

4 Management Direction



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American Avocet

This chapter describes the management direction the Service designed—with public coordination—to achieve the vision for Pathfinder NWR as described in chapter 2. The chapter includes the following sections:

- ❑ management focus
- ❑ goals, objectives, strategies, and rationale
- ❑ staffing and funding
- ❑ step-down management plans
- ❑ monitoring and evaluation
- ❑ plan amendment and revision

Pages 34–39 contain the management direction designed to achieve the vision (in chapter 2) for Pathfinder NWR.

MANAGEMENT FOCUS

For the past 35 years, Pathfinder NWR has received little to no active management due to the relatively small staff of the Arapaho NWR Complex and

competing refuge priorities. Audubon Wyoming conducts bird surveys and the Service maintains an interpretive site, but little to no proactive management, monitoring, or other activities have occurred.

It is hoped that this plan will demonstrate the need to actively manage this refuge for the benefit of migratory bird species. An increase of one FTE, dedicated to Pathfinder NWR and the Laramie Plains refuges, would have a noticeable impact on the ability to conduct site-specific research; build and maintain partnerships; develop specific biologically based goal-oriented, step-down management plans; and guide future management decisions for the refuge.

The planning team developed objectives in support of goals identified in chapter 2 to carry out the proposed action (alternative C) for management of Pathfinder NWR. Strategies to achieve objectives are suggested. Rationale is included that supports goals, objectives, and strategies. In addition, assumptions are discussed.

Biological goals and objectives emphasize management of plant communities as habitat for wildlife, especially migratory birds, and are organized by major habitat types represented at the refuge. Goals and objectives are habitat based rather than wildlife based, because wildlife often respond to factors beyond the control of local refuge management (for example, management of migratory birds). Furthermore, management practices (for example, prescribed fire, grazing, and water-level manipulation) usually benefit wildlife communities through improved habitat conditions rather than wildlife populations. Habitat-based objectives emphasize monitoring of important vegetation structure over time. In most cases, wildlife population responses to habitat changes are not monitored. Rather, site-specific inventories, applied research, and literature reviews offer reasonable predictions of wildlife response to habitat management.

Additional goals, objectives, and strategies are developed for visitor services, cultural resources, and refuge administration and operations.

The National Wildlife Refuge System Administration Act of 1966 required the Secretary of the Interior, before permitting uses, to ensure that those uses are compatible with the purposes of the refuge. The CCP process requires a compatibility determination for all existing and proposed refuge uses. Compatibility determinations for Pathfinder NWR include hunting, wildlife observation and photography, environmental education and interpretation, and prescribed grazing (appendix N).



Pronghorn

John and Karen Hollingsworth/USFWS

GOALS, OBJECTIVES, STRATEGIES, AND RATIONALE

The following goals, objectives, and strategies apply to Pathfinder NWR and outline the actions needed to achieve the vision of the refuge. Figure 12 shows the proposed boundary for Pathfinder NWR, further detailed in the administrative goal below.

NATURAL RESOURCES GOAL

Conserve the ecological diversity of uplands and wetlands to support healthy populations of native wildlife, with an emphasis on migratory birds.

Natural Resources Objective 1

Within 5 years of completing the CCP, establish vegetation monitoring transects to collect baseline floristic composition data.

Strategy

- Partner with USGS, Audubon Wyoming, universities, and other interested parties for information gathering and evaluation of habitats.

Rationale and Assumptions

The lack of active management has resulted in sparse biological information regarding the refuge. It will be important to focus on providing baseline data and achieve identified habitat goals. Baseline vegetative data will provide accurate information on species composition and presence, which will help guide management plans to ensure the highest and best use for wildlife resources.

Natural Resources Objective 2

Within 1 year of completing the basic inventory of vegetation, develop detailed objectives describing the desired vegetation conditions for upland, wetland, and riparian habitats.

Strategies

- Identify and prioritize habitat management research needs.
- Encourage data collection that focuses on developing plans for the future of this refuge.
- Conduct baseline habitat surveys to identify refuge resources and the role they serve.
- Complete a habitat management plan for the refuge.
- Coordinate with universities, nongovernmental organizations (NGOs), and Natrona County for cooperative development and accomplishment of management actions.

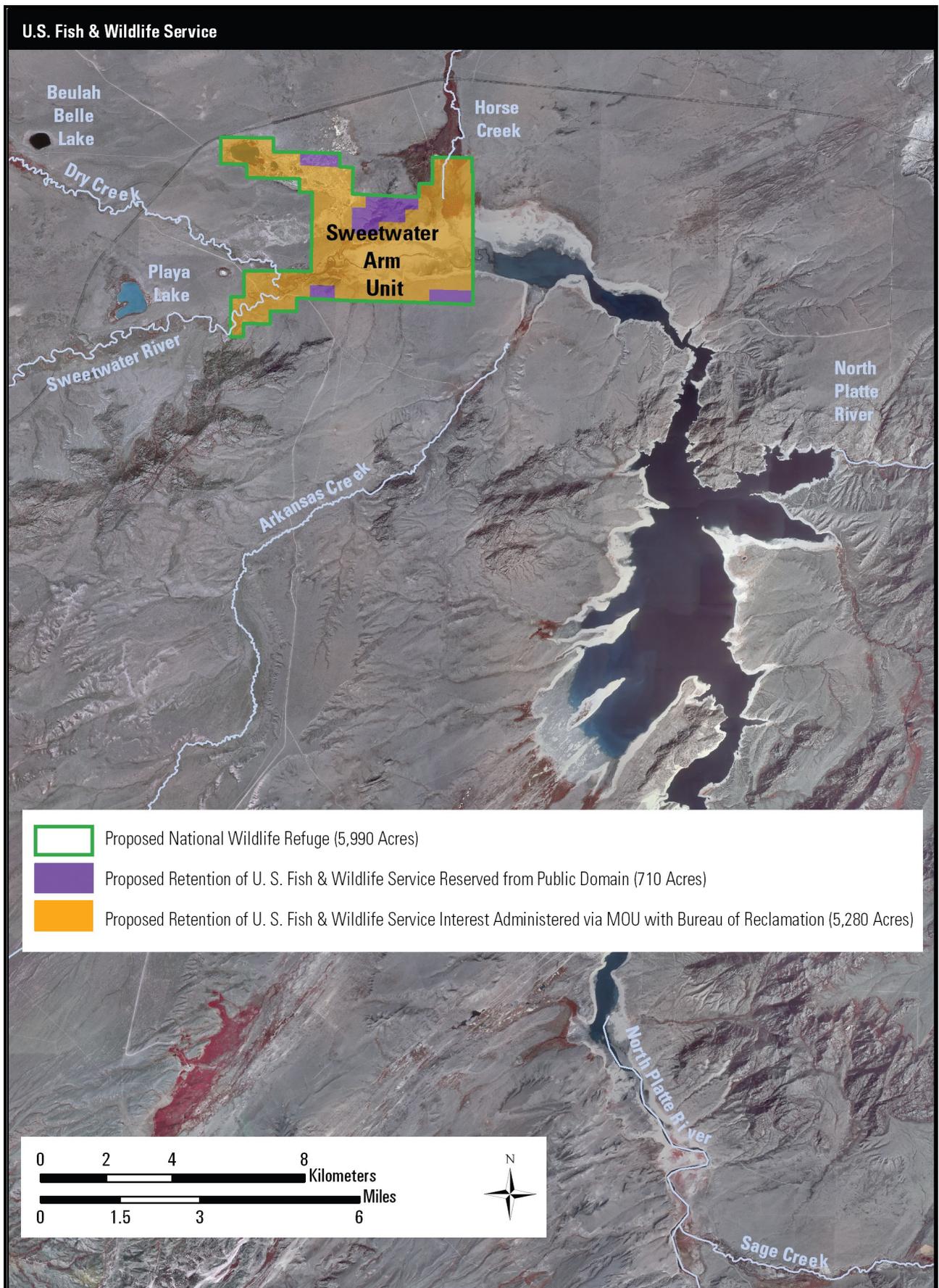


Figure 12. Proposed boundary of Pathfinder NWR, Wyoming.

- ❑ Investigate the habitat qualities of the Steamboat Lake and Horse Creek areas of the Sweetwater Arm Unit.
- ❑ Implement management actions to improve habitat conditions (i.e., burning, fencing, grazing, rest, and invasive plant control).

Rationale and Assumptions

The Sweetwater Arm Unit of the refuge provides some riparian habitat, but is primarily native grasslands and alkali lakes. The backwater areas, west of Horse Creek, provide vegetation and cover conditions for wildlife habitat. The decline of grassland nesting birds has been attributed to habitat loss and conversion, fragmentation, and the disruption of ecological factors, such as fire, which created a mosaic of habitat types across the landscape. As a result, many grassland bird species are now considered species of biological concern (USFWS 2002). Managing natural areas for these bird species involves providing the nesting habitat requirements and food resources essential for their reproduction and survival. These requirements include large, treeless patches containing within them diversity in vegetation structure. The habitat within Pathfinder NWR provides open water, shrub and grasslands, riparian habitat, and alkali lakes. This mosaic can be managed for the benefit of migratory birds.

The Service has no data on the effects of current grazing, condition of uplands, or other biological information due to inactive management. The lack of site-specific biological information on bird species' use of refuge lands and personnel dedicated to guide management practices (grazing, rest, prescribed fire) needs to be corrected by gathering data and evaluating such management practices for the benefits they offer to wildlife resources. Baseline information on vegetative structure, composition, and quality as well as water quality are imperative to guide proper management decisions.

Submergent vegetation provides complex structure for macroinvertebrate production when it becomes established in early summer (Krull 1970, Voights 1976, Nelson and Kadlec 1984). Waterfowl broods rely heavily on the availability of both invertebrate and plant foods (Sudgen 1973). In addition, submergents are used by many wetland-associated wildlife species (Kantrud 1990, 1991) for nesting, foraging, and escape habitat.

The Steamboat Lake area of the refuge provides shallow-water wetlands. Wilson's phalarope will use both fresh and alkali wetlands with three characteristics: open water, emergent vegetation, and open shoreline (Dechant et al. 2003). Though Wilson's phalarope have been observed, a lack of data concerning water quality and other parameters hamper management actions to benefit these and



Tamarisk

Steven Perkins/USDA-NRCS PLANTS Database

other species. Site-specific information is needed to guide management actions.

The backwater areas provide subirrigated grasses and, depending on the year, some wet meadow and shallow wetland habitat for migratory birds. These areas are limited to boating access due to dry conditions and shallow water. When water is available they provide feeding and loafing areas for waterfowl and shorebirds. Their shorelines are more stable and less influenced by the large fluctuations in reservoir operations. Steep, sandy cutbanks are less prevalent and gently sloping shorelines allow vegetative growth, which reduces soil erosion and blowing sands.

These backwater areas provide quality wildlife habitat to a variety of species. Riparian communities in the western states are mesic vegetative associations occurring along ephemeral, intermittent, and perennial streams (Meyer et al. 2003).

Healthy riparian habitat helps filter runoff, reduces sedimentation, improves water quality, and provides habitat for associated wildlife species (Meyer et al. 2003). The ability of riparian systems to support a diverse assemblage of vertebrates is also well documented (Pashley et al. 2002). In fact, riparian habitats are disproportionately more important for support of wildlife than any other type of ecological habitat (Cooper 1986). For example, floodplain vegetation provides habitats for more species of birds than other vegetation associations in western North America (Stanley and Knopf 2000). Riparian systems provide habitat for fish, large and small mammals, amphibians, reptiles, wetland-dependent

birds (waterfowl, shorebirds, wading birds), and a large diversity of passerines including Neotropical migrants, grassland birds, waterfowl, and shorebirds. The channel, floodplain, and transitional fringe all work to provide life-cycle requirements for numerous wildlife species. The riparian habitat on the refuge needs to be evaluated for its current and potential condition in providing for wildlife life-cycle needs.

Natural Resources Objective 3

Over a 15-year period, during routine activities in the field, document any occurrences of problematic invasive plant species that have not yet been documented on refuge lands but have the potential to exist on them. Continue to work with Reclamation and Natrona County Weed and Pest on known infestations.

Strategies

- ❑ Discuss invasive plant issues on the refuge with Natrona County Weed and Pest.
- ❑ Maintain efforts to actively look for invasive plants when performing other management duties.
- ❑ Develop an integrated pest management plan for the refuge.
- ❑ When invasive plants are discovered, coordinate with Natrona County Weed and Pest for control efforts to maintain habitat integrity.

Rationale and Assumptions

For native birds to be retained, invasive plants must be actively controlled (Marzluff and Ewing 2001). Invasive species pose a serious threat to existing fish and wildlife resources. Once invasive species are documented, it is important to maximize efforts to gain control or eliminate the presence of invasive



Wildlife Photography
Bob Savannah/USFWS

plants, thereby reducing competition and providing areas for native plants to flourish.

Currently, tamarisk is the primary invasive plant of concern. Tamarisk invades along the shoreline of the reservoir, and drawdowns in the summer months facilitate the spread of invasive plants within the transition and shoreline areas. During the course of other management activities, it is prudent to maintain vigilance for invasive species. New infestations are easier to control if noticed early.

Natural Resources Objective 4

Over the life of this plan, appropriately conserve and manage any threatened and endangered species or state species of concern documented on the refuge. Increase management efforts for state species of concern.

Strategies

- ❑ Conduct surveys for listed plant species.
- ❑ Conduct surveys for listed animal species.
- ❑ Develop management plans for threatened and endangered species and state species of concern (i.e., slender spiderflower and sage-grouse).
- ❑ Partner with Audubon Wyoming and other interested parties to conduct surveys.

Rationale and Assumptions

Federal law requires that threatened and endangered species are protected. Greater management capability will increase the Service's ability to monitor and manage for any threatened and endangered species located on refuge lands. Partnering with the state of Wyoming to manage state species of concern will demonstrate the Service's willingness to collaborate on wildlife management issues important to the state.

VISITOR SERVICES GOAL

Provide wildlife-dependent recreational opportunities to a diverse audience when the administration of these programs does not adversely affect habitat management objectives.

Visitor Services Objective 1

Within 10 years of plan approval, enhance wildlife-dependent recreation opportunities by developing a visitor services management plan to address refuge activities, access, and circulation.

Strategies

- ❑ Assign a new FTE to coordinate the effort to develop a visitor services plan for the refuge.

- ❑ Request assistance from the Service's region 6 division of education and visitor services to develop a visitor services management plan for the refuge.

Rationale and Assumptions

The Steamboat Lake area of the Sweetwater Arm Unit provides wildlife viewing and photography opportunities. The public can observe and enjoy a variety of wildlife including raptors, waterfowl, shorebirds, and other migratory species. Conducting a site assessment is essential to create a quality wildlife-dependent recreational opportunity.

Visitor Services Objective 2

Where compatible, opportunities for fishing will be provided based on refuge goals and objectives.

Strategies

- ❑ Work with WGFD to gather information required to establish viable fishing program.
- ❑ Open refuge to fishing through the mandated CFR process.
- ❑ Prepare a compatibility determination for fishing program.
- ❑ Prepare a compatibility determination for boating in support of the six priority public uses.
- ❑ Encourage fishing opportunities on the refuge.

Rationale and Assumptions

Fishing is a priority public use and will be supported. Stipulations on boating (e.g., designated boating areas, no wake zone, times of year) may be required to ensure compatibility with refuge goals and objectives.



Sand deposits in the uplands in the eastern half of Sweetwater Arm Unit

Mark Ely/USFWS

Visitor Services Objective 3

Enhance hunting program to manage wildlife and provide hunting opportunities (ducks, coots, mergansers, deer, pronghorn) consistent with refuge goals and objectives, while promoting ethical hunting practices.

Strategies

- ❑ Work with partners (i.e., WGFD) to enhance and promote hunting program.
- ❑ Minimize resource damage caused by vehicles.
- ❑ Enhance quality of refuge habitats.
- ❑ Where necessary, implement seasonal and permanent road closures in selected areas.

Rationale and Assumptions

Improving the quality of refuge habitats will attract more wildlife to the refuge. Reducing disturbance to hunters and wildlife will improve opportunities to observe and harvest game. Providing greater open distance between animals and potential threats to them helps promote their safety and security.

PARTNERSHIPS GOAL

Work with partners to support healthy populations of native wildlife and to increase the understanding of wildlife needs as well as the benefits wildlife offer to local communities.

Partnerships Objective 1

Throughout the life of the plan, promote existing partnerships and develop new partnerships to achieve refuge goals and objectives.

Strategies

- ❑ Establish partnerships that result in collecting baseline data for the refuge.
- ❑ Work with partners to evaluate baseline data to determine management direction for the refuge.

Rationale and Assumptions

Partnerships are important to the Service to achieve refuge management goals and objectives. If the Service does not cultivate partnerships, which take time and resources to develop and maintain, opportunities to work with others in conserving wildlife habitat will be missed.

Current partnerships include Audubon Wyoming, the Bureau of Land Management; the Bureau of Reclamation; the Natrona County Road, Bridge, and Parks Department; Natrona County Weed and Pest; and the Wyoming Game and Fish Department.

CULTURAL RESOURCES GOAL

Identify and evaluate the cultural resources on the refuge and protect those that are determined to be significant.

Cultural Resources Objective 1

Within the 15-year life of this plan, accomplish a complete cultural resources survey of those areas of the refuge with a moderate to high potential for cultural resources.

Strategies

- ❑ Create a sensitivity model that identifies areas as having a low, medium, or high potential for cultural resources.
- ❑ Complete a cultural resource survey, including evaluations and management recommendations, for the moderate and high potential areas.

Rationale and Assumptions

A survey is the best tool available to determine the location of cultural resources on the refuge. Through survey, both historic and prehistoric sites are identified and key information is gathered that promotes planning, research, and educational outreach. Although a few small surveys have been conducted, large-scale surveys are needed to better understand the distribution and nature of the resources. By concentrating on areas with a moderate or high potential for cultural resources, the Service can locate the greatest number of significant sites and work toward their protection and possible interpretation.

ADMINISTRATIVE GOAL

To obtain administrative capabilities that will result in efficient strategies to manage the landscape to achieve habitat and public management goals.

Administrative Objective 1

Within 2 years of plan approval, hire and assign one FTE Service employee to perform increased management activities on the refuge.

Strategies

- ❑ Hire a refuge manager or refuge operations specialist assigned to Pathfinder NWR and the Laramie Plains refuges.
- ❑ Increase funding to improve management activities at the refuge.

Rationale and Assumptions

The current staffing level of the Arapaho NWR Complex restricts a dedicated staff member for Pathfinder NWR, which has resulted in minimal management of the refuge.

Through discussions, the planning team determined that the addition of one full-time Service employee would provide adequate staff to actively manage refuge lands. Refuge management activities would be increased and enhanced, and refuge staff would strive to better understand the effects of management actions on the refuge.

Administrative Objective 2

Within 5 years of plan approval, regional office and refuge staff work with Reclamation to accomplish modification of national wildlife refuge boundary (figure 12).

Strategies

- ❑ Service completes field survey for proposed boundary line in the Sweetwater Arm Unit.
- ❑ Revise “Exhibit A” attached to the MOU between Reclamation and the Service (appendix F) to indicate configuration of new refuge boundary.

Rationale and Assumptions

Concentrating the Arapaho NWR Complex’s resources on manageable lands would improve the Service’s credibility by allowing limited funds to be spent on a smaller area that meets the Service’s mission of providing quality migratory bird habitat.

STAFFING AND FUNDING

Currently, the Arapaho NWR Complex has a staff of four full-time employees. All four employees work in the complex with duties at Arapaho NWR, the Laramie Plains refuges, and Pathfinder NWR. Table 4 in chapter 3 on page 32 lists these positions. One new FTE (specifically assigned to Pathfinder NWR and the Laramie Plains refuges) is needed for full implementation of the CCP. Projects required to carry out the CCP are funded through two separate systems as follows:

- ❑ The Refuge Operations Needs System (RONS) is used to document requests to Congress for funding and staffing needed to carry out projects above the existing base budget.
- ❑ The Service Asset Maintenance Management System (SAMMS) is used to document the equipment, buildings, and other existing properties that require repair or replacement.

MONITORING AND EVALUATION

Adaptive management is a flexible approach to long-term management of biotic resources. Adaptive management is directed, over time, by the results of ongoing monitoring activities and other information. More specifically, adaptive management is a process by which projects are carried out within a framework of scientifically driven experiments to test the predictions and assumptions outlined with a CCP (figure 13).

To apply adaptive management, specific survey, inventory, and monitoring protocols would be adopted for Pathfinder NWR. The habitat management strategies would be systematically evaluated to determine management effects on wildlife populations. This information would be used to refine approaches and determine how effectively the objectives are being accomplished. If monitoring and evaluation indicate undesirable effects for target and nontarget species or communities, the management projects would be altered accordingly. Subsequently, the CCP would be revised.

Specific monitoring and evaluation activities will be described in the step-down management plans (table 5).

PLAN AMENDMENT AND REVISION

The final CCP will be reviewed annually to determine the need for revision. A revision would occur if and when significant information becomes available. The final CCP will be supported by detailed step-down management plans to address the completion of specific strategies in support of Pathfinder NWR goals and objectives. Revisions to the CCP and the step-down management plans will be subject to public review and NEPA compliance.

At a minimum, the final CCP will be evaluated every 5 years and revised after 15 years.

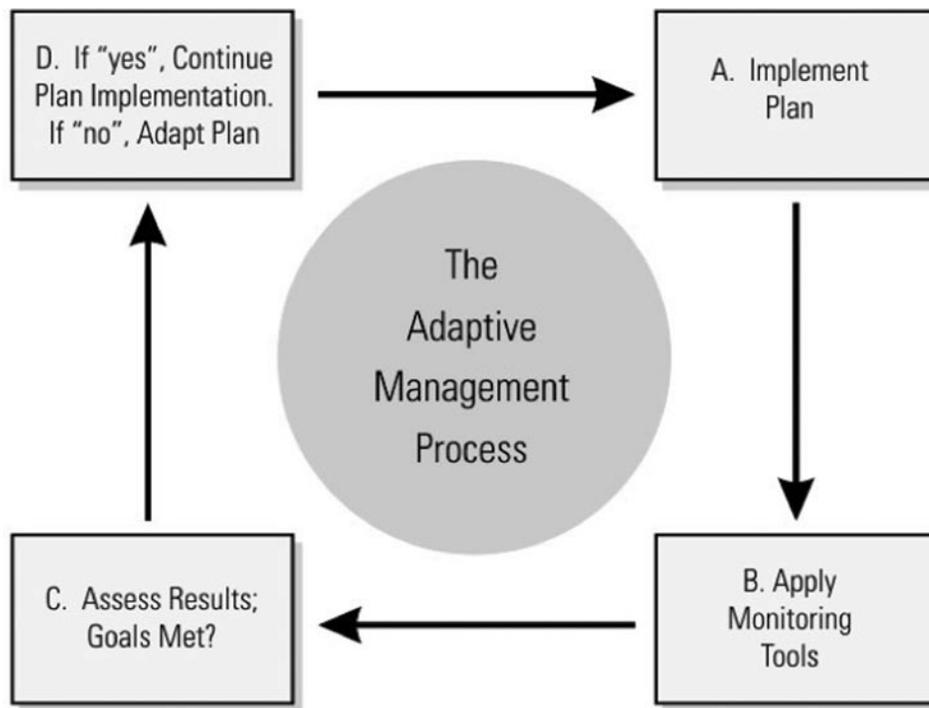


Figure 13. The adaptive management process.

Table 5. Step-down management plans for Pathfinder NWR, Wyoming.

<i>Step-down Management Plan</i>	<i>Completed Plan, Year Approved</i>	<i>New or Revised Plan, Completion Year</i>
Fire management plan	2001	2009
Habitat management plan	—	2012
Integrated pest management plan	2007	n/a
Law enforcement plan	—	2017
Safety plan	Covered under Arapaho NWR Complex plan	2008
Visitor services plan	—	2012
Water management plan	2007	n/a

