SWFL) ( <i>Empidonax traillii extimus</i> )	Western yellow-billed cuckoo (YBCU) ( <i>Coccyzus americanus</i> )	Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	Golden Eagle ( <i>Aquila chrysaetos</i> )	Ferruginous hawk ( <i>Buteo regalis</i> )	American dipper ( <i>Cinclus mexicanus</i> )
In occupied breeding areas, mechanical and mechanized and low and high aerial chemical treatments require a ¼ mile (0.4 km) buffer from the breeding patch boundary or suitable habitat.			X	X				
Prescribed fires outside of a breeding patch will be conducted outside of the migrating and breeding season. Small pile burns will be conducted outside of the floodplain or 300 ft (90 m) buffer from edge of waterway.			X	X				
Manual treatments will be used up to the breeding patch boundary or suitable habitat.			X	X				
Important migratory corridors for SWFL will be buffered as listed above from May 15 to July 17.			X					
All projects within the riparian zone near occupied habitat will require restoration with native riparian/wetland vegetation following noxious weed removal.			X	X				
A permitted biologist will confirm occupancy during the breeding season (June 15 through August 15) within a year prior to conducting treatments. No activity will occur within ¼ mi (0.4 km) of potential habitat no survey information exists.				X				
A qualified yellow-billed cuckoo (YBCU) biologist, in coordination with NNDFW, will determine breeding patch size for nesting areas and identify sites on the ground prior to treatments.				X				
The breeding season for bald and golden eagles is January 15 – July 15 ('Navajo Nation Golden and Bald Eagle Nest Protection Regulations').					X	X		
Brief activities that occur for up to one hour per day and involve only personnel and passenger or maintenance vehicles (one hour of spot spraying, mechanical, or manual treatments) require a 0.4 mi (600 m) buffer from an active nest.					X	X		
Breeding season occurs March 1 – July 31 (Navajo Nation Endangered Species List: species accounts).							X	
Light activities that occur for up to one day in the same general area and involve up to five vehicles and up to ten personnel (mechanical treatments and mechanized ground chemical treatments) require a 0.5 mi (800 m) buffer from an active nest.					X	X	X	
Heavy activities that exceed at least one of the criteria for Light Activities that involve human activity of up to one visit per week (prescribed fire, low and high aerial chemical treatments) will be conducted outside of the breeding season and ¾ mi (1 km) from a nesting site.					X	X	X	

USFWS Status	T	E, Exp. Pop.*	F	T				
NNDFW Group	G3	G4	G2	G2	G2	G3	G3	G3
<b>Conservation Measure</b>	<b>Mexican spotted owl</b> ( <i>Strix occidentalis lucida</i> )	<b>California condor</b> ( <i>Gymnogyps californianus</i> )	<b>Southwestern willow flycatcher** (SWFL)</b> ( <i>Empidonax traillii extimus</i> )	<b>Western yellow-billed cuckoo (YBCU)</b> ( <i>Coccyzus americanus</i> )	<b>Bald Eagle</b> ( <i>Haliaeetus leucocephalus</i> )	<b>Golden Eagle</b> ( <i>Aquila chrysaetos</i> )	<b>Ferruginous hawk</b> ( <i>Buteo regalis</i> )	<b>American dipper</b> ( <i>Cinclus mexicanus</i> )
Brief activities that occur for up to one hour per day and involve only personnel and passenger or maintenance vehicles (one hour of spot spraying, mechanical, or manual treatments) require a ½ mile (0.8 km) buffer from an occupied nest.							X	
Mechanical treatments require a 50–200 ft (15-60 m) buffer from occupied nesting habitat outside of breeding season.								X
No mechanical, mechanized ground, low or high aerial chemical treatments within 1/8 mile (0.2 km) from the active nest during March 15- August 15.								X
Spot chemical spraying or manual treatments require a buffer of 330 ft (0.1 km) from the active nest during March 15- August 15.								X
Small migratory birds- Class 2 or Class 3 herbicides require 30 ft (9 m) buffer for spot and mechanized ground application of herbicide, 150 ft (50 m) with low aerial chemical treatments, and 1/8 mi (200 m) for high aerial chemical treatments near the species habitat.								X

**\*Exp. Pop = Experimental Population**

**\*\*Southwestern willow flycatcher (*Empidonax traillii extimus*)**

Definitions (from "Southwestern Willow Flycatcher Recover Plan ("SWFL Recovery Plan)

**Currently suitable habitat** is defined as a riparian area with all the components needed to provide conditions suitable for breeding flycatchers. These conditions are generally dense, mesic riparian shrub and tree communities 0.25 acre (0.1 ha) or greater in size within floodplains large enough to accommodate riparian patches at least 33 ft (10 m) wide. Suitable habitat may be occupied or unoccupied.

**Potentially suitable habitat** is defined as a riparian system that does not currently have all the components needed to provide conditions suitable for nesting flycatchers, but which could – if managed appropriately – develop these components over time. Potential habitat occurs where the flood plain conditions, sediment characteristics, and hydrological setting provide potential for development of dense riparian vegetation.

**Breeding Patch** is the area used by breeding flycatchers. Breeding patches include all flycatcher territories, and most flycatcher breeding patches are larger than the sum total of the flycatcher territory sizes at that site.



**Table 4.** Recommended species conservation measures for NNHP Group 4 bird species and bird species protected under the Migratory Bird Treaty Act.

NNHP Group 4 Bird – Species Conservation Measures Protected under Migratory Bird Treaty Act																
Conservation Measure	Northern goshawk ( <i>Accipiter gentilis</i> )	Clarks grebe ( <i>Aechmophorus clarkia</i> )	Northern saw-whet owl ( <i>Aegolius acadicus</i> )	Burrowing owl ( <i>Athene cucularia</i> )	Belted kingfisher ( <i>Ceryle alcyon</i> )	Mountain plover ( <i>Charadrius montanus</i> )	Dusky grouse ( <i>Dendragapus obscurus</i> )	Yellow warbler ( <i>Dendroica petechial</i> )	Hammond' s flycatcher ( <i>Empidonax hammondi</i> )	Northern pygmy-owl ( <i>Glaucidium gnoma</i> )	Flammulated owl ( <i>Otus flammeolus</i> )	Band-tailed pigeon ( <i>Patagioenas fasciata</i> )	American three-toed woodpecker ( <i>Picoides dorsalis</i> )	Tree swallow ( <i>Tachycineta bicolor</i> )	Sora ( <i>Porzana carolina</i> )	Gray vireo ( <i>Vireo vicinior</i> )
All treatments require a ¼ mi (0.4 km) buffer from nest site during March 1- August 15 and within 0.20 mi (0.2 km) of nest site year-round.	X			X												
Mechanical treatments require 200 ft (60 m) buffer from lake-side vegetation or within the 100-yr floodplain, whichever is greater.		X														
Prescribed fire, target livestock grazing, and mechanized ground, low and high aerial chemical spraying require a 1/8-mile (0.2km) buffer from the active nest.		X*			X*	X*	X <sup>∞</sup>								X†	
Chemical spot and manual treatments require a 330 ft (0.1 km) buffer from active nest.		X*			X*	X*	X <sup>∞</sup>		X <sup>φ</sup>			X†	X†	X†	X†	X***
All treatments require a 1/8- mile (0.2 km) buffer from the nest site year-round or during nesting.			X					X**								
Pesticides that rate as Class 2 or Class 3 in the Predatory Avian, Small Mammal, or Terrestrial Arthropod toxicity groups should have a ½ mile (0.8 km) buffer from occupied nests.			X	X						X	X					
No treatments within nesting habitats year-round.					X	X										
Mechanical treatments require 1/8-mile (0.2 km) buffer from nest site year-round.							X				X					
Mechanical, mechanized ground and low and high aerial chemical treatments require a 1/8-mile (0.2 km) buffer from habitat patches used for breeding or potential habitat year-round.								X	X	X		X	X	X		X
Chemical spot and manual treatments require a 1/8-mile (0.2 km) buffer from the nest site.										X <sup>∞</sup>	X <sup>#</sup>					

Conservation Measure	Northern goshawk ( <i>Accipiter gentilis</i> )	Clarks grebe ( <i>Aechmophorus clarkia</i> )	Northern saw-whet owl ( <i>Aegolius acadicus</i> )	Burrowing owl ( <i>Athene cunicularia</i> )	Belted kingfisher ( <i>Ceryle alcyon</i> )	Mountain plover ( <i>Charadrius montanus</i> )	Dusky grouse ( <i>Dendragapus obscurus</i> )	Yellow warbler ( <i>Dendroica petechial</i> )	Hammond' s flycatcher ( <i>Empidonax hammondi</i> )	Northern pygmy-owl ( <i>Glaucidium gnoma</i> )	Flammulated owl ( <i>Otus flammeolus</i> )	Band-tailed pigeon ( <i>Patagioenas fasciata</i> )	American three-toed woodpecker ( <i>Picoides dorsalis</i> )	Tree swallow ( <i>Tachycineta bicolor</i> )	Sora ( <i>Porzana carolina</i> )	Gray vireo ( <i>Vireo vicinior</i> )
Mechanical treatments require 200 ft (60 m) buffer from lakes and Category I wetlands and 150 ft (45 m) of Category II wetlands, per Navajo Natural Heritage Program 1994.															X	
* - nesting period May 1- July 31, ** - nesting period April 15 – July 31	*** - nesting period May 1 – August 31 ∞- nesting period April 1- July 15				φ - nesting period May 15 – August 15 ‡ - nesting period May 1 – August 1				# - nesting period May 1 – August 15							

### Migratory Birds – Species Conservation Measures

Mechanical treatments within the buffer zone will be conducted outside of the breeding season (March through August).
Non-endangered raptors - All treatments require a 490 ft (0.15 km) buffer from the active nest from March-August or until juveniles have left the nest.
Predatory birds - Spot and mechanized ground herbicide treatments with Class 2 or Class 3 liquid formulation herbicides require a 300 ft (90 m) buffer from the active nest from March- August or until juveniles have left the nest. Low and high aerial treatments require a 1/8 mi (200 m) buffer from the active nest.
Small migratory birds - Class 2 or Class 3 herbicides require 30 ft (9 m) buffer for spot and mechanized ground application of herbicide, 150 ft (50 m) with low aerial chemical treatments, and 1/8 mi (200 m) for high aerial chemical treatments near the species habitat.
Waterfowl - avoid using Class 2 or 3 herbicides in areas where waterfowl are concentrated and wait until birds have migrated for the season. Applications of liquid formulations of Class 2 and 3 herbicides require a 30 ft (9m) buffer for spot applications, 60 ft (20 m) for mechanized ground, 200 ft (60 m) for low aerial spraying, and 1/8 mi (200 m) for high aerial spraying.
Prescribed fires outside of a breeding patch will be conducted outside of the migrating and breeding season.

**Table 5.** Required species conservation measures for federally listed candidate and endangered and NNHP Group 2 fish species and recommended species conservation measures for NNHP Group 4 fish species.

Fish – Species Conservation Measures						
USFWS Status	E	E	C	E	E	
NNDFW Group	G2	G2	G2	G2	G2	G4
Conservation Measure	Colorado pikeminnow ( <i>Ptychocheilus Lucius</i> )	Razorback sucker ( <i>Xyrauchen texanus</i> )	Roundtail chub ( <i>Gila robusta</i> )	Humpback chub ( <i>Gila cypha</i> )	Zuni bluehead sucker ( <i>Catostomus discobolus yarrowii</i> )	Bluehead sucker ( <i>Catostomus discobolus</i> )
Weed removal projects will require restoration of native vegetation to prevent erosion. Weed removal activities in the riparian zone will be conducted in patches to prevent erosion. Patch size will be determined in consultation with NNDFW.	X	X	X	X	X	X
Best Management Practices (see NNIWMP, BIA 2020) will be used to reduce sedimentation and chemical run-off from mechanical and chemical weed treatments along bank lines within the 100-year floodplain.	X	X	X	X	X	X
Pile burning and prescribed burning will be conducted 300 ft (90 m) outside of the floodplain.	X	X	X	X	X	X
Approved herbicides (aquatic formulations only): 2,4-D, glyphosate, triclopyr and imazapyr will exclusively be used within 25 ft (7.6 m) of the daily high-water mark.	X	X	X	X	X	X
Herbicides with relatively low aquatic toxicity to fish require a 25 ft (7.6 m) buffer from the daily high-water mark in the riparian zone, including: aminopyralid, chlorsulfuron methyl, clopyralid, imazapic, and thifensulfuron-methyl.	X	X	X	X	X	X
Non-aquatic approved and moderate to high aquatic toxicity herbicides require a 300 ft (90 m) buffer from the daily high-water mark (see NNIWMP, EPP 2020).		X	X	X	X	
No surface disturbance year-round within 98 – 200 ft (30 – 60 m) from the top of the stream bank. NNDFW fish biologist will determine exact distance on a case-by-case basis.					X	X
Only the cut-stump method will be used to remove large trees or shrubs in the floodplain. Debris will be piled outside of the floodplain.					X	
Heavy machinery (bulldozers/root plows) mechanical treatments require a 300 ft (90 m) buffer from edge of the waterway.					X	X

**Table 6.** Required species conservation measures for federally listed endangered and NNHP Group 3 invertebrate species and recommended species conservation measures for NNHP Group 4 invertebrate species.

Invertebrates – Species Conservation Measures				
USFWS Status				
NNDFW Group	G4	G3	G4	G4
Mitigation Measure	Kanab ambersnail ( <i>Oxyloma kanabense</i> )	Great Basin silverspot ( <i>Speyeria nokomis</i> )	Rocky mountainsnail ( <i>Oreohelix strigosa</i> )	Yavapai mountainsnail ( <i>Oreohelix yavapai</i> )
Mechanized, manual and chemical spot treatments require a 200 ft (60 m) buffer from suitable habitat.				
Low aerial spraying requires a 150 ft (50 m) buffer and high aerial spraying requires a 1/8 mile (200 m) buffer from suitable habitat.				
Surveys will be conducted from August 1 - September 1.		X		
Avoidance measures will be applied to the host plant, violet.		X		
No chemical or mechanical treatments permitted within 200 ft (60 m) of occupied habitat year-round.		X		
No target livestock grazing in wet areas containing host plants during the mating season.		X		
No broadcast or aerial herbicide applications will be permitted within western seep fritillary habitat or in areas containing host plants.		X		
Mechanical and manual treatments require a 200 ft (60 m) buffer from occupied habitat year-round.	X		X	X

**Table 7.** Required species conservation measures for NNHP Group 2 amphibian and reptile species and recommended species conservation measures for NNHP Group 4 amphibian and reptile species.

<b>Amphibians and Reptiles – Species Conservation Measures</b>			
<b>NNDFW Group</b>	<b>G2</b>	<b>G4</b>	<b>G4</b>
<b>Mitigation Measure</b>	<b>Northern leopard frog</b> ( <i>Lithobates pipiens</i> )	<b>Milk snake</b> ( <i>Lampropeltis triangulum</i> )	<b>Chuckwalla</b> ( <i>Sauromalus ater</i> )
Mechanized and manual treatments require a 200 ft (60 m) buffer from open water habitats.	X		
Prescribed fire requires a 200 ft (60 m) buffer zone from the edge of the wetland vegetation.	X		
No applications of herbicides will be used inside occupied or potentially occupied aquatic habitat.	X		
Mitigation measures will be applied in dispersal and migration corridors after rain events.	X		
All projects in riparian/wetland habitats near occupied habitat will require native riparian/wetland vegetation restoration following invasive species removal.	X		
Only herbicides labeled for aquatic use and the cut-stump method on tree species will be used in potential habitat.	X		
No target grazing will be used in the habitat.	X		
All equipment and boots will be cleaned with bleach before and after treatments within 200 ft (60 m) of occupied habitat to prevent the spread of chytrid fungus.	X		
No mechanical treatments (surface disturbance) within occupied habitats.		X	X

**Table 8.** Required species conservation measures for NNHP Group 3 mammal species and recommended species conservation measures for NNHP Group 4 mammal species.

Mammals – Species Conservation Measures							
NNDFW Group	G3	G4	G4	G4	G4	G4	G4
<b>Mitigation Measure</b>	<b>Pronghorn</b> ( <i>Antilocapra americana</i> )	<b>Townsend's big-eared bat</b> ( <i>Corynorhinus townsendii</i> )	<b>Chisel-toothed kangaroo rat</b> ( <i>Dipodomys microps</i> )	<b>Banner-tailed kangaroo rat</b> ( <i>Dipodomys spectabilis</i> )	<b>Navajo Mountain vole</b> ( <i>Microtus mogollonensis</i> )	<b>Arizona (Wupatki) pocket mouse</b> ( <i>Perognathus amplus cineris</i> )	<b>Kit fox</b> ( <i>Vulpes macrotis</i> )
All treatments require a 1-mile (1.6 km) buffer from potential lambing areas from May 1 through June 15.	X						
All treatments require a 200 ft (60 m) buffer from occupied roost site during April 15- August 31.		X					
Mechanical and target grazing treatments require a 200 ft (60 m) buffer from occupied habitats year-round.			X	X	X	X	X
All treatments require a 1/8 mi (0.2 km) buffer from active den during December 1- August 31							X

Black-footed ferret (*Mustela nigripes*) and Northern river otter were extirpated from the Navajo Nation. Both species have been reintroduced in areas adjacent to the Navajo Nation. For black-footed ferret, reintroduction efforts have occurred at Babbitt Ranches, adjacent to the Navajo Nation, and may be considered for other areas within or around the Navajo Nation. Northern river otters were detected in southern Colorado, but no sightings have occurred on the Navajo Nation. If black-footed ferrets and Northern river otters are reintroduced or expand into the Navajo Nation the conservation measures, listed below, for this species would be initiated in addition to the regulations outlined in the reintroduction guidelines.

**Table 9.** Recommended species conservation measures for NNHP Group 1 mammal species.

<b>Mammals (G1 Extirpated) – Species Conservation Measures</b>		
<b>Mitigation Measure</b>	<b>Northern river otter (<i>Lontra canadensis</i>)</b>	<b>Black-footed ferret (<i>Mustela nigripes</i>)</b>
No activity year-round within 300 ft (100 m) of occupied habitat that could result in destruction of burrows/runways and take of individuals or prevent changes to water chemistry.	X	
Breeding season for black-footed ferret is from mid-March to August, with most sensitive period from mid-March to June. Only occur in medium to large active prairie dog towns (>198 acres (80 hectare (ha), and ≥20 burrows/ha).		X
Notify USFWS and NNDFW of any project that will impact prairie dog towns greater than 200 acres (80 ha).		X
Weed treatments will be scheduled outside of breeding season.		X
No disking, plowing or prescribed burns around habitat during the breeding season (March to September).		X
No herbicide limitations for this project per the RPMPA, pg. 109.		X





Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides						
	2,4-D (acid)	2,4-D (aquatic amine salt)	2,4-D (aquatic ester)	2,4-D (non-aquatic amine salt)	2,4-D (non-aquatic ester)	Aminopyralid	Atrazine
<b>Federally Listed Species</b>							
California condor	No buffer zone in ROW. Spot and mechanized ground treatments- 1/4 mile from suitable nests, roosts, and release sites.	No buffer zone in ROW. Spot and mechanized ground treatments- 1/4 mile from suitable nests, roosts, and release sites. Low and high aerial spraying- 1 1/2 mile from suitable nests, roosts, and release sites. Aerial spraying made in swaths parallel to nest site and aerial buffer zone.		No buffer zone in ROW. Spot and mechanized ground treatments- 1/4 mile from suitable nests, roosts, and release sites.			
Southwestern willow flycatcher and Yellow-billed cuckoo	All treatments require 1/4 mile buffer from habitat patches or potential habitat until surveyed. No activity within migratory habitat from May 1- June 15.						
Mexican spotted owl	All formulations: Spot- 80ft from the PAC during breeding season. Mechanized ground - 1/4 mile from PAC during breeding season. May be sprayed along road or utility ROW during breeding season. May be sprayed in PAC outside the breeding season. No aerial applications.	All formulations: Spot- 80ft from the PAC during breeding season. Mechanized ground, Low aerial and High Aerial- 1/4 mile from PAC during breeding season. May be sprayed along road or utility ROW during breeding season. May be sprayed in PAC outside the breeding season.	All formulations: Spot- 80ft from the PAC during breeding season. Mechanized ground - 1/4 mile from PAC during breeding season. May be sprayed along road or utility ROW during breeding season. May be sprayed in PAC outside the breeding season. No aerial applications.				
Colorado pikeminnow, Humpback chub, Razorback sucker, Roundtail chub, Zuni bluehead sucker	No buffer			Spot applications in following areas: one-half mile upstream (including tributaries), all species habitat, and 300ft downstream of habitat. Spot applications- 300ft buffer from waterway.		No buffer	Spot applications in following areas: one-half mile upstream (including tributaries), all species habitat, and 300ft downstream of habitat. Liquid- 10ft Mechanized ground-80ft No aerial applications.
Welsh's milkweed, Brady pincushion cactus, Fickeisen plains cactus, Zuni/Rhizome fleabane, Navajo sedge, Mesa Verde cactus	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	Spot applications from edge of occupied sites: 1/8 mile. Mechanized ground: 2 miles, in non-habitat areas can have buffer of 80ft from occupied habitat during flower period if application is made no later than one hour after sunrise or early evening (6pm or later). Low and high aerial: 2 miles; in non-habitat areas can have buffer of 1/4 mile from occupied habitat during flower period if application is made no later than one hour after sunrise or early evening (6pm or later).		Spot applications from edge of occupied sites: 1/8 mile. Mechanized ground: 2 miles, in non-habitat areas can have buffer of 80ft from occupied habitat during flower period if application is made no later than one hour after sunrise or early evening (6pm or later). No aerial applications.		Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	
Mancos milk-vetch	Spot and mechanized spraying - 200ft from suitable habitat. No aerial applications.	Spot and mechanized spraying - 200ft from suitable habitat. Low and high aerial applications- 1 mile from suitable habitat.		Spot and mechanized spraying - 200ft from suitable habitat. No aerial applications.			
Migratory birds	Spot and mechanized ground applications- 1/4 mile buffer from active nests. No aerial applications.	Spot and mechanized ground applications- 1/4 mile buffer from active nests. No low or high aerial or prescribed burn during breeding season (March-August).		Spot and mechanized ground applications- 1/4 mile buffer from active nests. No aerial applications.			

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides			
	Chlorsulfuron methyl	Clopyralid	Dichlobenil	Fluroxpyr
<b>Federally Listed Species</b>				
California condor	No buffer zone in ROW. Spot and mechanized ground treatments- 1/4 mile from suitable nests, roosts, and release sites. No aerial applications.			
Southwestern willow flycatcher and Yellow-billed cuckoo	All treatments require 1/4 mile buffer from habitat patches or potential habitat until surveyed. No activity within migratory habitat from May 1- June 15.			
Mexican spotted owl	All formulations: Spot- 80ft from the PAC during breeding season. Mechanized ground - 1/4 mile from PAC during breeding season. May be sprayed along road or utility ROW during breeding season. May be sprayed in PAC outside the breeding season. No aerial applications.			
Colorado pikeminnow, Humpback chub, Razorback sucker, Roundtail chub, Zuni bluehead sucker	No buffer	Spot applications in following areas: one-half mile upstream (including tributaries), all species habitat, and 300ft downstream of habitat. Liquid- 10ft Mechanized ground-80ft No aerial applications.	Spot applications in following areas: one-half mile upstream (including tributaries), all species habitat, and 300ft downstream of habitat. Liquid- 10ft Mechanized ground-80ft No aerial applications.	
Welsh's milkweed, Brady pincushion cactus, Fickeisen plains cactus, Zuni/Rhizome fleabane, Navajo sedge, Mesa Verde cactus	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.			
Mancos milk-vetch	Spot and mechanized spraying - 200ft from suitable habitat. Low and high aerial applications- 1 mile from suitable habitat.			
Migratory birds	Spot and mechanized ground applications- 1/4 mile buffer from active nests. No aerial applications.			

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides				
	Fluazifop-p butyl	Glyphosate (aquatic)	Glyphosate (non-aquatic)	Imazapic	Imazapyr (aquatic)
<b>Federally Listed Species</b>					
California condor	No buffer zone in ROW. Spot and mechanized ground treatments- 1/4 mile from suitable nests, roosts, and release sites. No aerial applications.	No buffer zone in ROW. Spot and mechanized ground treatments- 1/4 mile from suitable nests, roosts, and release sites. Low and high aerial spraying- 1 1/2 mile from suitable nests, roosts, and release sites. Aerial spraying made in swaths parallel to nest site and aerial buffer zone.	No buffer zone in ROW. Spot and mechanized ground treatments- 1/4 mile from suitable nests, roosts, and release sites. No aerial applications.	No buffer zone in ROW. Spot and mechanized ground treatments- 1/4 mile from suitable nests, roosts, and release sites. Low and high aerial spraying- 1 1/2 mile from suitable nests, roosts, and release sites. Aerial spraying made in swaths parallel to nest site and aerial buffer zone.	
Southwestern willow flycatcher and Yellow-billed cuckoo	All treatments require 1/4 mile buffer from habitat patches or potential habitat until surveyed. No activity within migratory habitat from May 1- June 15.				
Mexican spotted owl	All formulations: Spot- 80ft from the PAC during breeding season. Mechanized ground - 1/4 mile from PAC during breeding season. May be sprayed along road or utility ROW during breeding season. May be sprayed in PAC outside the breeding season. No aerial applications.	All formulations: Spot- 80ft from the PAC during breeding season. Mechanized ground, Low aerial and High Aerial- 1/4 mile from PAC during breeding season. May be sprayed along road or utility ROW during breeding season. May be sprayed in PAC outside the breeding season.	All formulations: Spot- 80ft from the PAC during breeding season. Mechanized ground - 1/4 mile from PAC during breeding season. May be sprayed along road or utility ROW during breeding season. May be sprayed in PAC outside the breeding season. No aerial applications.	All formulations: Spot- 80ft from the PAC during breeding season. Mechanized ground, Low aerial and High Aerial- 1/4 mile from PAC during breeding season. May be sprayed along road or utility ROW during breeding season. May be sprayed in PAC outside the breeding season.	
Colorado pikeminnow, Humpback chub, Razorback sucker, Roundtail chub, Zuni bluehead sucker	Spot applications in following areas: one-half mile upstream (including tributaries), all species habitat, and 300ft downstream of habitat. Spot applications- 300ft buffer from waterway. No aerial applications.	No buffer	Spot applications in following areas: one-half mile upstream (including tributaries), all species habitat, and 300ft downstream of habitat. Liquid- 10ft Mechanized ground-80ft No aerial applications	No buffer	
Welsh's milkweed, Brady pincushion cactus, Fickeisen plains cactus, Zuni/Rhizome fleabane, Navajo sedge, Mesa Verde cactus	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	Spot and mechanized spraying - 200ft from identified species locations. Low and high aerial applications- 1 mile from identified species locations.	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	Spot and mechanized spraying - 200ft from identified species locations. Low and high aerial applications- 1 mile from identified species locations.	
Mancos milk-vetch	Spot and mechanized spraying - 200ft from suitable habitat. Low and high aerial applications- 1 mile from suitable habitat.				
Migratory birds	Spot and mechanized ground applications- 1/4 mile buffer from active nests. No aerial applications.	Spot and mechanized ground applications- 1/4 mile buffer from active nests. No low or high aerial or prescribed burn during breeding season (March-August).	Spot and mechanized ground applications- 1/4 mile buffer from active nests. No aerial applications.	Spot and mechanized ground applications- 1/4 mile buffer from active nests. No low or high aerial or prescribed burn during breeding season (March-August).	

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides				
	Imazapyr (non-aquatic)	Indaziflam	Isoxaben	Metsulfuron methyl	Metribuzin
<b>Federally Listed Species</b>					
California condor	No buffer zone in ROW. Spot and mechanized ground treatments- 1/4 mile from suitable nests, roosts, and release sites. No aerial applications.				
Southwestern willow flycatcher and Yellow-billed cuckoo	All treatments require 1/4 mile buffer from habitat patches or potential habitat until surveyed. No activity within migratory habitat from May 1- June 15. No aerial applications				
Mexican spotted owl	All formulations: Spot- 80ft from the PAC during breeding season. Mechanized ground - 1/4 mile from PAC during breeding season. May be sprayed along road or utility ROW during breeding season. May be sprayed in PAC outside the breeding season. No aerial applications.				
Colorado pikeminnow, Humpback chub, Razorback sucker, Roundtail chub, Zuni bluehead sucker	Spot applications in following areas: one-half mile upstream (including tributaries), all species habitat, and 300ft downstream of habitat. Liquid- 10ft Mechanized ground-80ft No aerial applications				
Welsh's milkweed, Brady pincushion cactus, Fickeisen plains cactus, Zuni/Rhizome fleabane, Navajo sedge, Mesa Verde cactus	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.				
Mancos milk-vetch	Spot and mechanized spraying - 200ft from suitable habitat. Low and high aerial applications- 1 mile from suitable habitat.				
Migratory birds	Spot and mechanized ground applications- 1/4 mile buffer from active nests. No aerial applications.				

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides			
	Paraquat	Pendimethalin	Picloram	Prodiamine
<b>Federally Listed Species</b>				
California condor	No buffer zone in ROW. Spot and mechanized ground treatments- 1/4 mile from suitable nests, roosts, and release sites. No aerial applications			
Southwestern willow flycatcher and Yellow-billed cuckoo	All treatments require 1/4 mile buffer from habitat patches or potential habitat until surveyed. No activity within migratory habitat from May 1- June 15.			
Mexican spotted owl	All formulations: Spot- 80ft from the PAC during breeding season. Mechanized ground - 1/4 mile from PAC during breeding season. May be sprayed along road or utility ROW during breeding season. May be sprayed in PAC outside the breeding season. No aerial applications.			
Colorado pikeminnow, Humpback chub, Razorback sucker, Roundtail chub, Zuni bluehead sucker	Spot applications in following areas: one-half mile upstream (including tributaries), all species habitat, and 300ft downstream of habitat. Spot applications- 300ft buffer from waterway. Mechanized ground - 80 ft. No aerial applications.			
Welsh's milkweed, Brady pincushion cactus, Fickeisen plains cactus, Zuni/Rhizome fleabane, Navajo sedge, Mesa Verde cactus	Spot applications from edge of occupied sites: 1/8 mile Mechanized ground: 2 miles, in non-habitat areas can have buffer of 80ft from occupied habitat during flower period if application is made no later than one hour after sunrise or early evening (6pm or later). No aerial applications.	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	Spot applications from edge of occupied sites: 1/8 mile Mechanized ground: 2 miles, in non-habitat areas can have buffer of 80ft from occupied habitat during flower period if application is made no later than one hour after sunrise or early evening (6pm or later). No aerial applications.	
Mancos milk-vetch	Spot and mechanized spraying - 200ft from suitable habitat. Low and high aerial applications- 1 mile from suitable habitat.			
Migratory birds	Spot and mechanized ground applications- 1/4 mile buffer from active nests. No aerial applications.			

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides		
	Thifensulfuron-methyl	Triclopyr (amine salt)	Triclopyr (ester)
<b>Federally Listed Species</b>			
California condor	No buffer zone in ROW. Spot and mechanized ground treatments- 1/4 mile from suitable nests, roosts, and release sites. No aerial applications	No buffer zone in ROW. Spot and mechanized ground treatments- 1/4 mile from suitable nests, roosts, and release sites. Low and high aerial spraying- 1 1/2 mile from suitable nests, roosts, and release sites. Aerial spraying made in swaths parallel to nest site and aerial buffer zone.	No buffer zone in ROW. Spot and mechanized ground treatments- 1/4 mile from suitable nests, roosts, and release sites. No aerial applications.
Southwestern willow flycatcher and Yellow-billed cuckoo	All treatments require 1/4 mile buffer from habitat patches or potential habitat until surveyed. No activity within migratory habitat from May 1- June 15.		
Mexican spotted owl	All formulations: Spot- 80ft from the PAC during breeding season. Mechanized ground - 1/4 mile from PAC during breeding season. May be sprayed along road or utility ROW during breeding season. May be sprayed in PAC outside the breeding season. No aerial applications.	All formulations: Spot- 80ft from the PAC during breeding season. Mechanized ground, Low aerial and High Aerial- 1/4 mile from PAC during breeding season. May be sprayed along road or utility ROW during breeding season. May be sprayed in PAC outside the breeding season.	All formulations: Spot- 80ft from the PAC during breeding season. Mechanized ground - 1/4 mile from PAC during breeding season. May be sprayed along road or utility ROW during breeding season. May be sprayed in PAC outside the breeding season. No aerial applications
Colorado pikeminnow, Humpback chub, Razorback sucker, Roundtail chub, Zuni bluehead sucker	No buffer		Spot applications in following areas: one-half mile upstream (including tributaries), all species habitat, and 300ft downstream of habitat. Spot applications- 300ft buffer from waterway. No aerial applications.
Welsh's milkweed, Brady pincushion cactus, Fickeisen plains cactus, Zuni/Rhizome fleabane, Navajo sedge, Mesa Verde cactus	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	Spot and mechanized spraying - 200ft from identified species locations. Low and high aerial applications- 1 mile from identified species locations.	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.
Mancos milk-vetch	Spot and mechanized spraying - 200ft from suitable habitat.	Spot and mechanized spraying - 200ft from suitable habitat. Low and high aerial applications- 1 mile from suitable habitat.	Spot and mechanized spraying - 200ft from suitable habitat.
Migratory birds	Spot and mechanized ground applications- 1/4 mile buffer from active nests. No aerial applications.	Spot and mechanized ground applications- 1/4 mile buffer from active nests. No low or high aerial or prescribed burn during breeding season (March-August).	Spot and mechanized ground applications- 1/4 mile buffer from active nests. No aerial applications.

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides						
	2,4-D (acid)	2,4-D (aquatic amine salt)	2,4-D (aquatic ester)	2,4-D (non-aquatic amine salt)	2,4-D (non-aquatic ester)	Aminopyralid	Atrazine
<b>Navajo Listed Species</b>							
Pronghorn	All formulations- 1 mile buffer from potential lambing areas from May 1- June 15						
Townsend's big eared bat	All formulations require a 197ft buffer from occupied roost site.						
Chisel-toothed kangaroo rat, Banner-tailed kangaroo rat, Navajo Mountain vole, Arizona (Wupatki) pocket mouse	No restrictions						
Kit fox	All formulations require a 1/8 mile buffer from active den from December 1- August 31.						
Bald and golden eagles	All formulations: 1/4 mile buffer from active nest during the breeding season January 15- July 15. Buffer zone is unnecessary outside of breeding season for spot and mechanized ground treatments. No aerial applications. If aerial flight over a nest site is necessary, an elevation of 500ft should be maintained over the nest.	All formulations: 1/4 mile buffer from active nest during the breeding season January 15- July 15. Buffer zone is unnecessary outside of breeding season for spot and mechanized ground treatments. Aerial applications should be made in swaths parallels to a nest and 3/4 mile buffer zone. If aerial flight over a nest site is necessary, an elevation of 500ft should be maintained over the nest.	All formulations: 1/4 mile buffer from active nest during the breeding season January 15- July 15. Buffer zone is unnecessary outside of breeding season for spot and mechanized ground treatments. No aerial applications. If aerial flight over a nest site is necessary, an elevation of 500ft should be maintained over the nest.				
Ferruginous hawk	Brief (1hr) spot- 1/2 mile buffer. Mechanized ground- 5/8 mile buffer. No aerial applications.	Brief (1hr) spot- 1/2 mile buffer. Mechanized ground- 5/8 mile buffer. Low and high aerial- 3/4 mile.	Brief (1hr) spot- 1/2 mile buffer. Mechanized ground- 5/8 mile buffer. No aerial applications.				
American dipper	All formulations- spot- 350ft buffer. Mechanized ground - 1/8 mile buffer from active nest during March 15- August 15. No aerial applications.	All formulations- spot- 350ft buffer. Mechanized ground, low or high aerial within 1/8 mile from active nest during March 15- August 15.	All formulations- spot- 350ft buffer. Mechanized ground - 1/8 mile buffer from active nest during March 15- August 15. No aerial applications.				
Northern goshawk	All formulations require 1/4 mile buffer from nest site during March 1- August 15. All formulations require 0.21 mile buffer from the nest site year-round.						
Clark's grebe	All formulations: Spot- 328ft buffer from active nest during May 1-July 31. Mechanized ground - 1/8 mile buffer from active nest during May 1- July 31. No aerial applications.	All formulations: Spot- 328ft buffer from active nest during May 1-July 31. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during May 1- July 31.	All formulations: Spot- 328ft buffer from active nest during May 1-July 31. Mechanized ground - 1/8 mile buffer from active nest during May 1- July 31. No aerial applications.				
Northern saw-whet owl	All formulations require 1/8 mile buffer from the nest site year-round.						
Burrowing owl	All formulations require 1/4 mile buffer from the active nest burrow during March 1- August 15.						
Dusky grouse	All formulations: Spot- 328ft buffer from active nest during April 1-July 15. Mechanized ground - 1/8 mile buffer from active nest during April 1-July 15. No aerial applications.	All formulations: Spot- 328ft buffer from active nest during April 1-July 15. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during April 1-July 15.	All formulations: Spot- 328ft buffer from active nest during April 1-July 15. Mechanized ground - 1/8 mile buffer from active nest during April 1-July 15. No aerial applications.				
Yellow warbler	All formulations: Spot- 1/8 mile buffer from active nest from April 15- July 31. Mechanized ground - 1/8 mile buffer year-round. No aerial applications.	All formulations: Spot- 1/8 mile buffer from active nest from April 15- July 31. Mechanized ground and low and high aerial- 1/8 mile buffer year-round	All formulations: Spot- 1/8 mile buffer from active nest from April 15- July 31. Mechanized ground - 1/8 mile buffer year-round. No aerial applications.				

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides			
	Chlorsulfuron methyl	Clopyralid	Dichlobenil	Fluroxpyr
<b>Navajo Listed Species</b>				
Pronghorn	All formulations- 1 mile buffer from potential lambing areas from May 1- June 15			
Townsend's big eared bat	All formulations require a 197ft buffer from occupied roost site.			
Chisel-toothed kangaroo rat, Banner-tailed kangaroo rat, Navajo Mountain vole, Arizona (Wupatki) pocket mouse	No restrictions			
Kit fox	All formulations require a 1/8 mile buffer from active den from December 1- August 31.			
Bald and golden eagles	All formulations: 1/4 mile buffer from active nest during the breeding season January 15- July 15. Buffer zone is unnecessary outside of breeding season for spot and mechanized ground treatments. No aerial applications. If aerial flight over a nest site is necessary, an elevation of 500ft should be maintained over the nest.			
Ferruginous hawk	Brief (1hr) spot- 1/2 mile buffer. Mechanized ground- 5/8 mile buffer. No aerial applications.			
American dipper	All formulations- spot- 350ft buffer. Mechanized ground - 1/8 mile buffer from active nest during March 15- August 15. No aerial applications.			
Northern goshawk	All formulations require 1/4 mile buffer from nest site during March 1- August 15. All formulations require 0.21 mile buffer from the nest site year-round.			
Clark's grebe	All formulations: Spot- 328ft buffer from active nest during May 1-July 31. Mechanized ground - 1/8 mile buffer from active nest during May 1- July 31. No aerial applications.			
Northern saw-whet owl	All formulations require 1/8 mile buffer from the nest site year-round.			
Burrowing owl	All formulations require 1/4 mile buffer from the active nest burrow during March 1- August 15.			
Dusky grouse	All formulations: Spot- 328ft buffer from active nest during April 1-July 15. Mechanized ground - 1/8 mile buffer from active nest during April 1-July 15. No aerial applications.			
Yellow warbler	All formulations: Spot- 1/8 mile buffer from active nest from April 15- July 31. Mechanized ground - 1/8 mile buffer year-round. No aerial applications.			



Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides				
	Fluazifop-p butyl	Glyphosate (aquatic)	Glyphosate (non-aquatic)	Imazapic	Imazapyr (aquatic)
<b>Navajo Listed Species</b>					
Pronghorn	All formulations- 1 mile buffer from potential lambing areas from May 1- June 15				
Townsend's big eared bat	All formulations require a 197ft buffer from occupied roost site.				
Chisel-toothed kangaroo rat, Banner-tailed kangaroo rat, Navajo Mountain vole, Arizona (Wupatki) pocket mouse	No restrictions				
Kit fox	All formulations require a 1/8 mile buffer from active den from December 1- August 31.				
Bald and golden eagles	All formulations: 1/4 mile buffer from active nest during the breeding season January 15- July 15. Buffer zone is unnecessary outside of breeding season for spot and mechanized ground treatments. No aerial applications. If aerial flight over a nest site is necessary, an elevation of 500ft should be maintained over the nest.	All formulations: 1/4 mile buffer from active nest during the breeding season January 15- July 15. Buffer zone is unnecessary outside of breeding season for spot and mechanized ground treatments. Aerial applications should be made in swaths parallels to a nest and 3/4 mile buffer zone. If aerial flight over a nest site is necessary, an elevation of 500ft should be maintained over the nest.	All formulations: 1/4 mile buffer from active nest during the breeding season January 15- July 15. Buffer zone is unnecessary outside of breeding season for spot and mechanized ground treatments. No aerial applications. If aerial flight over a nest site is necessary, an elevation of 500ft should be maintained over the nest.	All formulations: 1/4 mile buffer from active nest during the breeding season January 15- July 15. Buffer zone is unnecessary outside of breeding season for spot and mechanized ground treatments. Aerial applications should be made in swaths parallels to a nest and 3/4 mile buffer zone. If aerial flight over a nest site is necessary, an elevation of 500ft should be maintained over the nest.	All formulations: 1/4 mile buffer from active nest during the breeding season January 15- July 15. Buffer zone is unnecessary outside of breeding season for spot and mechanized ground treatments. Aerial applications should be made in swaths parallels to a nest and 3/4 mile buffer zone. If aerial flight over a nest site is necessary, an elevation of 500ft should be maintained over the nest.
Ferruginous hawk	Brief (1hr) spot- 1/2 mile buffer. Mechanized ground- 5/8 mile buffer. No aerial applications.	Brief (1hr) spot- 1/2 mile buffer. Mechanized ground- 5/8 mile buffer. Low and high aerial- 3/4 mile.	Brief (1hr) spot- 1/2 mile buffer. Mechanized ground- 5/8 mile buffer. No aerial applications.	Brief (1hr) spot- 1/2 mile buffer. Mechanized ground- 5/8 mile buffer. Low and high aerial- 3/4 mile.	Brief (1hr) spot- 1/2 mile buffer. Mechanized ground- 5/8 mile buffer. Low and high aerial- 3/4 mile.
American dipper	All formulations- spot- 350ft buffer. Mechanized ground - 1/8 mile buffer from active nest during March 15- August 15. No aerial applications	All formulations- spot- 350ft buffer. Mechanized ground, low or high aerial within 1/8 mile from active nest during March 15- August 15.	All formulations- spot- 350ft buffer. Mechanized ground - 1/8 mile buffer from active nest during March 15- August 15. No aerial applications	All formulations- spot- 350ft buffer. Mechanized ground, low or high aerial within 1/8 mile from active nest during March 15- August 15.	All formulations- spot- 350ft buffer. Mechanized ground, low or high aerial within 1/8 mile from active nest during March 15- August 15.
Northern goshawk	All formulations require 1/4 mile buffer from nest site during March 1- August 15. All formulations require 0.21 mile buffer from the nest site year-round.				
Clark's grebe	All formulations: Spot- 328ft buffer from active nest during May 1-July 31. Mechanized ground - 1/8 mile buffer from active nest during May 1- July 31. No aerial applications.	All formulations: Spot- 328ft buffer from active nest during May 1-July 31. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during May 1- July 31.	All formulations: Spot- 328ft buffer from active nest during May 1-July 31. Mechanized ground - 1/8 mile buffer from active nest during May 1- July 31. No aerial applications.	All formulations: Spot- 328ft buffer from active nest during May 1-July 31. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during May 1- July 31.	All formulations: Spot- 328ft buffer from active nest during May 1-July 31. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during May 1- July 31.
Northern saw-whet owl	All formulations require 1/8 mile buffer from the nest site year-round.				
Burrowing owl	All formulations require 1/4 mile buffer from the active nest burrow during March 1- August 15.				
Dusky grouse	All formulations: Spot- 328ft buffer from active nest during April 1-July 15. Mechanized ground - 1/8 mile buffer from active nest during April 1-July 15. No aerial applications.	All formulations: Spot- 328ft buffer from active nest during April 1-July 15. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during April 1-July 15.	All formulations: Spot- 328ft buffer from active nest during April 1- July 15. Mechanized ground - 1/8 mile buffer from active nest during April 1-July 15. No aerial applications.	All formulations: Spot- 328ft buffer from active nest during April 1-July 15. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during April 1-July 15.	All formulations: Spot- 328ft buffer from active nest during April 1-July 15. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during April 1-July 15.
Yellow warbler	All formulations: Spot- 1/8 mile buffer from active nest from April 15- July 31. Mechanized ground - 1/8 mile buffer year-round. No aerial applications.	All formulations: Spot- 1/8 mile buffer from active nest from April 15- July 31. Mechanized ground and low and high aerial- 1/8 mile buffer year-round	All formulations: Spot- 1/8 mile buffer from active nest from April 15- July 31. Mechanized ground - 1/8 mile buffer year-round. No aerial applications.	All formulations: Spot- 1/8 mile buffer from active nest from April 15- July 31. Mechanized ground and low and high aerial- 1/8 mile buffer year-round	All formulations: Spot- 1/8 mile buffer from active nest from April 15- July 31. Mechanized ground and low and high aerial- 1/8 mile buffer year-round

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides				
	Imazapyr (non-aquatic)	Indaziflam	Isoxaben	Metsulfuron methyl	Metribuzon
<b>Navajo Listed Species</b>					
Pronghorn	All formulations- 1 mile buffer from potential lambing areas from May 1- June 15				
Townsend's big eared bat	All formulations require a 197ft buffer from occupied roost site.				
Chisel-toothed kangaroo rat, Banner-tailed kangaroo rat, Navajo Mountain vole, Arizona (Wupatki) pocket mouse	No restrictions				
Kit fox	All formulations require a 1/8 mile buffer from active den from December 1- August 31.				
Bald and golden eagles	All formulations: 1/4 mile buffer from active nest during the breeding season January 15- July 15. Buffer zone is unnecessary outside of breeding season for spot and mechanized ground treatments. No aerial applications. If aerial flight over a nest site is necessary, an elevation of 500ft should be maintained over the nest.				
Ferruginous hawk	Brief (1hr) spot- 1/2 mile buffer. Mechanized ground- 5/8 mile buffer. No aerial applications.				
American dipper	All formulations- spot- 350ft buffer. Mechanized ground -1/8 mile buffer from active nest during March 15- August 15. No aerial applications.				
Northern goshawk	All formulations require 1/4 mile buffer from nest site during March 1- August 15. All formulations require 0.21 mile buffer from the nest site year-round.				
Clark's grebe	All formulations: Spot- 328ft buffer from active nest during May 1-July 31. Mechanized ground - 1/8 mile buffer from active nest during May 1- July 31. No aerial applications.				
Northern saw-whet owl	All formulations require 1/8 mile buffer from the nest site year-round.				
Burrowing owl	All formulations require 1/4 mile buffer from the active nest burrow during March 1- August 15.				
Dusky grouse	All formulations: Spot- 328ft buffer from active nest during April 1-July 15. Mechanized ground - 1/8 mile buffer from active nest during April 1-July 15. No aerial applications.				
Yellow warbler	All formulations: Spot- 1/8 mile buffer from active nest from April 15- July 31. Mechanized ground - 1/8 mile buffer year-round. No aerial applications.				

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides			
	Paraquat	Pendimethalin	Picloram	Prodiamine
<b>Navajo Listed Species</b>				
Pronghorn	All formulations- 1 mile buffer from potential lambing areas from May 1- June 15			
Townsend's big eared bat	All formulations require a 197ft buffer from occupied roost site.			
Chisel-toothed kangaroo rat, Banner-tailed kangaroo rat, Navajo Mountain vole, Arizona (Wupatki) pocket mouse	No restrictions			
Kit fox	All formulations require a 1/8 mile buffer from active den from December 1- August 31.			
Bald and golden eagles	All formulations: 1/4 mile buffer from active nest during the breeding season January 15- July 15. Buffer zone is unnecessary outside of breeding season for spot and mechanized ground treatments. No aerial applications. If aerial flight over a nest site is necessary, an elevation of 500ft should be maintained over the nest.			
Ferruginous hawk	Brief (1hr) spot- 1/2 mile buffer. Mechanized ground- 5/8 mile buffer. No aerial applications.			
American dipper	All formulations- spot- 350ft buffer. Mechanized ground - 1/8 mile buffer from active nest during March 15- August 15. No aerial applications.			
Northern goshawk	All formulations require 1/4 mile buffer from nest site during March 1- August 15. All formulations require 0.21 mile buffer from the nest site year-round.			
Clark's grebe	All formulations: Spot- 328ft buffer from active nest during May 1-July 31. Mechanized ground - 1/8 mile buffer from active nest during May 1- July 31. No aerial applications.			
Northern saw-whet owl	All formulations require 1/8 mile buffer from the nest site year-round.			
Burrowing owl	All formulations require 1/4 mile buffer from the active nest burrow during March 1- August 15.			
Dusky grouse	All formulations: Spot- 328ft buffer from active nest during April 1-July 15. Mechanized ground - 1/8 mile buffer from active nest during April 1-July 15. No aerial applications.			
Yellow warbler	All formulations: Spot- 1/8 mile buffer from active nest from April 15- July 31. Mechanized ground - 1/8 mile buffer year-round. No aerial applications.			

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides		
	Thifensulfuron-methyl	Triclopyr (amine salt)	Triclopyr (ester)
<b>Navajo Listed Species</b>			
Pronghorn	All formulations- 1 mile buffer from potential lambing areas from May 1- June 15		
Townsend's big eared bat	All formulations require a 197ft buffer from occupied roost site.		
Chisel-toothed kangaroo rat, Banner-tailed kangaroo rat, Navajo Mountain vole, Arizona (Wupatki) pocket mouse	No restrictions		
Kit fox	All formulations require a 1/8 mile buffer from active den from December 1- August 31.		
Bald and golden eagles	All formulations: 1/4 mile buffer from active nest during the breeding season January 15- July 15. Buffer zone is unnecessary outside of breeding season for spot and mechanized ground treatments. No aerial applications. If aerial flight over a nest site is necessary, an elevation of 500ft should be maintained over the nest.	All formulations: 1/4 mile buffer from active nest during the breeding season January 15- July 15. Buffer zone is unnecessary outside of breeding season for spot and mechanized ground treatments. Aerial applications should be made in swaths parallels to a nest and 3/4 mile buffer zone. If aerial flight over a nest site is necessary, an elevation of 500ft should be maintained over the nest.	All formulations: 1/4 mile buffer from active nest during the breeding season January 15- July 15. Buffer zone is unnecessary outside of breeding season for spot and mechanized ground treatments. No aerial applications. If aerial flight over a nest site is necessary, an elevation of 500ft should be maintained over the nest.
Ferruginous hawk	Brief (1hr) spot- 1/2 mile buffer. Mechanized ground- 5/8 mile buffer. No aerial applications.	Brief (1hr) spot- 1/2 mile buffer. Mechanized ground- 5/8 mile buffer. Low and high aerial- 3/4 mile.	Brief (1hr) spot- 1/2 mile buffer. Mechanized ground- 5/8 mile buffer. No aerial applications.
American dipper	All formulations- spot- 350ft buffer. Mechanized ground - 1/8 mile buffer from active nest during March 15- August 15. No aerial applications.	All formulations- spot- 350ft buffer. Mechanized ground, low or high aerial within 1/8 mile from active nest during March 15- August 15.	All formulations- spot- 350ft buffer. Mechanized ground - 1/8 mile buffer from active nest during March 15- August 15. No aerial applications.
Northern goshawk	All formulations require 1/4 mile buffer from nest site during March 1- August 15. All formulations require 0.21 mile buffer from the nest site year-round.		
Clark's grebe	All formulations: Spot- 328ft buffer from active nest during May 1-July 31. Mechanized ground - 1/8 mile buffer from active nest during May 1- July 31. No aerial applications	All formulations: Spot- 328ft buffer from active nest during May 1-July 31. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during May 1- July 31.	All formulations: Spot- 328ft buffer from active nest during May 1-July 31. Mechanized ground - 1/8 mile buffer from active nest during May 1- July 31. No aerial applications
Northern saw-whet owl	All formulations require 1/8 mile buffer from the nest site year-round.		
Burrowing owl	All formulations require 1/4 mile buffer from the active nest burrow during March 1- August 15.		
Dusky grouse	All formulations: Spot- 328ft buffer from active nest during April 1-July 15. Mechanized ground - 1/8 mile buffer from active nest during April 1-July 15. No aerial applications.	All formulations: Spot- 328ft buffer from active nest during April 1-July 15. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during April 1-July 15.	All formulations: Spot- 328ft buffer from active nest during April 1-July 15. Mechanized ground - 1/8 mile buffer from active nest during April 1-July 15. No aerial applications.
Yellow warbler	All formulations: Spot- 1/8 mile buffer from active nest from April 15- July 31. Mechanized ground - 1/8 mile buffer year-round. No aerial applications.	All formulations: Spot- 1/8 mile buffer from active nest from April 15- July 31. Mechanized ground and low and high aerial- 1/8 mile buffer year-round	All formulations: Spot- 1/8 mile buffer from active nest from April 15- July 31. Mechanized ground - 1/8 mile buffer year-round. No aerial applications.

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides						
	2,4-D (acid)	2,4-D (aquatic amine salt)	2,4-D (aquatic ester)	2,4-D (non-aquatic amine salt)	2,4-D (non-aquatic ester)	Aminopyralid	Atrazine
<b>Navajo Listed Species</b>							
Belted kingfisher and Mountain plover	All formulations: No treatments in nesting habitat year-round. Spot- 328ft buffer from active nest during April 15-August 15. Mechanized ground - 1/8 mile buffer from active nest during April 15-August 15. No aerial applications.	All formulations: No treatments in nesting habitat year-round. Spot- 328ft buffer from active nest during April 15-August 15. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during April 15-August 15.		All formulations: No treatments in nesting habitat year-round. Spot- 328ft buffer from active nest during April 15-August 15. Mechanized ground - 1/8 mile buffer from active nest during April 15-August 15. No aerial applications.			
Hammond's flycatcher	All formulations: Spot- 328ft from active nest during May 15- August 15. Mechanized ground - 1/8 mile from nest year-round. No aerial applications	All formulations: Spot- 328ft from active nest during May 15- August 15. Mechanized ground and low and high aerial- 1/8 mile from nest year-round.	All formulations: Spot- 328ft from active nest during May 15- August 15. Mechanized ground - 1/8 mile from nest year-round. No aerial applications				
Northern pygmy owl	All formulations: spot- 1/8 mile buffer from nest April 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.	All formulations: spot- 1/8 mile buffer from nest April 1-August 15. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 1/8 mile buffer from nest April 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.				
Flammulated owl	All formulations: spot- 1/8 mile buffer from nest May 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.	All formulations: spot- 1/8 mile buffer from nest May 1-August 15. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 1/8 mile buffer from nest May 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.				
Band-tailed pigeon, American three-toed woodpecker, Tree swallow	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.				
Sora	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground - 1/8 mile from nest site May 1-August 1. No aerial applications.	All formulations: spot- 328ft buffer from nest May 1- August 1. Mechanized ground, low and high aerial- 1/8 mile from nest site May 1- August 1.	All formulations: spot- 328ft buffer from nest May 1- August 1. Mechanized ground - 1/8 mile from nest site May 1-August 1. No aerial applications.				
Gray vireo	All formulations: spot- 328ft buffer from nest May 1-August 31. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.	All formulations: spot- 328ft buffer from nest May 1-August 31. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 328ft buffer from nest May 1-August 31. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.				
Great Basin Silverspot	All formulations require a 60m buffer from occupied habitat						
Rocky mountainsnail, Yavapai mountainsnail, and Kanab ambersnail	No restrictions						

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides			
	Chlorsulfuron methyl	Clopyralid	Dichlobenil	Fluroxpyr
<b>Navajo Listed Species</b>				
Belted kingfisher and Mountain plover	All formulations: No treatments in nesting habitat year-round. Spot- 328ft buffer from active nest during April 15-August 15. Mechanized ground - 1/8 mile buffer from active nest during April 15-August 15. No aerial applications.			
Hammond's flycatcher	All formulations: Spot- 328ft from active nest during May 15- August 15. Mechanized ground - 1/8 mile from nest year-round. No aerial applications			
Northern pygmy owl	All formulations: spot- 1/8 mile buffer from nest April 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.			
Flammulated owl	All formulations: spot- 1/8 mile buffer from nest May 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.			
Band-tailed pigeon, American three-toed woodpecker, Tree swallow	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.			
Sora	All formulations: spot- 328ft buffer from nest May 1- August 1. Mechanized ground - 1/8 mile from nest site May 1-August 1. No aerial applications.			
Gray vireo	All formulations: spot- 328ft buffer from nest May 1-August 31. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.			
Great Basin Silverspot	All formulations require a 60m buffer from occupied habitat			
Rocky mountainsnail, Yavapai mountainsnail, and Kanab ambersnail	No restrictions			

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides				
	Fluazifop-p butyl	Glyphosate (aquatic)	Glyphosate (non-aquatic)	Imazapic	Imazapyr (aquatic)
<b>Navajo Listed Species</b>					
Belted kingfisher and Mountain plover	All formulations: No treatments in nesting habitat year-round. Spot- 328ft buffer from active nest during April 15-August 15. Mechanized ground - 1/8 mile buffer from active nest during April 15-August 15. No aerial applications.	All formulations: No treatments in nesting habitat year-round. Spot- 328ft buffer from active nest during April 15-August 15. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during April 15-August 15.	All formulations: No treatments in nesting habitat year-round. Spot- 328ft buffer from active nest during April 15-August 15. Mechanized ground - 1/8 mile buffer from active nest during April 15-August 15. No aerial applications.	All formulations: No treatments in nesting habitat year-round. Spot- 328ft buffer from active nest during April 15-August 15. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during April 15-August 15.	All formulations: No treatments in nesting habitat year-round. Spot- 328ft buffer from active nest during April 15-August 15. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during April 15-August 15.
Hammond's flycatcher	All formulations: Spot- 328ft from active nest during May 15- August 15. Mechanized ground - 1/8 mile from nest year-round. No aerial applications.	All formulations: Spot- 328ft from active nest during May 15- August 15. Mechanized ground and low and high aerial- 1/8 mile from nest year-round.	All formulations: Spot- 328ft from active nest during May 15- August 15. Mechanized ground - 1/8 mile from nest year-round. No aerial applications.	All formulations: Spot- 328ft from active nest during May 15- August 15. Mechanized ground and low and high aerial- 1/8 mile from nest year-round.	All formulations: Spot- 328ft from active nest during May 15- August 15. Mechanized ground and low and high aerial- 1/8 mile from nest year-round.
Northern pygmy owl	All formulations: spot- 1/8 mile buffer from nest April 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.	All formulations: spot- 1/8 mile buffer from nest April 1-August 15. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 1/8 mile buffer from nest April 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.	All formulations: spot- 1/8 mile buffer from nest April 1-August 15. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 1/8 mile buffer from nest April 1-August 15. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.
Flammulated owl	All formulations: spot- 1/8 mile buffer from nest May 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.	All formulations: spot- 1/8 mile buffer from nest May 1-August 15. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 1/8 mile buffer from nest May 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.	All formulations: spot- 1/8 mile buffer from nest May 1-August 15. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 1/8 mile buffer from nest May 1-August 15. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.
Band-tailed pigeon, American three-toed woodpecker, Tree swallow	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.
Sora	All formulations: spot- 328ft buffer from nest May 1- August 1. Mechanized ground - 1/8 mile from nest site May 1-August 1. No aerial applications.	All formulations: spot- 328ft buffer from nest May 1- August 1. Mechanized ground, low and high aerial- 1/8 mile from nest site May 1-August 1.	All formulations: spot- 328ft buffer from nest May 1- August 1. Mechanized ground - 1/8 mile from nest site May 1-August 1. No aerial applications.	All formulations: spot- 328ft buffer from nest May 1- August 1. Mechanized ground, low and high aerial- 1/8 mile from nest site May 1-August 1.	All formulations: spot- 328ft buffer from nest May 1- August 1. Mechanized ground, low and high aerial- 1/8 mile from nest site May 1-August 1.
Gray vireo	All formulations: spot- 328ft buffer from nest May 1-August 31. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.	All formulations: spot- 328ft buffer from nest May 1-August 31. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 328ft buffer from nest May 1-August 31. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.	All formulations: spot- 328ft buffer from nest May 1-August 31. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 328ft buffer from nest May 1-August 31. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.
Great Basin Silverspot	All formulations require a 60m buffer from occupied habitat				
Rocky mountainsnail, Yavapai mountainsnail, and Kanab ambersnail	No restrictions				

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides				
	Imazapyr (non-aquatic)	Indaziflam	Isoxaben	Metsulfuron methyl	Metribuzin
<b>Navajo Listed Species</b>					
Belted kingfisher and Mountain plover	All formulations: No treatments in nesting habitat year-round. Spot- 328ft buffer from active nest during April 15-August 15. Mechanized ground - 1/8 mile buffer from active nest during April 15-August 15. No aerial applications.				
Hammond's flycatcher	All formulations: Spot- 328ft from active nest during May 15- August 15. Mechanized ground - 1/8 mile from nest year-round. No aerial applications.				
Northern pygmy owl	All formulations: spot- 1/8 mile buffer from nest April 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.				
Flammulated owl	All formulations: spot- 1/8 mile buffer from nest May 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.				
Band-tailed pigeon, American three-toed woodpecker, Tree swallow	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.				
Sora	All formulations: spot- 328ft buffer from nest May 1- August 1. Mechanized ground - 1/8 mile from nest site May 1-August 1. No aerial applications.				
Gray vireo	All formulations: spot- 328ft buffer from nest May 1-August 31. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.				
Great Basin Silverspot	All formulations require a 60m buffer from occupied habitat				
Rocky mountainsnail, Yavapai mountainsnail, and Kanab ambersnail	No restrictions				



Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides			
	Paraquat	Pendimethalin	Picloram	Proflaminate
<b>Navajo Listed Species</b>				
Belted kingfisher and Mountain plover	All formulations: No treatments in nesting habitat year-round. Spot- 328ft buffer from active nest during April 15-August 15. Mechanized ground - 1/8 mile buffer from active nest during April 15-August 15. No aerial applications.			
Hammond's flycatcher	All formulations: Spot- 328ft from active nest during May 15- August 15. Mechanized ground - 1/8 mile from nest year-round. No aerial applications.			
Northern pygmy owl	All formulations: spot- 1/8 mile buffer from nest April 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.			
Flammulated owl	All formulations: spot- 1/8 mile buffer from nest May 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.			
Band-tailed pigeon, American three-toed woodpecker, Tree swallow	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.			
Sora	All formulations: spot- 328ft buffer from nest May 1- August 1. Mechanized ground - 1/8 mile from nest site May 1-August 1. No aerial applications.			
Gray vireo	All formulations: spot- 328ft buffer from nest May 1-August 31. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.			
Great Basin Silverspot	All formulations require a 60m buffer from occupied habitat			
Rocky mountainsnail, Yavapai mountainsnail, and Kanab ambersnail	No restrictions			

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides		
	Thifensulfuron-methyl	Triclopyr (amine salt)	Triclopyr (ester)
<b>Navajo Listed Species</b>			
Belted kingfisher and Mountain plover	All formulations: No treatments in nesting habitat year-round. Spot- 328ft buffer from active nest during April 15-August 15. Mechanized ground - 1/8 mile buffer from active nest during April 15-August 15. No aerial applications.	All formulations: No treatments in nesting habitat year-round. Spot- 328ft buffer from active nest during April 15-August 15. Mechanized ground and low and high aerial- 1/8 mile buffer from active nest during April 15-August 15.	All formulations: No treatments in nesting habitat year-round. Spot- 328ft buffer from active nest during April 15-August 15. Mechanized ground - 1/8 mile buffer from active nest during April 15-August 15. No aerial applications.
Hammond's flycatcher	All formulations: Spot- 328ft from active nest during May 15- August 15. Mechanized ground - 1/8 mile from nest year-round. No aerial applications.	All formulations: Spot- 328ft from active nest during May 15- August 15. Mechanized ground and low and high aerial- 1/8 mile from nest year-round.	All formulations: Spot- 328ft from active nest during May 15- August 15. Mechanized ground - 1/8 mile from nest year-round. No aerial applications.
Northern pygmy owl	All formulations: spot- 1/8 mile buffer from nest April 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications	All formulations: spot- 1/8 mile buffer from nest April 1-August 15. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 1/8 mile buffer from nest April 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications
Flammulated owl	All formulations: spot- 1/8 mile buffer from nest May 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.	All formulations: spot- 1/8 mile buffer from nest May 1-August 15. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 1/8 mile buffer from nest May 1-August 15. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.
Band-tailed pigeon, American three-toed woodpecker, Tree swallow	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 328ft buffer from nest May 1-August 1. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.
Sora	All formulations: spot- 328ft buffer from nest May 1- August 1. Mechanized ground - 1/8 mile from nest site May 1-August 1. No aerial applications	All formulations: spot- 328ft buffer from nest May 1- August 1. Mechanized ground, low and high aerial- 1/8 mile from nest site May 1-August 1.	All formulations: spot- 328ft buffer from nest May 1- August 1. Mechanized ground - 1/8 mile from nest site May 1-August 1. No aerial applications.
Gray vireo	All formulations: spot- 328ft buffer from nest May 1-August 31. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications	All formulations: spot- 328ft buffer from nest May 1-August 31. Mechanized ground, low and high aerial- 1/8 mile from nest site year-round.	All formulations: spot- 328ft buffer from nest May 1-August 31. Mechanized ground - 1/8 mile from nest site year-round. No aerial applications.
Great Basin Silverspot	All formulations require a 60m buffer from occupied habitat		
Rocky mountainsnail, Yavapai mountainsnail, and Kanab ambersnail	No restrictions		

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides						
	2,4-D (acid)	2,4-D (aquatic amine salt)	2,4-D (aquatic ester)	2,4-D (non-aquatic amine salt)	2,4-D (non-aquatic ester)	Aminopyralid	Atrazine
<b>Navajo Listed Species</b>							
Northern leopard frog	Applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream. Liquid- Spot- 30ft buffer Mechanized- 350ft No aerial applications.	Applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream. Liquid- Spot- 30ft buffer Mechanized- 350ft Low aerial- 450ft High aerial-1/8 mile		Applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream. Liquid- Spot- 30ft buffer Mechanized- 350ft No aerial applications.		Spot applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream.	Applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream. Liquid- Spot- 100ft buffer Mechanized- 400ft
Milk snake and chuckwalla	No restrictions						
Marble Canyon milk-vetch, Cronquist milk-vetch, Naturita milk-vetch, Acoma fleabane, Round dunebroom, Navajo bladderpod, Navajo Penstemon, Alcove rock daisy, Alcove bog-orchid, Alcove death camas, Gooding's onion, Aztec gilia, San Juan milkweed, Heil's milkvetch, Navajo saltbush, Atwood's camissonia, Rydberg's thistle, Utah bladder-fem, Sivinski's fleabane, Sarah's buckwheat, Bluff phacelia, Cave primrose, Marble Canyon dalea, Parish's alkali grass, Arizona rose sage, Brack hardwall cactus, Welsh' American-aster	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	Spot and mechanized spraying - 200ft from identified species locations. Low and high aerial applications- 1 mile from identified species locations.		Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.			
Beath's milkvetch, Cutler's milk-vetch	No herbicide treatments permitted in suitable habitat for pre-emergent applications. For post-emergent applications, spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	No herbicide treatments permitted in suitable habitat for pre-emergent applications. For post-emergent applications, spot and mechanized spraying - 200ft from identified species locations. Low and high aerial applications - 1 mile from identified species locations.		No herbicide treatments permitted in suitable habitat for pre-emergent applications. For post-emergent applications, spot and mechanized spraying - 200ft from identified species locations. No aerial applications.		Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	No herbicide treatments permitted in suitable habitat for pre-emergent applications. For post-emergent applications, spot and mechanized spraying - 200ft from identified species locations. No aerial applications.

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides			
	Chlorsulfuron methyl	Clopyralid	Dichlobenil	Fluroxpyr
<b>Navajo Listed Species</b>				
Northern leopard frog	Spot applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream.		Applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream. Liquid- Spot- 30ft buffer Mechanized- 350ft No aerial applications.	
Milk snake and chuckwalla	No restrictions			
Marble Canyon milk-vetch, Cronquist milk-vetch, Naturita milk-vetch, Acoma fleabane, Round dunebroom, Navajo bladderpod, Navajo Penstemon, Alcove rock daisy, Alcove bog-orchid, Alcove death camas, Gooding's onion, Aztec gilia, San Juan milkweed, Heil's milkvetch, Navajo saltbush, Atwood's camissonia, Rydberg's thistle, Utah bladder-fern, Sivinski's fleabane, Sarah's buckwheat, Bluff phacelia, Cave primrose, Marble Canyon dalea, Parish's alkali grass, Arizona rose sage, Brack hardwall cactus, Welsh' American-aster	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.			
Beath's milkvetch, Cutler's milk-vetch	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.		No herbicide treatments permitted in suitable habitat.	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides				
	Fluazifop-p butyl	Glyphosate (aquatic)	Glyphosate (non-aquatic)	Imazapic	Imazapyr (aquatic)
<b>Navajo Listed Species</b>					
Northern leopard frog	Applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream. Liquid- Spot- 50ft buffer Mechanized- 350ft No aerial applications.	Spot applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream Liquid- Spot- 30ft buffer Mechanized- 350ft Low aerial- 450ft High aerial-1/8 mile	Applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream. Liquid- Spot- 30ft buffer Mechanized- 350ft No aerial applications.		Spot applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream Liquid- Spot- 30ft buffer Mechanized- 350ft Low aerial- 450ft High aerial-1/8 mile
Milk snake and chuckwalla	No restrictions				
Marble Canyon milk-vetch, Cronquist milk-vetch, Naturita milk-vetch, Acoma fleabane, Round dunebroom, Navajo bladderpod, Navajo Penstemon, Alcove rock daisy, Alcove bog-orchid, Alcove death camas, Gooding's onion, Aztec gilia, San Juan milkweed, Heil's milkvetch, Navajo saltbush, Atwood's camissonia, Rydberg's thistle, Utah bladder-fern, Sivinski's fleabane, Sarah's buckwheat, Bluff phacelia, Cave primrose, Marble Canyon dalea, Parish's alkali grass, Arizona rose sage, Brack hardwall cactus, Welsh' American-aster	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	Spot and mechanized spraying - 200ft from identified species locations. Low and high aerial applications- 1 mile from identified species locations.	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.		Spot and mechanized spraying - 200ft from identified species locations. Low and high aerial applications- 1 mile from identified species locations.
Beath's milkvetch, Cutler's milk-vetch	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	Spot and mechanized spraying - 200ft from identified species locations. Low and high aerial applications- 1 mile from identified species locations.	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	No herbicide treatments permitted in suitable habitat for pre-emergent applications. For post-emergent applications, spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	No herbicide treatments permitted in suitable habitat for pre-emergent applications. For post-emergent applications, spot and mechanized spraying - 200ft from identified species locations. Low and high aerial applications - 1 mile from identified species locations.

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides				
	Imazapyr (non-aquatic)	Indaziflam	Isoxaben	Metsulfuron methyl	Metribuzin
<b>Navajo Listed Species</b>					
Northern leopard frog	Applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream. Liquid- Spot- 30ft buffer Mechanized- 350ft . No aerial applications.				
Milk snake and chuckwalla	No restrictions				
Marble Canyon milk-vetch, Cronquist milk-vetch, Naturita milk-vetch, Acoma fleabane, Round dunebroom, Navajo bladderpod, Navajo Penstemon, Alcove rock daisy, Alcove bog-orchid, Alcove death camas, Gooding's onion, Aztec gilia, San Juan milkweed, Heil's milkvetch, Navajo saltbush, Atwood's camissonia, Rydberg's thistle, Utah bladder-fern, Sivinski's fleabane, Sarah's buckwheat, Bluff phacelia, Cave primrose, Marble Canyon dalea, Parish's alkali grass, Arizona rose sage, Brack hardwall cactus, Welsh' American-aster	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.				
Beath's milkvetch, Cutler's milk-vetch	No herbicide treatments permitted in suitable habitat for pre-emergent applications.For post-emergent applications, spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	No herbicide treatments permitted in suitable habitat.	Spot and mechanized spraying - 200ft from identified species locations. Low and high aerial applications- 1 mile from identified species locations.	No herbicide treatments permitted in suitable habitat for pre-emergent applications.For post-emergent applications, spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides			
	Paraquat	Pendimethalin	Picloram	Prodiamine
<b>Navajo Listed Species</b>				
Northern leopard frog	Applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream. Liquid- Spot- 50ft buffer Mechanized- 350ft No aerial applications.			
Milk snake and chuckwalla	No restrictions			
Marble Canyon milk-vetch, Cronquist milk-vetch, Naturita milk-vetch, Acoma fleabane, Round dunebroom, Navajo bladderpod, Navajo Penstemon, Alcove rock daisy, Alcove bog-orchid, Alcove death camas, Gooding's onion, Aztec gilia, San Juan milkweed, Heil's milkvetch, Navajo saltbush, Atwood's camissonia, Rydberg's thistle, Utah bladder-fern, Sivinski's fleabane, Sarah's buckwheat, Bluff phacelia, Cave primrose, Marble Canyon dalea, Parish's alkali grass, Arizona rose sage, Brack hardwall cactus, Welsh' American-aster	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.			
Beath's milkvetch, Cutler's milk-vetch	No herbicide treatments permitted in suitable habitat for pre-emergent applications. For post-emergent applications, spot and mechanized spraying - 200ft from identified species locations. No aerial applications.		Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	No herbicide treatments permitted in suitable habitat

Figure 1. Required protection measures for herbicide application in Federally and Navajo Nation listed species habitats.

Species	Herbicides		
	Thifensulfuron-methyl	Triclopyr (amine salt)	Triclopyr (ester)
<b>Navajo Listed Species</b>			
Northern leopard frog	Spot applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream. No aerial applications.	Applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream. Liquid- Spot- 50ft buffer Mechanized- 350ft Low aerial- 1/8 mile High aerial-1/4 mile	Spot applications on land below or above high water line of species habitat, one-half mile upstream (including tributaries) and 300ft downstream. Liquid Spot - 50 ft. buffer Mechanized - 350 ft. No aerial applications.
Milk snake and chuckwalla	No restrictions		
Marble Canyon milk-vetch, Cronquist milk-vetch, Naturita milk-vetch, Acoma fleabane, Round dunebroom, Navajo bladderpod, Navajo Penstemon, Alcove rock daisy, Alcove bog-orchid, Alcove death camas, Gooding's onion, Aztec gilia, San Juan milkweed, Heil's milkvetch, Navajo saltbush, Atwood's camissonia, Rydberg's thistle, Utah bladder-fern, Sivinski's fleabane, Sarah's buckwheat, Bluff phacelia, Cave primrose, Marble Canyon dalea, Parish's alkali grass, Arizona rose sage, Brack hardwall cactus, Welsh' American-aster	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.	Spot and mechanized spraying - 200ft from identified species locations. Low and high aerial applications- 1 mile from identified species locations.	Spot and mechanized spraying - 200ft from identified species locations. No aerial applications.
Beath's milkvetch, Cutler's milk-vetch	Spot and mechanized spraying - 200ft from identified species locations.	Spot and mechanized spraying - 200ft from identified species locations. Low and high aerial applications- 1 mile from identified species locations.	Spot and mechanized spraying - 200ft from identified species locations.