

5 Environmental Consequences



Dave Menke/USFWS

Lesser scaup

This chapter describes the environmental consequences for the management alternatives (see chapter 3) considered for Pathfinder NWR.

The planning team assessed the environmental consequences of implementing each alternative on the biological, physical, social, economical, cultural, and historical resources of the refuge.

This chapter contains descriptions of the (1) effects common to alternatives, (2) consequences by alternative, and (3) cumulative impacts of the alternatives. Table 2 in chapter 3 includes a summary of these consequences in relation to the actions for each alternative.

5.1 EFFECTS COMMON TO ALL ALTERNATIVES

Some projected effects would be similar for all alternatives:

- ❑ The implementation of any alternative would follow the Service's best management practices.
- ❑ The alternatives would minimize impacts to federally threatened and endangered species, to the extent possible and practicable.

- ❑ The refuge's staff, contractors, researchers, and other consultants would continue to acquire all applicable permits, for example, for future construction activities.

The sections below describe other projected effects common to all alternatives.

CULTURAL RESOURCES

As a whole, cultural resources would be enhanced through protecting existing resources and extending such protections to newly discovered cultural resources.

Cultural resource surveys at the refuge have been limited. Therefore, additional surveys would be required prior to any new construction or excavation to fully satisfy provisions of the NEPA and applicable acts and policies related to historical and archaeological resources.

Potentially negative effects from construction of trails or facilities would require review by the regional archaeologist (region 6) and consultation with the Wyoming State Historic Preservation Office.

ENVIRONMENTAL JUSTICE

None of the management alternatives described in this EA would disproportionately place any adverse environmental, economic, social, or health effects on minority or low-income populations.

Implementation of any action alternative that includes visitor services and environmental education is anticipated to benefit minority and low-income citizens living near the refuge by stimulating the economy and creating jobs.

AIR QUALITY

No adverse effects on air quality are expected. Short-term effects on air quality from prescribed burning on the refuge should not vary significantly between any of the alternatives. Prescribed burning operations are planned to reduce impacts to neighbors through ignitions that move the smoke up and out of the vicinity quickly. Rapid mop-up is completed to reduce overnight impacts to neighbors.

CLIMATE CHANGE IMPACTS

The primary climate-related impact to be considered in the CCP process is carbon sequestration, which helps offset global warming. Vegetated land is a tremendous factor in carbon sequestration. Terrestrial biomes of all sorts—grasslands, forests, wetlands, tundra, and desert—are effective both in preventing carbon emission and acting as a biological “scrubber” of atmospheric CO₂. The conclusions of the report on carbon sequestration by the U.S. Department of Energy (1999) noted that ecosystem protection is important to carbon sequestration and may reduce or prevent loss of carbon currently stored in the terrestrial biosphere.

Conserving natural habitat for wildlife is the heart of any long-range plan for national wildlife refuges. The actions proposed in this draft CCP and EA would conserve or restore land and habitat, and would thus retain existing carbon sequestration on the refuge. This in turn contributes positively to efforts to mitigate human-induced global climate change.

One Service activity in particular—prescribed burning—releases CO₂ directly to the atmosphere from the biomass consumed during combustion. However, there is actually no net loss of carbon, since new vegetation quickly germinates and sprouts to replace the burned-up biomass and sequesters or assimilates an approximately equal amount of carbon as was lost to the air (Dai et al. 2006). Overall, there should be little or no net change in the amount of carbon sequestered at Pathfinder NWR from any of the proposed management alternatives.

Several impacts of climate change have been identified that may need to be considered and addressed in the future:

- Habitat available for cold-water fish such as trout and salmon in lakes and streams could be reduced.
- Forests may change, with some species shifting their range northward or dying out, and other trees moving in to take their place.
- Ducks and other waterfowl could lose breeding habitat due to stronger and more frequent droughts.
- Changes in the timing of migration and nesting could put some birds out of sync with the life cycles of their prey species.

The managers and resource specialists on the refuge need to be aware of the possibility of change due to global warming. When feasible, documenting long-term vegetation, species, and hydrologic changes should become a part of research and monitoring programs on the refuge. Adjustments in refuge management direction may be necessary over the course of time to adapt to a changing climate.

SOILS

All alternatives would positively affect soil formation processes on refuge lands. Some disturbances to surface soils and topography would occur at those locations selected for: (1) administrative, maintenance, and visitor facilities; (2) introduced and invasive species removal and eradication; and (3) restoration of native habitat.

WATER QUALITY, WETLANDS, AND FLOODPLAINS

All alternatives would positively affect water quality. Positive effects are anticipated from protecting groundwater recharge, preventing runoff, retaining sediment, and minimizing nonpoint source pollution. The management alternatives are not anticipated to have any adverse effects on the area’s wetlands and floodplains, pursuant to EO 11990 and EO 11988.

PUBLIC HEALTH AND SAFETY

Based on the nature of each alternative, the location of the refuge, and current land use, all alternatives are anticipated to have no significant negative effects on the quality of the human environment, including public health and safety.

5.2 DESCRIPTION OF CONSEQUENCES BY ALTERNATIVE

Management actions are prescribed by alternative as the means for responding to problems and issues raised by Service employees, the public, and governmental partners. Because management would differ for each alternative, the environmental and social effects resulting from implementation would likely differ as well.



Wildlife Observation

Bob Savannah/USFWS

The following section provides an analysis of the effects estimated to result from alternative A (no action), alternative B, and alternative C (proposed action). A summary of this narrative is contained in table 2 in chapter 3.

ALTERNATIVE A—NO ACTION

The estimated potential effects of alternative A are described by the major topics discussed throughout this document.

Refuge Administration

Three federal agencies currently have responsibilities for managing lands within the current boundary of Pathfinder NWR. The agencies' differing missions and regulations can create confusion regarding agency roles and responsibilities, which contributes to habitat degradation and public confusion about land management and usage.

The Bureau of Reclamation manages Pathfinder Reservoir for flood control, irrigation, and hydroelectric power. The MOU for management of lands (appendix D) limits the Service to actions that will not impact reservoir operations. As such, any improvements or management actions the Service undertakes to benefit wildlife on habitats below the reservoir high water mark (5,850 feet) are at risk by Reclamation operations because these habitats may be flooded out as reservoir levels rise, and habitat plantings may not succeed if reservoir operations lower water levels.

Public uses that are permitted within Reclamation or BLM mandates may be outside compatibility and/or allowed uses under Service policy and guidance, which can result in identity issues for the Service and confusion for the public regarding the Service's

mission. At some areas of the refuge it is difficult for visitors to know what lands they are on due to lack of posting and regulations.

The Natrona County Road, Bridge, and Parks Department has management responsibility for the Bishops Point Recreation Area within the current boundary of Pathfinder NWR, which allows picnicking, boating, camping, campfires, and motorized watercraft access to the waters of Pathfinder Reservoir. Many of these uses may be considered inappropriate or incompatible uses of a national wildlife refuge.

Refuge Uses

The CCP process triggers the evaluation of all existing and proposed public uses and management actions on a national wildlife refuge. Uses found to be inappropriate or incompatible will be modified or eliminated as expeditiously as possible.

Habitat Management

Reservoir (Deepwater)

The reservoir would continue to provide resting areas for waterfowl and other migratory bird species during spring and fall migration. Emergent vegetation along the shoreline of the reservoir, which provides a food source for migratory birds and other wildlife, would be minimally present due to fluctuations in water levels (20 feet per year on average) and resulting steep, sandy cutbanks that prohibit vegetation growth.

Wetlands and Riparian Areas

Playas and impoundments would continue to fill and dry as natural processes dictate, with no management actions to affect them. Management actions below the high-water line of the reservoir are subject to impacts of inundation if and when the reservoir water level rises, precluding investment of Service funds or staff time in these areas. Few options exist for effective habitat management on wetland areas (e.g., development of water control structures and seeding in low-lying areas).

Uplands

Little change in upland habitat conditions on the refuge would occur. Grazing would continue on refuge lands in conjunction with BLM allotments. The BLM and the Service have different purposes for grazing on federal lands. The Service uses grazing as a habitat management tool specifically for the benefit of wildlife, whereas the BLM manages grazing in accordance with the Taylor Grazing Act.

A lack of Service coordination with the BLM results in grazing on the refuge that may not be compliant with refuge policy. The Service may not be fulfilling its mandate for trust resources by not

staying actively involved in annual grazing planning and management with BLM. Updating the grazing program to comply with Service grazing standards may affect BLM permittees. Continued unanalyzed impacts from grazing could result in criticism that the Service is not appropriately managing lands in the Refuge System.

Threatened and Endangered Species and State Species of Concern

Currently, no known federally listed species or state species of concern have been located on the refuge. If located, they would be protected from intentional or unintended impacts by banning or modifying activities where these species occur. Surveys are not occurring, which restricts discovering the presence of these species on the refuge.

Invasive Species

Management of invasive species on the refuge would continue to be reactionary, addressed as problems are identified and as resources permit. Some invasive species may become established or expand.

Visitor Services

Hunting

Unlimited vehicle access negatively impacts vegetation and wildlife. Public use programs would be reviewed for compatibility and modified or eliminated as needed. Understaffing prohibits active law enforcement and educational programs to ensure a quality hunting experience and the ability to manage hunting in accordance with the Service's policy and guidelines. Limited law enforcement efforts increase the potential for illegal hunting activities.



Pronghorn

John and Karen Hollingsworth/USFWS

Fishing

Enforcing refuge regulations would result in the loss of a public fishing opportunity and may result in a negative public image, as the Service would be restricting a use that has occurred in previous years.

Wildlife Observation, Photography, Environmental Education, and Interpretation

With no formal tour routes or walking trails on the refuge, it is assumed that most wildlife observation and photography is conducted by visitors walking through refuge habitats, which may damage vegetation and disturb wildlife. Lack of dedicated staff time precludes the development of quality, compatible wildlife observation and photography, educational, and interpretation activities. Uses may be modified to ensure compatibility and appropriate use.

Nonwildlife-dependent Recreation

Changes to public use of refuge areas may reduce recreation opportunities at Bishops Point (i.e., waterskiing, jet skiing, wind surfing, sailing, motorboating, ATV use, and overnight camping would be prohibited). While visitation to the refuge by some user groups (recreational boaters) may decline, visitation by others (wildlife enthusiasts) may increase with the implementation of compatibility policies. The Service may experience a negative public image by restricting public uses that have been permitted for over 40 years.

Research and Science

Under this alternative, little more would be learned about the four units' habitat and wildlife use to guide management decisions. Habitat conditions could degrade due to the lack of information gathering on wildlife and habitats.

Partnerships

Partnership development would not occur due to lack of Service resources. With limited funding and no dedicated staff, little improvement or repair to infrastructure or habitat improvements would occur. Partnerships would be reliant on interested parties approaching the Service as well as managing and funding agreed-upon projects. Opportunities for habitat improvements likely would not occur for these reasons.

Operations

The remote location of refuge staff at Arapaho NWR Complex headquarters 240 miles away would continue to impede proper management of the refuge. Specific annual funding would not be earmarked for Pathfinder NWR, but special project funding may become available through the SAMMS. Minimal on-the-ground accomplishments and management of refuge units would occur due

to competing priorities. Loss of opportunities for habitat improvements and other projects would continue due to staff shortages within the complex.

Socioeconomic and Economic Impacts

The refuge would continue to be managed much as it is today and socioeconomic change would therefore be minimal. Visitation and revenues spurred by the refuge would remain at or near current levels. Visitor spending would likely remain at or very close to current levels.

ALTERNATIVE B—ENHANCED REFUGE MANAGEMENT

The estimated potential effects of alternative B are described by the major topics discussed throughout this document.

Refuge Administration

Agency coordination would be improved and roles would be clarified, resulting in improvement of habitat conditions to support migratory bird species.

Refuge Uses

The CCP process triggers the evaluation of all existing and proposed public uses and management actions on a national wildlife refuge. Uses found to be inappropriate or incompatible would be modified or eliminated as expediently as possible.

Habitat Management

Reservoir (Deepwater)

The reservoir would continue to provide resting areas for waterfowl and other migratory species during spring and fall migration. Emergent vegetation along the shoreline of the reservoir, which provides a food source for migratory birds and other wildlife, would be minimally present due to fluctuations in water levels (20 feet per year on average) and resulting steep, sandy cutbanks that prohibit vegetation growth.

Wetlands and Riparian Areas

By studying the wetland characteristics, staff and partners could develop management actions that may improve wetlands for the benefit of waterfowl and waterbirds.

Uplands

Increased monitoring and evaluation of grazing effects would assist with management decisions. Some fence construction would likely occur. Fencing of the three small units (Goose Bay, Deweese Creek, and Sage Creek) may be detrimental to wildlife. Small, fenced parcels impede migration and animal movement. Fenced parcels may create higher-quality habitat, but also may create wildlife sinks by

increasing predators' ability to find ground nesting birds or young in a concentrated area. Grazing operations for BLM permittees may be affected. Small, isolated parcels and areas with steep, sandy cutbanks would still be difficult to manage for grazing purposes.

Threatened and Endangered Species and State Species of Concern

Currently, no known federally listed species or state species of concern have been located on the refuge. If located, they would be protected from intentional or unintended impacts by banning or modifying activities where these species occur. Dedicated staff time would allow for surveys to occur, and the potential for protective management actions would increase.

Invasive Species

A proactive approach by refuge staff and partners to monitor for infestations and obtain the necessary resources to manage them would eradicate some invasive species from the units and control new invasive species before they become established. Coordination with Reclamation staff to obtain information on the presence of invasive species on the three isolated units would continue. Efforts within the reservoir pool level would be limited to areas where reservoir operations would not impact the success of controls.

Visitor Services

Hunting

Vehicle access would be controlled to minimize negative impacts to vegetation and wildlife. Public use programs would be reviewed for compatibility and modified or eliminated as needed. Dedicated staff would allow for better coordination and efforts to improve hunting programs. A stronger law enforcement presence may increase compliance with hunting regulations. Through development of an MOU, WGFD would become an active partner with the Service in addressing issues and effecting solutions.

Fishing

Public fishing opportunity would be provided upon completion of the CFR process to open the refuge to fishing. Boat use would be controlled to minimize negative impacts to shoreline vegetation through wake action. Disturbance to waterbirds using the reservoir for molting and feeding would be reduced. Water uses would need to be evaluated under compatibility and modified or eliminated accordingly. Through development of an MOU, WGFD would become an active partner in addressing issues and effecting solutions. Dedicated staff time would allow for an increase in law enforcement patrol, education, and compliance.



USFWS

Family Opportunities.

Wildlife Observation, Photography, Environmental Education, and Interpretation

Dedicated staff time would enhance opportunities for wildlife observation and photography in selected areas. Improving and developing partnerships would increase the opportunities for these public uses. All uses would be reviewed and may be modified to ensure compatibility and appropriate use.

Nonwildlife-dependent Recreation

Changes to public use of refuge areas may reduce the number of recreation opportunities at Bishops Point (i.e., waterskiing, jet skiing, wind surfing, sailing, motorboating, ATV use, and overnight camping would be prohibited). While visitation to the refuge by some user groups (recreational boaters) may decline, visitation by others (wildlife enthusiasts) may increase with the implementation of compatibility policies. The Service may experience a negative public image by restricting public uses that have been allowed for over 40 years.

Research and Science

Acquiring baseline data would assist in management efforts to improve or maintain the units for the benefit of wildlife. Dedicated staff would develop plans and partner with interested parties to gather and interpret data. Habitat conditions may improve due to increased knowledge. Efforts would be focused on the Steamboat Lake area and other areas of the Sweetwater Arm Unit not heavily influenced by reservoir operations.

Partnerships

With assistance from partners, infrastructure improvements and an increase in active management may be seen. Dedicated staff would be available to lead and coordinate quality projects and develop positive partnership experiences over time. Partnership development is an important aspect of refuge management and, with staff available, time would be dedicated to develop and nurture such partnerships. Efforts would only focus on lands not influenced by reservoir operations, leaving other lands unattended.

Operations

A budget increase would improve on-the-ground accomplishments in refuge habitat conditions. Efforts would focus on areas that provide the highest potential gain for trust resources. The ability to provide funding for staff efforts at Pathfinder NWR and the Laramie Plains refuges would increase. Areas heavily impacted by reservoir operations and small, isolated units would see only minor improvements due to the difficulty in managing these areas.

Socioeconomic and Economic Impacts

Under Alternative B, the refuge would be managed for enhanced wildlife habitat, which would prohibit many popular recreational activities (e.g., sailing and jet skiing) at the refuge. The long-term socioeconomic effects of such actions are unclear. While restriction of recreational activities within the refuge boundary would reduce visitation to the refuge in the near future, these activities would continue to be permitted and enjoyed on reservoir areas outside the refuge boundary. However, if such restrictions result in larger and more diverse wildlife populations within the refuge, a potential increase in visitation from wildlife enthusiasts could offset the socioeconomic impact caused by the decrease in recreational visitors.

Improved wildlife habitat and increased wildlife populations could draw additional visitors to the refuge in the long term. As a result, the study area economy could see up to a 10 percent increase in visitor spending, which could introduce an additional \$25,500 in economic activity to the region. Additional visitors would generate more business for local proprietors and raise regional tax revenues. However, if the alternative did not increase wildlife populations and visitation from wildlife enthusiasts, overall visitation levels and visitor spending in the local economy would be uncertain.

ALTERNATIVE C—MODIFY REFUGE BOUNDARY (PROPOSED ACTION)

The estimated potential effects of alternative C are described by the major topics discussed throughout this document

Refuge Administration

Concentrating resources on manageable lands would improve agency credibility by allowing limited funds to be spent on a smaller area that meets the Service mission (i.e., quality migratory and resident bird habitat).

Refuge Uses

The CCP process triggers the evaluation of all existing and proposed public uses and management actions on a national wildlife refuge. Uses found to be inappropriate or incompatible would be modified or eliminated as expediently as possible. By modifying the map associated with the MOU, certain refuge areas would not need to be evaluated under compatibility or appropriate use policies.

Habitat Management

Reservoir (Deepwater)

The reservoir would continue to provide resting areas for waterfowl and other migratory species during spring and fall migration under management by Reclamation or its designee.

Wetlands and Riparian Areas

Playas and impoundments would continue to fill and dry as natural processes dictate. By studying the wetland characteristics, Service staff and partners could develop potential management actions to improve wetlands for the benefit of waterfowl and waterbirds. The eastern half of the Sweetwater Arm Unit and the Goose Bay, Deweese Creek, and Sage Creek units in their entirety would be removed from the refuge. As a result, reservoir level fluctuations would no longer be an issue for refuge lands. The final configuration of refuge lands would concentrate the area of responsibility and focus efforts on lands that meet habitat requirements for trust resources.

Uplands

Increased monitoring and evaluation of grazing effects would assist with management decisions. Isolated parcels would be removed the refuge boundary. With less uplands acreage to manage, refuge staff would be better able to control and implement an appropriate grazing program and to fence the area. The gentle slopes of backwater and riparian areas are better suited for fencing and posting of signage.

Threatened and Endangered Species and State Species of Concern

Currently, no known federally listed species or state species of concern have been located on the refuge. If located, they would be protected from intentional or unintended impacts by modifying activities where these species occur. Dedicated staff time would

increase the opportunity for surveys and protective management actions.

Invasive Species

A proactive approach by refuge staff and partners to monitor for infestations and obtain the necessary resources to manage them would eradicate some invasive species from the refuge and control new invasive species before they become established. Early preemptive efforts would best help to eradicate or control any invasive species.

Visitor Services

Hunting

Vehicle access would be controlled to minimize negative impacts to vegetation and wildlife. Dedicated staff would allow for better coordination of and efforts to improve hunting programs. A stronger law enforcement presence may increase compliance with hunting regulations. Through development of an MOU, WGFD would be an active partner in addressing issues and effecting solutions. Refuge lands would be easier to patrol for law enforcement purposes. Clearly designated boundaries would increase compliance with regulations and raise public awareness of and appreciation for Service efforts at providing quality hunting programs.

Fishing

Fishing opportunities for visitors to Pathfinder Reservoir and the regional fishing community would continue. Service regulations and potential seasonal restrictions would not apply to the deepwater habitats outside the refuge boundary.

Public fishing opportunity on refuge lands would be provided upon completion of the CFR process to open the refuge to fishing. Boat use would be controlled to minimize negative impacts to shoreline vegetation through wave action. Disturbance to waterbirds using the reservoir for molting and feeding would be reduced. Water uses would need to be evaluated under compatibility and modified or eliminated accordingly. Through development of an MOU, WGFD would become an active partner in addressing issues and effecting solutions. Dedicated staff time would allow for an increase in law enforcement patrol, education, and compliance.

Wildlife Observation, Photography, Environmental Education, and Interpretation

Dedicated staff time would enhance opportunities for wildlife observation and photography to occur in selected areas. Improving and developing new partnerships would increase the opportunities for these public uses. All uses would be reviewed and may be modified to ensure compatibility and appropriate use. Focusing efforts on properly marked and posted lands would enhance the Service's

image and raise public awareness of the Service's mission and role in managing trust resources.

Nonwildlife-dependent Recreation

Because the lands and waters associated with Bishops Point would be outside the refuge boundary, the activities that occur there would not be subject to Service compatibility and appropriate use policies. Existing recreational uses would likely continue to be permitted in areas outside the refuge under management by Reclamation or its designee (e.g., Natrona County).

Research and Science

Acquiring baseline data would assist in management efforts to improve or maintain the refuge for the benefit of wildlife. Dedicated staff would develop plans and partner with interested parties to gather and interpret data. Improved habitat conditions may occur due to increased knowledge.

Partnerships

With assistance from partners, infrastructure improvements and an increase in active management may be seen. Dedicated staff would be available to lead and coordinate quality projects as well as develop positive partnership experiences over time. Partnership development is an important aspect of refuge management and, with staff available, time would be dedicated to develop and nurture such partnerships.

Operations

A budget increase would improve on-the-ground accomplishments in refuge habitat conditions and help the Arapaho NWR Complex compete for limited funding to support staff efforts for Pathfinder NWR and the Laramie Plains refuges. Focusing management efforts on remaining refuge lands would increase the potential to successfully support the mission of the Refuge System. Retaining only lands with the highest potential benefit to migratory birds would most efficiently use limited resources and help secure needed funds.

Socioeconomic and Economic Impacts

The refuge would no longer include lands that are difficult to maintain and manage. With reduced land area, it is uncertain whether the refuge would experience the same visitation levels. However, if the reduced land area spurred wildlife population growth, visitation by wildlife enthusiasts could increase.

Improved wildlife habitat and increased wildlife populations could draw additional visitors to the refuge in the long term. As a result, the study area economy could see up to a 10 percent increase in visitor spending, which could introduce an

additional \$25,500 in economic activity to the region. Additional visitors would generate more business for local proprietors and raise regional tax revenues. However, if the alternative did not increase wildlife populations and visitation from wildlife enthusiasts, overall visitation levels and visitor spending in the local economy would be uncertain.

5.3 CUMULATIVE IMPACTS

Cumulative impacts are the potential effects of each alternative in combination with past, present, and future actions. NEPA regulations define cumulative effects as “the impact on the environment which results from the incremental impact of the actions when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over time” (40 CFR 1508.7).

The cumulative effects analysis for this project is based on reasonably foreseeable future actions that, if carried out, would contribute to the effects of the alternatives. No reasonably foreseeable negative actions are anticipated. Impacts will be monitored during the implementation of the final CCP. Implementation over an extended period will reduce the likelihood of negative cumulative impacts.

The NEPA requires mitigation measures when the environmental analysis process detects possible significant impacts to habitats, wildlife, or the human environment. All activities proposed under alternative C are not expected or intended to produce significant levels of environmental impacts that would require mitigation measures. Nevertheless, the final CCP will contain the following measures to preclude significant environmental impacts from occurring:

- Federally listed species will be protected from intentional or unintentional impacts by banning or restricting activities where these species occur.
- All proposed activities will be regulated to reduce potential impacts to wildlife and plant species, especially during their sensitive reproductive cycles.
- Monitoring protocols will be established to determine goal achievement levels and possible unforeseen impacts to resources for application of adaptive management to ensure wildlife and habitat resources, as well as cultural resources, are preserved.
- The final CCP can be revised and amended after 5 years of implementation, for application of adaptive management to correct unforeseen impacts that occur during the first years of the plan.

