

APPENDIX B. NATIVE AND NONNATIVE INVASIVE PLANTS

Introduction

An invasive plant is a species that is nonnative to an ecosystem and whose presence causes, or is likely to cause, economic or environmental harm. According to the Federal Noxious Weed Act (Public Law 93-639), a noxious weed is one that causes disease or has adverse effects on humans or the human environment and, therefore, is detrimental to the agriculture and commerce of the United States and to public health. All noxious weeds are listed as invasive plants, but not all invasive plants are listed as noxious because they are not all detrimental to agriculture and commerce. The state of Montana typically uses the term “noxious plants” unlike the Service, which uses the term “invasive species.” The Service is committed to treating invasive species, including those designated as “noxious” by the state of Montana.

Invasive plants can affect biological diversity, ecological processes and land management in ecosystems ranging from arid grasslands to wetlands and streams (USFS 2005). They displace native plants and change species composition, vegetation structure and soil chemistry. Invasive nonnative plants grow and spread rapidly over large areas, reducing food and shelter for native wildlife, eliminating the host plants of native insects and competing for native plant pollinators.

Some invasives spread so rapidly that they push out most other plants, changing a forest, meadow or wetland into a landscape dominated by one species. Such monocultures (an area with plants of only one species) have little ecological value and greatly reduce the natural biological diversity of an area (Swearingen et al. 2002) and the ecosystem functions associated with a diverse natural community.

Invasive plants such as crested wheatgrass and smooth brome have the greatest impact on native prairie acreage. The state has not designated these plants as noxious since they do provide forage for cattle; however, they do not provide quality wildlife habitat. Once introduced, these plants will quickly outcompete native vegetation for resources (sunlight, nutrients, water), creating a monoculture of minimal value to wildlife. Introduced (nonnative) annual grasses include cheatgrass and Japanese brome. The most dominant nonnative forb is yellow sweetclover.

Land managers are concerned about the impacts of exotic plants on fuel characteristics and fire regimes. Observations and data from bioregions around the country indicate that changes in fuel characteristics brought about by exotic plant invasions can lead to changes in fire behavior and fire regime characteristics such as frequency, intensity, extent, type and seasonality. The negative changes adversely affect native plant and animal communities (Zouhar et al. 2008). The flammable chemicals in the leaves of some plants can alter the intensity and structure of wildfires and facilitate the fire’s spread into the forest canopy, which can make suppression more difficult.

Montana lists noxious weeds under three categories. Only category 1 noxious weeds have been documented in the District, including Canada thistle, whitetop or hoary crest, leafy

spurge, Russian knapweed and houndstongue. Russian olive is another invasive species of management concern. It is not listed as a noxious species in Montana, but in 2010, the state prohibited the sale of this tree. Russian olive trees are only found in Clark Fork's WPA and Spidel WPA. They provide perches for avian predators and fragment native grassland habitats, making nesting birds more vulnerable to predators.

The following distribution data is based on information in District files from 1998.

Category 1: State Noxious Weeds and Problems Caused by Each Species

Canada thistle (Cirsium arvense)

Canada thistle is an aggressive competitor that changes the plant structure of communities and decreases biodiversity. It poses a huge problem on agricultural land as it serves as an alternate host for insects and pathogens that are known to attack certain crops. It is also difficult and expensive to control. Canada thistle has been documented in various locations in Clark's Fork WPA and in the DNC field at Hailstone WPA.

Whitetop or hoary crest (Cardaria draba)

Whitetop reduces biodiversity by displacing plants from plant communities and, ultimately, the animals that depend on those plants for food and habitat. It reduces forage quality and quantity and crop, pasture and rangeland productivity; reduces available soil moisture and nutrients early in the season; and increases management costs of public and private lands. A small population of whitetop is currently (June 2024) located in the Clark's Fork WPA.

Leafy spurge (Euphorbia esula)

Leafy spurge can be toxic to herbivores. It can spread and degrade the integrity of native habitat. Leafy spurge was first documented in 1995 in the North Unit of Lake Mason NWR and has been documented in Clark's Fork WPA. It likely invaded the North Unit prior to 1995 based on the number of mature plants found; however, an abundance of yellow sweetclover in 1993 and 1994 likely camouflaged it, delaying its detection.

Initial control included mapping spurge locations and applying chemicals to contain the population. Continued chemical and biological control (release of leafy spurge beetles — *Apatha nigriscutis* and *Aphthona lacertosa*) has affected, but not eliminated, spurge in the Jones Creek watershed, and populations are now found downstream from the initial detection site. Spurge has also been documented along the Clark's Fork River on the Clark's Fork WPA, and chemical and biological controls have been implemented.

Russian knapweed (Centaurea repens)

Russian knapweed's ability to outcompete resident vegetation allows it to develop into a near monoculture. Such monocultures contribute to reduced wildlife presence and a decline in species diversity. This knapweed is toxic to livestock (especially horses), and its presence reduces forage availability. Russian knapweed has been documented along the Clark's Fork River on the Clark's Fork WPA. The Service has implemented chemical and biological controls (release of *Agapeta zoegana*, a nematode).

Houndstongue (Cynoglossum officinale)

Houndstongue is an early successional species on recently disturbed sites that can reduce livestock and wildlife forage. It contains toxic alkaloids that stop liver cells from reproducing. Houndstongue has been documented in the Clark's Fork WPA, where plants are scattered and of low density around the abandoned gravel pit near the parking area. The Service has implemented biological and chemical control efforts.

Other Invasive Species

Crested wheatgrass (Agropyron cristatum)

Crested wheatgrass is difficult to effectively treat and eradicate and its invasion into native rangeland can negatively affect plant and wildlife diversity (Reynolds and Trost 1981, Christian and Wilson 1999, Davis and Duncan 1999). When it invades native prairie, it often eliminates the native species and can form vast monocultures that create an ecological void for nesting grassland birds (Lloyd 2005). Crested wheatgrass has been documented on most land units. Stands are well-established and dense in some places; in other places, it is less dense but expanding. Crested wheatgrass was often planted to revegetate abandoned homestead sites and has spread widely.

Smooth brome (Bromus inermus)

Mature smooth brome plants spread by rhizomes and can outcompete native grass species. Smooth brome can tolerate a variety of soil conditions. It is difficult to effectively treat and eradicate. Smooth brome was imported in the late 1800s as a forage grass and for erosion control.

Russian olive (Elaeagnus angustifolia L.)

Russian olive spreads quickly in moist soil types. It fragments grassland habitats, causing some nesting grassland birds to avoid these areas. Other effects include increased predation of nests, adults and juvenile grassland-dependent birds (Delisle and Savidge 1996; Gazda et al. 2002; Helzer 1996; Johnson and Temple 1990). Russian olive occurs in Spidel WPA and Clark's Fork WPA.

Russian olive outcompetes native vegetation, interferes with natural plant succession and nutrient cycling, and taxes water reserves. Because it is capable of fixing nitrogen in its roots, it can grow on bare mineral substrates and dominate riparian vegetation where overstory cottonwoods have died. Although Russian olive provides a plentiful source of edible fruits for birds, ecologists have found that bird species richness is higher in riparian areas dominated by native vegetation (Muzika and Swearingen 2005a).

Tamarisk/salt cedar (Tamarix aphylla, T. chinensis, T. gallica, T. parviflora, and T. ramosissima)

Salt cedar occurs in shrublands and riparian and wetland areas. This fire-adapted species has long tap roots that allow it to intercept deep water tables and interfere with natural aquatic systems. Salt cedar disrupts the structure and stability of native plant communities and degrades native wildlife habitat by outcompeting and replacing native plant species, monopolizing limited sources of moisture, and increasing the frequency, intensity, and effect of fires and floods. Although it provides some shelter, its foliage and

flowers provide little food value for native wildlife species that depend on nutrient-rich native plant resources (Muzika and Swearingen 2005b).

Cattail: broad leaf (T. latifolia), narrow leaf (T. angustifolia) and hybrid (T. x glauca)

Cattails are wetland plants with a unique flowering spike and flat, blade-like leaves that reach heights of 3 to 10 feet. They are one of the most common plants in large marshes and at the edges of ponds. Cattails prefer shallow, flooded conditions and easily become established along a pond shoreline or in waters 1 foot to 1.5 feet deep. When unimpeded, cattail beds expand, extending their hefty rhizomes onto the pond surface, where they float above much deeper waters. The pollinated flowers develop into fluffy seed heads that autumn breezes blow across the pond.

Cattails and similar invasive wetland plants outcompete native plants and displace native animals (USFWS 2007). Invasive plants that greatly alter the physical structure of a wetland have a high potential to shift hydrological conditions and animal use (USFWS 2007), which adversely affects native plants and animals in wetlands, riparian zones and marshes.

When invasive plants become dense, they can lower water tables to the disadvantage of native species and dewater wetlands (Zedler and Kercher 2004). The increased density of some flammable invasive woody plants and associated litter increases fire frequency and intensity (Zedler and Kercher 2004).

Cattails tend to grow in thick, nearly impenetrable stands, blocking the view of open water and raising concerns that they will take over and cover a pond. The dense foliage and debris from old-growth cattails makes it difficult for competing plant species to grow (CU CCE 2015).

Conversely, cattails can be desirable in a pond as they provide important wildlife habitat, shelter for birds, and food and cover for fish and the insects they eat. Cattails protect the banks of a pond from erosion. They intercept and reduce the force of small waves and wind on the shore. The stems catch and slow water and help trap sediment and silt. Cattail roots harbor microorganisms that help break down organic materials (CU CCE 2015).

Cattail has been found on Clark's Fork WPA.

Black henbane (Hyoscyamus niger L.)

The full extent of black henbane's ecological, economical and sociological impacts are poorly documented. The plant can form dense infestations, replacing desirable native species, impacting agricultural production and reducing plant biodiversity. Black henbane is narcotic and all parts of the plant are poisonous to humans and livestock. Livestock usually avoid it because of its foul odor and bitter taste unless other forage is unavailable (MSUE 2017).

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Appendix B – Native and Nonnative Invasive Plants/Comprehensive Conservation Plan: Charles M. Russell Wetland Management District and Associated National Wildlife Refuges, Montana

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APPENDIX C. LANDSCAPE PLANS AND DESIGNS

The North American Waterfowl Management Plan (NAWMP)

This plan dates back to 1986, when the United States and Canada joined in an effort to combat declining waterfowl numbers and dwindling habitat. Mexico joined in 1994. These continental partners have collaborated to protect, restore and enhance habitat for waterfowl and other species that share the same habitat.

Broad conservation measures are implemented within each country at regional levels, where success requires partnerships between federal state, provincial, tribal and local governments, as well as the support of businesses, conservation organizations and individuals. The plan takes a science-based approach to identifying and prioritizing critical waterfowl habitat. The plan has been regularly updated five times, most recently in 2024.

The District fully supports the NAWMP by protecting known critical areas for waterfowl and other water birds, providing these species with areas to stage, rest and feed during spring and autumn migration events. District lands also provide important nesting cover for species that are year-round District residents and those whose spring migration ends in the District.

Montana State Wildlife Action Plan (SWAP) 2015

Created by the Montana Department of Fish, Wildlife and Parks (MFWP), this first-of-its-kind statewide plan is a revision of the 2006 Comprehensive Fish and Wildlife Conservation Strategy approved by the U.S. Fish and Wildlife Service to receive State Wildlife Grant funding from Congress. Without detracting attention from the needs of game species, SWAP provides an avenue to receive federal funding for state conservation efforts for non-game species with critical needs.

The plan provides an in-depth, comprehensive analysis of community types, focal areas and species of conservation concern throughout the state and identifies issues that warrant conservation attention. Numerous conservation entities use the plan, which is designed to guide conservation efforts throughout Montana. The plan identifies 128 Species of Greatest Conservation Concern (SGCN), including 47 that have the most critical conservation need. It also identifies 12 terrestrial and numerous aquatic habitat types that correspond to SGCNs, which are Community Types of Greatest Conservation Need. A number of these species, focal areas and community types are within the District.

The SWAP identifies the Lower Musselshell area as a focal area. Community types identified in the SWAP (those the District has also identified as habitat resources of concern) include wetlands, sage-steppe and grasslands. Within these habitat community types the District has identified priority species and species guilds. Species (and guilds) named by the SWAP and the District include greater sage-grouse, black-tailed prairie dog, pronghorn, waterfowl, shorebirds, wading birds, wetland dependent species and numerous neotropical migrant birds.

As District lands provide critical habitat protection and sanctuary for various breeding, nesting and migrating species, they directly support SWAP's conservation efforts for imperiled species and their habitat requirements. A full list of species, focal areas and community types in Montana can be found in the 2015 Montana SWAP and with the Montana Natural History Program.

Montana Action Plan (MAP) – Update 2022

This plan was created in response to a 2018 Department of Interior Secretarial Order 3362, which states that appropriate Department of Interior federal bureaus shall collaborate with western states' wildlife management agencies, private conservation groups and landowners to identify, improve and conserve winter range and migration corridors for big game – mule deer, elk and pronghorn. Montana is one of the states identified in the order; MFWP is its state wildlife management agency and the author of the plan.

The plan identifies five priority areas and their habitats throughout the state that are winter ranges and migration corridors for big game. In each priority area, MFWP tracks GPS-collared big game animals, conducting spatial analysis of their movements. They work closely with the U.S. Geological Survey, Bureau of Land Management, universities and other partners to identify focal areas within priority areas to make threat assessments that correspond to big game travel patterns and habits.

The plan also identifies current and potential conservation opportunities as well as the possibility of collaboration with landowners. A portion of priority area D in the plan, known as the Canadian Border to Musselshell Plains, lies within the District's boundaries. This priority area contains large swaths of grasslands and sage-steppe areas – both identified as District priority habitats for management. It also contains pronghorn, which is a District priority species.

Montana State Tactical Plan (STP)

This supplement to the 2017 Prairie Pothole Joint Venture (PPJV) Implementation Plan is a voluntary, non-regulatory, self-directed partnership involving federal and state agencies, non-governmental conservation groups, private landowners, scientists, universities, policymakers and others interested in prairie habitat conservation.

The STP is a state version step-down plan that identifies goals, objectives, and strategies for spatially identifying habitat for priority bird species of conservation concern. The plan identifies areas of conservation priority, as well as conservation policy and legislation. The plan emphasizes the human element – notably public access to wetlands and uplands in the form of a hunter constituency and its associated financial and political support for bird conservation. The District supports these human elements of the STP by providing opportunities for hunting and other wildlife-dependent recreation.

Although the District lies outside of the Prairie Pothole Region in Montana, immediately to the south of it, many of the bird species identified in the STP reside in and migrate through District boundaries. These species guilds – waterfowl, shorebirds, and wading birds – represent a priority for the District. The wetlands they use are a habitat resource of

concern for the District. The District plays an integral role in the success of the PPJV and the STP.

North American Waterbird Conservation Plan (NAWCP)

A comprehensive and visionary compilation of waterbird conservation ideas, the NAWCP discusses “... weaving together cultures, opinions, resources, and science to achieve sustainable waterbird populations and appropriately manage waterbird habitats throughout the entirety of their ranges.” The plan takes a holistic (continent-side) approach to waterbird conservation; it recognizes 210 species to date. The plan offers thoughtful, insightful, and informative figures and tables that illustrate topics ranging from regions to perils to conservation status and concerns for waterbirds. The District supports the NAWCP by providing critical wetland and associated grassland habitats – priority habitats for various waterbirds, shorebirds, and wading birds, which are also priority species guilds for the District.

Northern Great Plains Joint Venture (NGPJV) Strategic Plan (2022) and Action Plan (2022-27): This endeavor provides a comprehensive design for the broad conservation of grasslands in the Northern Great Plains. The plan represents areas of central and eastern Montana, southwest North Dakota, northeast Wyoming, and western South Dakota. The entire District lies within the Montana portion of the NGPJV's boundaries.

The mission of the NGPJV is “to retain, enhance, restore, and protect grassland, sagebrush-steppe, wetland, and riparian ecosystems, with an emphasis on sustaining and increasing populations of migratory and resident birds while supporting working lands and communities that sustain these habitats.” Its goal is “to facilitate conservation efforts in the Northern Great Plains that result in healthy ecosystems and bird populations that benefit communities and private producers and support federal and state agencies and lawmakers as they prioritize grasslands conservation in their budgets, plans, and policies.”

A pillar of the NGPJV is incorporating partnerships to build a team ranging from conservation non-governmental organizations to state wildlife agencies, federal agencies and private businesses. The NGPJV's five priorities to achieve its shared vision of resilient grasslands are: 1) communications, education, and outreach, 2) conservation design and implementation, 3) science, monitoring, and research, 4) conservation policy and 5) human dimensions.

The NGPJV recognizes that “resilient grasslands” include other habitat components such as sagebrush-steppe and wetlands, which along with grasslands, the District recognizes as management priorities. Accordingly, the NGPJV works to conserve imperiled grassland bird species and migratory bird species that use these habitats. Waterfowl, shorebirds, wading birds and neotropical migrant birds are all migratory birds and priority species guilds for the District.

The 2022 NGPJV Strategic Plan is an update of the original 2006 plan and provides a more streamlined and contemporary view of the NGPJV's vision and direction. The 2022-

27 Action Plan is a step-down plan of the strategic plan with specific goals, objectives and corresponding actions, as well as mechanisms to track success and progress.

APPENDIX E. MITIGATION MEASURES FOR MANAGEMENT ACTIVITIES IN THE DISTRICT/COMPREHENSIVE CONSERVATION PLAN

Public Health and Safety

The Service is dedicated to ensuring the safety of all visitors, residents and properties adjacent to FWS boundaries. The following steps will help ensure public safety:

- Public access will be restricted during prescribed and wildfire operations.
- All visitors will be accounted for before treatments are implemented.
- The Service will attempt to notify residents who live adjacent to Service lands in advance of any prescribed burn, or if a wildfire on service lands poses a threat to private property.

Wildfire Response

- Protecting human life is the single, overriding priority. The Service will set priorities for protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources. Human health and safety and the costs of protection will be factors in setting priority levels.
- Minimum Impact Suppression Tactics (MIST) will be included in the fire management plan (FMP) and employed during each wildfire response.
- Natural resource and cultural resource staff will be included, to the extent possible, during all stages of wildfire responses (planning, implementation, restoration).
- Fireline location will avoid sensitive areas wherever possible. Sensitive areas identified by Service staff may include cultural or natural resources, utility infrastructure, and other resources or facilities that may be damaged by fire suppression efforts.
- Firelines will be recontoured and water-barred as needed after the end of fire suppression activities.
- No modifications will be made to roadways, trails, water sources or clearings except for spot maintenance to remove obstructions. All sites where modifications are made or obstructions are removed will be rehabilitated to pre-fire conditions.
- Burned areas will not be reseeded unless there is concern about invasive nonnative plant species. Reseeding will be with native species and will require the project leader's prior approval.
- Fire-intolerant plant communities (such as those in wetlands) will be protected from the adverse impacts of wildfire to the extent possible.
- Surfactant chemicals (foams or other fire retardants) will not be used within 300 feet of all water sources (wetlands, canals, creeks, lakes, ponds).
- Heavy equipment use will be closely monitored in designated areas to prevent adverse impacts to cultural resources. The potential for disturbing archeological

sites will be minimized using water and/or natural barriers to the extent feasible instead of the construction of hand lines to contain wildfires.

- Firelines/firebreaks will be plotted to minimize impacts to known cultural resources and the potential to disturb previously unidentified resources.
- Control lines will be located away from sites when more damage may be anticipated from line construction than from fire impacts.
- Suppression personnel will be briefed about protecting cultural resources.

Prescribed Fire

- Prescribed fires will comply with Montana’s Department of Environmental Quality (MTDEQ) regulations and carried out in accordance with the District’s Comprehensive Conservation Plan (CCP), FMP and maps.
- Local fire departments, county sheriffs’ offices, and other parties identified in the individual burn plan will be notified before prescribed burns.
- Prescribed fires will not be started until all contingency forces are confirmed to be available, per each prescribed burn plan.
- Prescribed burns will not occur during extended inversions or if not approved through the Montana/Idaho Airshed Management System (including MTDEQ).
- Agency or local law enforcement may be requested for traffic control if smoke could impact visibility on roads.
- Warning signs will be posted to advise motorists of a prescribed burn in progress and the potential for reduced visibility.
- The Service will notify municipalities and those whose lands border Service lands. This may include notices posted physically and electronically to inform nearby communities of prescribed fires.
- Each prescribed burn area will be checked for hazardous material, and hazards will be identified, marked and mitigated prior to ignition.

Smoke Management

The Service will use the following smoke management mitigations if a smoke-sensitive area will be impacted (hospital, highway, recreation area, any populated area):

- Smoke management forecast will be verified with the National Weather Service. Smoke characteristics will be evaluated.
- Burning will only occur when fuel conditions will not adversely impact identified smoke-sensitive areas.
- The Service will choose ignition techniques that minimize impacts to smoke sensitive receptors.
- All ignition operations will be completed during one burn period, and the Service will ensure that heavy fuels burn out before the end of the day to minimize overnight smoldering and smoke production. Smoldering of interior fuels overnight in burn units will be allowed.

- The Service will get approval from MTDEQ before all prescribed burning through the Montana/Idaho Airshed Management System.

Wildfire Prevention and Education

The Service may provide printed and electronic prevention material to employees, cooperators and the public to increase prevention awareness through formal presentations, training and practice.

Firefighter Safety

- Hazardous snags that may cause safety or control issues will be identified before burn day and flagged so fire personnel can avoid them. If snags cannot be mitigated and pose a threat to firefighters or cause control problems, they may be removed with FWS management approval.
- All holding lines will be easily identifiable for incident personnel.
- The Service will monitor weather and fuel conditions in the burn area.
- The Service will conduct final checks of control lines to ensure the burn unit is clear of unauthorized personnel.
- All notifications will be completed before ignition.

Mechanical Treatments

- Before any mechanical treatment and throughout the planning process, FWS management will identify listed plants to avoid and animals and the habitats where they are commonly found. In more pristine areas and those with special status, invasive species control will be done carefully and manually when possible.
- Heavy equipment use will be minimal in wetland communities.
- Mechanical treatment of invasive/exotic plants should include best practices to minimize the potential of spreading seed sources or plant parts to native plant communities or elsewhere on Service lands. These practices include cleaning equipment before leaving a treatment area and completing a boot, clothing and equipment check. Equipment brought in from outside or from another part of the district should be washed and inspected to ensure invasive/exotic plant seeds and parts are not being transported.

Chemical Treatments

- The Service will take measures to minimize exposure to refuge staff and visitors. FWS personnel will be, or will be managed by, trained pesticide applicators. They will follow standard safety procedures.
- All products will be used according to label instructions, and the Service will select the chemical application that is most effective for the target species and least harmful to nontarget species. Application crews will avoid chemical drift damage during application by:

- Choosing optimal times of year to apply herbicides
- Using the lowest effective application rate – the minimum amount needed to control the target species
- Spraying on days when the wind speed is less than 10 mph to avoid drift spray, which can impact a wider area than is targeted
- Using nozzles that reduce drift potential. Carefully calibrating spray nozzles to achieve the correct droplet size and application rate, minimizing spray drift (USFWS 2009)
- Using alternative application methods if necessary.
- The Service will take other precautions such as:
 - Creating herbicide-free buffers around nontarget plants, known sensitive and rare plants, and sensitive areas
 - Shielding nontarget and sensitive plants with suitable material such as a tree shelter or bucket

Wildlife

- Refuge management and biological staff will be included at all stages of mechanical treatments, prescribed fire and wildfire response.
- Adverse effects on wildlife will be minimized by timing prescribed burns to avoid the active periods of wildlife that cannot escape a prescribed burn, such as turtles.
- Timing of mechanical treatments and prescribed burns will be considered on a case-by-case basis for other wildlife species and incorporated into burn plans. For example, a prescribed fire in a wooded area will be avoided during the peak bird-nesting period and bat maternity season.
- Prescribed fires in grasslands will be timed to avoid the nesting season for birds and other wildlife (including reptiles and amphibians), unless benefits gained, such as woody vegetation control, is considered essential.
- Snags will be retained after the fire for wildlife benefits unless they must be removed for suppression or safety reasons.

Invasive/Exotic Plants

Prevention

- MIST will be used to minimize soil disturbance in fireline construction, off-road vehicle use and other conditions favorable for the spread of invasive plants.
- FWS staff will be consulted before fireline construction to identify known exotic plant and noxious weed areas.
- Fire management operations will be staged away from known exotic plant and noxious weed infestations to the greatest extent possible.
- Firefighting equipment and firefighter personal gear will be checked for invasive weed seeds and plant parts and cleaned before fire crews are moved.

- Prescribed burns will be timed so they occur during a time of year when introducing or spreading invasive plants will be less likely, and mortality of invasive plant species will be more likely. If not possible, additional invasive plant species management actions (herbicide, mechanical removal) may be considered along with prescribed burning.
- Vehicles will avoid driving in areas infested with invasive/exotic plants at times when movement of seeds is likely. When this is not possible, vehicles and equipment will be cleaned after leaving an infested area. Vehicles, boots, and equipment will be considered clean when a visual inspection does not disclose seeds, soil, vegetative matter and other debris that could contain seeds.
- A designated location will be identified for the cleaning described above. This will be in a spot where exotic weeds are not likely to become established. This area will be monitored for incipient weed populations.

Control and Monitor

- The Service may conduct hazardous fuels management monitoring pre- and post-treatment to assess effectiveness and evaluate whether further management actions are necessary.
- The Service will conduct post-treatment surveys in treated areas and site-specific evaluations to determine how to control any invasive/exotic plants that are located.
- Mechanically treated and burned areas will be monitored for invasive/exotic plants.
- The Service will treat and monitor new noxious weed populations resulting from project implementation.

Cultural Resources

- The fire management plan will include provision for archeological surveys to precede fireline construction.
- Service staff will complete National Historic Preservation Act section 106 compliance before implementing hazard fuel reduction projects if the treated areas could contain cultural resources.
- Service staff will participate in the planning stages of hazard fuels reduction projects if the treated areas could contain cultural resources.
- Creating buffers around archeological sites and reducing hazardous fuels in the vicinity could be used to protect sites.
- Before treatments, an inventory may be conducted of non-surveyed areas by an archeologist who meets the Secretary of the Interior's standards for conducting archeological surveys.
- Wildland firefighters will be briefed about protecting cultural resources. If archeological sites are discovered during surveys, they may be excluded from prescribed burns, and mechanical/chemical treatments in those areas may be limited.

Appendix E – Mitigation Measures for Management Activities in the District/Comprehensive Conservation Plan: Charles M. Russell Wetland Management District and Associated National Wildlife Refuges, Montana

- Service staff will be contacted immediately if previously unrecorded cultural resources are discovered before, during or after treatments. The cultural resources will be recorded, delineated and protected.
- Service staff will be contacted when a wildfire is detected in an area that could contain unrecorded cultural resources.
- Protecting structures and features is more important than minimizing acres burned.

The U.S. Fish and Wildlife Service (Service) routinely follows the best management practices outlined in this appendix as it implements management activities on Service lands. Mitigation measures are designed to avoid or substantially reduce adverse effects of mechanical and chemical treatments, prescribed fire, and wildfire response decisions. The Service may design additional mitigation measures in its fire management plan to better protect wildlife and habitat areas, cultural resources, and the public. The Service recommit to its implementation of these routine mitigation practices by including this appendix as part of the environmental assessment for the Fire Management Plan (FMP) developed for the Charles M. Russell Wetland Management District.

Appendix E – Mitigation Measures for Management Activities in the District/Comprehensive Conservation Plan: Charles M. Russell Wetland Management District and Associated National Wildlife Refuges, Montana

Bibliography

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APPENDIX F. APPLICABLE LAWS AND EXECUTIVE ORDERS

This Appendix lists all applicable statutes, regulations, and executive orders not otherwise addressed in this CCP or EA.

Cultural Resources

- American Indian Religious Freedom Act, as amended, 42 U.S.C. 1996- 1996a; 43 CFR Part 7
- Antiquities Act of 1906, 16 U.S.C. 431-433; 43 CFR Part 3
- Archaeological Resources Protection Act of 1979, 16 U.S.C. 470aa-470mm; 18 CFR Part 1312; 32 CFR Part 229; 36 CFR Part 296; 43 CFR Part 7
- Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001-3013; 43 CFR Part 10
- Executive Order 11593 – Protection and Enhancement of the Cultural Environment, 36 Fed. Reg. 8921 (1971)
- Executive Order 13007 – Indian Sacred Sites, 61 Fed. Reg. 26771 (1996)

Fish and Wildlife

- Bald and Golden Eagle Protection Act, as amended, 16 U.S.C. 668-668c, 50 CFR 22
- Fish and Wildlife Act of 1956, 16 U.S.C. 742a-m
- Migratory Bird Treaty Act, as amended, 16 U.S.C. 703-712; 50 CFR Parts 10, 12, 20, and 21
- Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, 66 Fed. Reg. 3853 (2001)

Natural Resources

Executive Order 13112 – Invasive Species, 64 Fed. Reg. 6183 (1999)

APPENDIX H. CONSERVATION MEASURES FOR SPECIFIC SPECIES

Greater Sage-Grouse

The greater sage-grouse was listed as a candidate species in March 2010, meaning it warrants protection under the Endangered Species Act but is precluded by higher-priority species.

Greater sage-grouse require a variety of habitat conditions, often across broad landscapes, to meet their yearlong needs for breeding, nesting, brood-rearing and wintering. Regardless of the season, they require large expanses of sagebrush with healthy, diverse understories of grasses and forbs. In the spring, displaying males require relatively open areas for lek sites, or dancing grounds, where breeding takes place.

Females nest in a variety of cover types, but the most suitable nesting habitat is a mosaic of sagebrush with both horizontal and vertical structural diversity (Rowland 2004). They most commonly nest in sagebrush with shrub heights ranging from 11.5 to 31 inches, a grass-canopy height greater than 7.2 inches and a diversity of forbs (MSGWG 2005).

Brood-rearing habitats for sage-grouse are typically mosaics of upland sagebrush and other habitats such as wet meadows and riparian areas that, together, provide abundant insects and forbs for hens and chicks (Schroeder et al. 1999, Connelly et al. 2000). Succulent forbs, a preferred food source for sage-grouse broods, are a key component of summer habitat (MSGWG 2005). Although sage-grouse are associated with sagebrush throughout the year, this habitat is essential during winter when the birds mostly occupy sagebrush habitats with greater than 20% canopy cover (MSGWG 2005).

Conserving sagebrush habitats on private and public lands is by far the most effective approach to maintaining long-term sage-grouse abundance and distribution (MSGWG 2005). Rowland 2004 summarized management recommendations for sage grouse as follows:

- Maintain, conserve, and restore large blocks of intact sagebrush with a healthy understory of native grasses and forbs.
- Protect lek sites and adjacent habitat (up to 11 miles from the lek) from alteration.
- Manage breeding habitats to maintain sagebrush canopy cover of 15%–25% and perennial herbaceous cover of at least 15% grasses or at least 10% forbs with grasses and forbs at least 7 inches tall.
- Eliminate or control invasive nonnative plants in sagebrush-steppe.
- Use prescribed fire in sagebrush-steppe with caution, especially in the more arid portions of sage-grouse range. Attempt to maintain a mosaic of habitats following the burn.

- Manage livestock grazing through varying and restricting the numbers of livestock in an area and the season of use on all seasonal sage-grouse ranges to avoid habitat degradation.
- Minimize human disturbance in sage-grouse habitats, especially around leks and nesting habitat. For example, reduce or avoid the development of mining and other resource extraction industries such as coal-bed methane, and avoid power line construction, especially within 1.5 miles of seasonal habitats.

Sprague's Pipit

Minimal information has been collected on the distribution and occurrence of Sprague's pipit (a federal candidate species) in the District. Bird observations collected over 20 years by members of the Yellowstone Audubon Society confirmed two sightings of juvenile birds, one on Hailstone Refuge and one on Grass Lake Refuge. The Montana Natural Heritage Program Website indicates that this species has been observed and documented as breeding in areas around War Horse NWR, Spidel WPA and Tew WPA.

Sprague's pipit breeds only in the northern mixed-grass prairie. Numbers have continued to decline, causing it to be listed in 2010 as a candidate species. It nests in native prairie with high plant species diversity and few shrubs and prefers lightly to moderately grazed pastures throughout much of its breeding range (Jones 2010). However, grazing can have a dramatic negative effect in drier, less densely vegetated, mixed-grass prairie (Robbins et al. 1999).

Burning can have short-term, adverse effects on the abundance of Sprague's pipit; however, burning may provide long-term benefits through improved habitat quality if it occurs at an appropriate frequency (Jones 2010). In drier portions of their range, pipits were common on native grassland that had not been burned for more than 15–32 years (Jones 2010, Robbins et al. 1999). Sprague's pipits are uncommon in tame pasture and have not been documented as nesting in cropland, Conservation Reserve Program land or dense nesting cover planted for waterfowl habitat (Jones 2010).

A long-term study of grassland birds at Bowdoin Refuge (in northcentral Montana) found that pipits used nest sites with intermediately tall (averaging 12 inches), vertically dense vegetation and nest patches (16-foot-radius plot around the nest) with greater litter cover and depth, while avoiding areas with prickly pear cactus (Dieni and Jones 2003). This is similar to other published studies such as that by Sutter (1997): The pipits selected areas with less than 20% clubmoss cover, few shrubs and little bare ground (Dieni and Jones 2003).

According to the Sprague's Pipit Conservation Plan (Jones 2010), management should consist of the following:

- Keep large native prairie grasslands intact.
- Remove woody vegetation from the interior of grassland patches.
- Increase patch size and minimize the amount of edge habitat.

- Remove exotic plant species from native prairie.
- Apply prescribed fire (with frequency highly dependent on soil productivity, geographic area and climate, particularly in the drier portions of their range).
- Use low-intensity or no grazing in the semiarid mixed-grass prairie.

Species of concern are native animals breeding in Montana that are considered at risk due to their declining population trends, threats to their habitats or restricted distribution (Montana Natural Heritage Program 2009). The Service identifies birds of conservation concern as migratory and nonmigratory birds of the United States and its territories that have declining populations, naturally or human-caused small ranges or population sizes, threats to habitat or other factors.

This designation helps stimulate coordinated and proactive conservation actions among federal, state, tribal and private partners. Bird species considered for inclusion on this list include nongame birds, game birds without hunting seasons, subsistence-hunted nongame birds in Alaska, birds that are candidates or proposed as threatened or endangered under the Endangered Species Act, and birds recently removed from a federal listing (USFWS 2008).

The Montana Natural Heritage Program website database for species of concern includes information on where these species have been documented and their breeding status. Based on this information, 53 species of concern (see appendix H) have been confirmed on or near District properties. Many of the species on this list are routinely observed by employees and the public. They include black-tailed prairie dog, burrowing owl, chestnut-collared longspur, McCown's longspur, greater sage-grouse, long-billed curlew and sharp-tailed grouse.

Two species with a state ranking of S2 (at risk because of very limited and/or potentially declining population numbers, range or habitat, making it vulnerable to global extinction or extirpation in the state) that have been documented on District properties are the mountain plover and chestnut-collared longspur. All black-tailed prairie dog colonies on the District have been inventoried for mountain plover occupancy. Only the colony on the Willow Creek Unit of Lake Mason was found to support mountain plovers with the first documented sighting in 1992. In 1996, a follow-up investigation confirmed 11 mountain plovers: six adults and five juvenile birds. Chestnut-collared longspurs have been documented on the Lake Mason Unit and Willow Creek Unit.

Mountain Plover

Mountain plovers breed from southeastern Alberta and southwestern Saskatchewan through central Montana, south to south-central Wyoming, east-central Colorado and northeastern New Mexico, and east to northern Texas and western Kansas (NGS 1987). They prefer large, flat grassland expanses with sparse, short vegetation and bare ground (Knowles et al. 1982; Olson 1984). Generally, mountain plovers arrive on the breeding

grounds from mid-March to mid-April and depart for fall migration in early August to late October (Olson 1984).

In central Montana, mountain plovers are usually associated with prairie dog towns (Knowles 1996). Mountain plovers in Montana occurred at highest densities on towns 6-50 hectares and were less abundant on smaller towns (Knowles et al. 1982, Olson 1984). In Montana, mountain plovers were rarely seen outside of prairie dog towns and towns less than 24 acres were considered marginal habitat (Knowles et al. 1982, Olson 1984). On a northern Montana shrub-grassland, cattle grazing alone, without prairie dog towns, did not provide suitable habitat (Olson and Edge 1985). Within prairie dog towns, mountain plovers chose nest sites with shorter vegetation, more bare ground and higher forb density (Olson 1984, Olson and Edge 1985).

The following are management recommendations for mountain plovers:

- Maintain prairie dog towns in areas where Mountain Plovers require them, such as in Montana (Knowles et al. 1982, Olson and Edge 1985). Cattle grazing in these areas should be encouraged, as prairie dog towns often are associated with grazed areas (Knowles et al. 1982, Olson and Edge 1985).
- Maintain large areas of short grass within native mixed-grass areas.
- Disturbances such as prairie dog towns, grazing or burning can provide these areas (Knowles and Knowles 1984).
- Graze shortgrass or mixed-grass pastures at moderate to heavy intensities (Knowles et al. 1982).
- Graze at heavy intensities in summer or late winter (Wallis and Wershler 1981).

Chestnut-Collared Longspur

Chestnut-collared longspurs breed only in short- and mixed-grass prairie of the western and northern Great Plains. Longspurs nest in open prairie with minimal shrubs and litter. They prefer native grasslands that have been recently disturbed by fire, grazing or mowing (Hill and Gould 1997). Optimal grazing intensity is dependent on soil productivity, geographic area and climate. In dry, sparse, mixed-grass prairie, light to moderate grazing is more appropriate, and heavy grazing or overgrazing may be detrimental (Dechant et al. 2003).

Longspurs nest in tame grass pastures but in lower abundance than in native prairie; they do not nest in cropland (Hill and Gould 1997). A long-term study of grassland birds at the Bowdoin Refuge in north-central Montana found that longspurs nest in sparser areas than Sprague's pipits or Baird's sparrows, with less grass and litter cover and more clubmoss cover than the other two species (Dieni and Jones 2003).

Dechant et al. (2003) made the following management recommendations for chestnut-collared longspurs:

- Protect native prairie from plowing and cultivation.
- Avoid managing for idle, dense vegetation, as longspur densities decrease with increased vertical density, diversity and litter depth.

- Graze at light to moderate intensity in dry, mixed-grass prairie and avoid overgrazing.
- Use mowing to improve habitat by decreasing vegetation height and density.

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