

# 3 Alternatives



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*Coyote*

This chapter describes the management alternatives considered for the Laramie Plains refuges. Alternatives are different approaches to planning unit management designed to achieve:

- the refuges' purposes, vision, and goals
- the mission of the Refuge System
- the mission of the Service

## 3.1 ALTERNATIVES DEVELOPMENT

Alternatives are formulated to address the significant issues, concerns, and problems identified by the Service, the public, and the governmental partners during public scoping and throughout the development of the draft plan.

This chapter contains the following sections:

- elements common to all alternatives
- description of alternatives
- summary of alternatives and environmental consequences (table 2)

This chapter describes three management alternatives that represent different approaches to

enhance protection and restoration of fish, wildlife, plants, habitats, and other resources. Alternative A, the no-action alternative, describes ongoing refuge management. The no-action alternative is a basis of comparison with alternatives B and C. Alternative B is the Service's proposed action and basis for the draft CCP (chapter 6).

The planning team assessed biological conditions and external relationships affecting the refuges. This information contributed to the development of alternatives, each of which presents a unique approach for addressing long-term goals. Each alternative was evaluated based on expected progress in meeting the vision and goals of the refuges and how it would address core wildlife and habitat issues and threats. Where data are available, trends in habitat and wildlife are evaluated, and the environmental consequences of each alternative are projected.

## 3.2 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

During the preplanning phase of the CCP process, Bamforth NWR was identified as a candidate for divestiture from Refuge System.

The planning team analyzed the refuge using region 6's divestiture model, which offers a set of criteria to measure the value of a refuge. Designed as a preplanning tool, the model allows planners and refuge managers to determine whether a refuge should be considered for divestiture. If the model indicates that a refuge should be considered for divestiture, the process and consequences of divestiture would be studied further during the CCP process.

In the case Bamforth NWR, the divestiture model indicated that the planning team did not have enough knowledge of existing refuge resources to answer the questions with a high degree of confidence. The planning team was reluctant to consider divestiture of Bamforth NWR without fully understanding the possible effects to the environment and the Refuge System.

Following the divestiture analysis (see appendix D), the planning team decided to retain Bamforth NWR in the Refuge System, and the alternative to divest Bamforth NWR from the Refuge System was eliminated from detailed study.

### 3.3 ELEMENTS COMMON TO ALL ALTERNATIVES

Several elements of refuge management are common to all alternatives. Management activities that could affect natural, archaeological, and historical resources would comply with applicable laws, regulations, and policies.

All alternatives would provide equal protection and management of cultural resources. Individual projects may require additional consultation with the Wyoming State Historic Preservation Office. Additional consultation, surveys, and clearance may be required when activities could affect properties eligible for the National Historic Register.

### 3.4 DESCRIPTION OF ALTERNATIVES

Management actions to advance the mission of the Refuge System and the purpose and vision of the Laramie Plains refuges are summarized below. The alternatives reflect options to address significant threats, problems, and issues raised by public agencies, private citizens, and interested organizations.

Each alternative differs in its ability to achieve long-term wildlife and habitat goals. However, each is similar in its approach to managing the refuges. Each alternative

- would pursue the goals outlined in chapter 2;
- would protect and enhance a diverse assemblage of habitats;

- would be consistent with the purpose of the refuges and with the mission and goals of the Refuge System.

The focus and actions for each of alternatives A–C are described below.

### Alternative A—Current Management (*No Action*)

Alternative A, the no-action alternative, reflects the current management of the Laramie Plains refuges. It provides the baseline against which to compare other alternatives. It is also a requirement of the NEPA that a no-action alternative is addressed in the planning process.

Under alternative A, management activity being conducted by the Service would remain the same. The Service would not develop any new management, research, restoration, education, or visitor services programs at the refuges. Current habitat and wildlife practices benefiting migratory species and other wildlife would not be expanded or changed. No new funding or staff levels would occur and programs would continue to follow the same direction, emphasis, and intensity as they do at present.

#### Upland Habitat Management

Current uplands habitat management consists of grazing the refuges under special use permit. Wyoming state regulations require landowners to fence-out property to prevent and/or control grazing on their property. The current grazing program (stocking rates, duration, and seasons) would continue until data analysis indicates further management direction.

*(Applies to all three Laramie Plains refuges.)*

The lack of boundary fencing on the refuge prohibits active management of the grazing program. The adjacent landowner currently holds a special use permit to graze on the refuge. In exchange for issuing the grazing permit, the landowner directs water to refuge grasslands as available.

*(Applies only to Bamforth NWR.)*

Current uplands habitat management consists of grazing the refuge under special use permit. An evaluation of current upland habitat conditions will assist refuge staff in determining whether grazing will continue to be used as a habitat management tool during the life of the plan.

*(Applies only to Hutton Lake NWR.)*

Current uplands habitat management consists of grazing the refuge to mimic preacquisition habitat conditions, per Wyoming Toad Recovery Team (Recovery Team) recommendations, under special use permit.

*(Applies only to Mortenson Lake NWR.)*

### **Water Rights/Wetland Habitat Management**

Currently, very little management of refuge wetlands occurs due to limited water rights considered to be in “poor” standing and the natural hydrology of the refuges. The refuges are located in closed-basin hydrologic systems, which limits Service ability to manage (move, drawdown) water on refuge lands. Refuge staff would continue to use existing water rights to enhance wetlands when water is available.

*(Applies to all three Laramie Plains refuges.)*

### **Threatened and Endangered Species**

Management for threatened and endangered species would occur if they are discovered on the refuges. At the present time, no known threatened or endangered species use Bamforth NWR or Hutton Lake NWR. Wyoming toads have been released at Hutton Lake NWR, but these releases have not resulted in the establishment of new populations. Refuge staff would continue to facilitate the use of Hutton Lake NWR as a release site for the Wyoming toad, per Recovery Team recommendation.

*(Applies only to Bamforth NWR and Hutton Lake NWR.)*

Current management priorities at Mortenson Lake NWR focus on implementing the objectives and strategies outlined in the Wyoming Toad Recovery Plan. Until the population recovery goals for the Wyoming toad are met, management priorities would continue to focus on the implementation of Recovery Team objectives.

*(Applies only to Mortenson Lake NWR.)*

### **Habitat Protection**

No active investigation of land exchanges, purchases, or conservation easements from willing landowners for the benefit of migratory bird species would be pursued.

*(Applies to all three Laramie Plains refuges.)*

### **Invasive Species Management**

Management of invasive species would continue at present levels with no active monitoring of invasive species occurring, and noxious weed infestations would be treated upon discovery.

*(Applies to all three Laramie Plains refuges.)*

Tamarisk would continue to be treated under a memorandum of agreement (MOA) with Albany County Weed and Pest.

*(Applies only to Hutton Lake NWR.)*

### **Public Use**

The refuge is currently closed to public use and is not signed or fenced to mark the refuge boundaries. Until baseline biological information

has been obtained to determine the role the refuge plays in the Refuge System, and whether divestiture of the refuge is warranted, it would not be prudent to invest resources in the development of infrastructure to safely support public use programs. *(Applies only to Bamforth NWR.)*

Public use programs would continue at present levels. The refuge would continue to support nonconsumptive wildlife-dependent recreation (i.e., wildlife observation, wildlife photography, environmental education and interpretation) programs. The refuge would remain closed to hunting and fishing.

*(Applies only to Hutton Lake NWR.)*

The refuge would remain closed to public use. Refuge acquisition documents state that public use programs would not be considered for the refuge until Wyoming toad population recovery goals have been met. At this time, they have not been met.

*(Applies only to Mortenson Lake NWR.)*

### **Research and Science**

Research activities for habitat and wildlife would remain at current levels. Refuge staff would not conduct research on the refuges. Biological monitoring would continue to be opportunistic in nature and performed mainly by other entities.

*(Applies to all three Laramie Plains refuges.)*

Biological monitoring for Wyoming toad population recovery would continue to be conducted by the Recovery Team.

*(Applies only to Mortenson Lake NWR.)*

### **Cultural Resources**

Cultural resources management would continue to consist of protecting known and newly discovered artifacts and sites.

*(Applies to all three Laramie Plains refuges.)*

### **Partnerships**

Existing refuge partnerships would be maintained, but no new partnerships would be developed or pursued. Refuge staff would continue to work with local landowners to irrigate the refuges when water is available. Refuge staff would continue to work with the board of Laramie-based Albany County Weed and Pest to manage invasive species on the refuges.

*(Applies to all three Laramie Plains refuges.)*

Refuge staff would continue to work with the Wyoming Audubon Society to explore, develop, and maintain public use opportunities and facilities at the refuge.

*(Applies only to Hutton Lake NWR.)*

### **Budget and Staffing**

The refuges would continue to be managed by Service staff headquartered at the Arapaho NWR near Walden, Colorado. The refuge staff consists of five full-time employees (FTEs) and three to four seasonal employees. These staff are responsible for management activities on the Arapaho NWR, Bamforth NWR, Hutton Lake NWR, and Mortenson Lake NWR, as well as the Pathfinder NWR, which combined includes 46,673 acres. Refuge staff travel approximately 80 miles to conduct management activities at the Laramie Plains refuges.  
(Applies to all three Laramie Plains refuges.)

## **Alternative B—Enhanced Refuge Management (Proposed Action)**

### **Upland Habitat Management**

Continue to use grazing as an upland habitat management tool under special use permit. Install boundary fencing to permit active management of the grazing program.  
(Applies only to Bamforth NWR.)

Refuge grazing programs (stocking rates, duration, and seasons) would be evaluated to determine whether grazing would be used as a habitat management tool. Current grazing under special use permit would be discontinued upon the retirement of the current permittee.  
(Applies only to Hutton Lake NWR.)

Uplands management would continue to use grazing as a habitat management tool under special use permit. Habitat goals for the grazing program would continue to be directed by the Recovery Team and implemented by refuge staff.  
(Applies only to Mortenson Lake NWR.)

### **Water Rights/Wetland Habitat Management**

Wetlands and alkali flats habitat management would focus on utilizing existing water rights to irrigate refuge wetlands when water is available. Refuge staff would research the availability of additional water rights for the refuges and consider obtaining additional water rights, where appropriate, for the benefit of wetland-dependent wildlife.  
(Applies to all three Laramie Plains refuges.)

### **Threatened and Endangered Species**

Increased monitoring for presence of threatened and endangered species would occur.  
(Applies to all three Laramie Plains refuges.)

Refuge staff would increase efforts to implement Recovery Team recommendations to achieve Wyoming toad population recovery objectives.  
(Applies to Mortenson Lake NWR.)

### **Habitat Protection**

When baseline biological information for the refuge has been obtained and evaluated, if the determination is made to retain Bamforth NWR in the Refuge System, refuge staff may investigate potential land tenure changes from willing landowners (e.g., fee title purchase, land exchange, and conservation easement) to acquire contiguous blocks of refuge lands to facilitate management of refuge lands.  
(Applies only to Bamforth NWR.)

Refuge staff would investigate potential land tenure changes from willing landowners (e.g., fee title purchase, land exchange, and conservation easement) to provide habitat protection for the benefit of migratory bird species on a large wetland complex that is located adjacent to the west side of the refuge.  
(Applies only to Hutton Lake NWR.)

Refuge staff would investigate potential land tenure changes from willing landowners (e.g., fee title purchase, land exchange, and conservation easement) to acquire inholdings within the refuge approved acquisition boundary and buffer areas to provide further protection for the Wyoming toad and other species of conservation concern.  
(Applies only to Mortenson Lake NWR.)

### **Invasive Species**

Monitoring and management of invasive species on the refuges would be increased.  
(Applies to all three Laramie Plains refuges.)

### **Public Use**

The refuge would remain closed to public use until data analysis indicates further management direction. It would not be considered prudent use of funds to invest Refuge System resources toward the development of infrastructure to support public use programs and later determine the refuge should be divested from the Refuge System.  
(Applies only to Bamforth NWR.)

Wildlife observation and wildlife photography programs would be expanded and enhanced. A step-down management plan would be developed to address refuge access, circulation, facility, and infrastructure needs. Efforts to provide environmental education and interpretation on the refuge would be expanded. The refuge would remain closed to hunting and fishing.  
(Applies only to Hutton Lake NWR.)

The refuge would remain closed to public use until Wyoming toad population recovery goals have been met. If they are met within the life of the plan, opening the refuge to wildlife-dependent activities would be considered.  
(Applies only to Mortenson Lake NWR.)

## Research and Science

Research activities for habitat and wildlife would be increased and expanded. Refuge staff would conduct biological monitoring and facilitate researchers and universities to conduct applied research to direct management decisions. Refuge staff would partner with universities and other entities to conduct specific research to identify refuge resources and obtain better understanding of the effects of management activities.

*(Applies to all three Laramie Plains refuges.)*

The greatest need for Bamforth NWR is to identify the resources of the refuge by obtaining baseline biological information. Data collection would be directed to identifying refuge resources and determining the role these resources serve in the Laramie Plains ecosystem and the Refuge System.

*(Applies only to Bamforth NWR.)*

## Cultural Resources

Cultural resources management would protect known and newly discovered artifacts and sites.

*(Applies to all three Laramie Plains refuges.)*

## Partnerships

Increased emphasis would be placed on maintaining existing partnerships and developing new partnerships to achieve refuge goals and objectives. Efforts would be increased to focus research-based partnerships on collecting baseline data for the refuges.

*(Applies to all three Laramie Plains refuges.)*

## Budget and Staffing

The refuges would continue to be managed by Service staff headquartered at the Arapaho NWR near Walden, Colorado. One additional full-time employee would be hired to perform increased management activities on the three Laramie Plains refuges and Pathfinder NWR.

*(Applies to all three Laramie Plains refuges.)*

## Alternative C—Partnerships

Under alternative C, refuge staff would rely on partnerships to achieve refuge goals and objectives. Refuge management activities would be increased and enhanced through the use of partnerships. Refuge staff would strive to accomplish refuge work through partnerships with others. An emphasis on adaptive management, including monitoring the effects of habitat management practices and using research results to direct ongoing management, would be a priority.

## Upland Habitat Management

Uplands management would consist of grazing the refuges under special use permit. Partnerships

would be used to evaluate upland habitat conditions to determine the appropriate grazing program (stocking rates, duration, and seasons) to achieve refuge goals and objectives. Current stocking rates would continue until data analysis indicates further management direction.

*(Applies to all three Laramie Plains refuges.)*

Refuge staff would work with partners to install boundary fencing on the refuge to permit active management of the grazing program.

*(Applies only to Bamforth NWR.)*

Refuge staff would work with partners to evaluate habitat conditions to determine whether grazing would continue to be used as a habitat management tool.

*(Applies only to Hutton Lake NWR.)*

Refuge staff would work with the Recovery Team and partners to evaluate habitat conditions to determine appropriate grazing program to achieve Wyoming toad population recovery goals and refuge goals.

*(Applies only to Mortenson Lake NWR.)*

## Water Rights/Wetlands Habitat Management

Wetlands and alkali flats habitat management would focus on utilizing existing water rights to irrigate refuge wetlands when water is available. Partnerships would be used to research the availability of additional water rights for the refuges.

*(Applies to all three Laramie Plains refuges.)*

## Threatened and Endangered Species

Refuge staff would work with partners to increase monitoring for the presence of threatened and endangered species.

*(Applies to all three Laramie Plains refuges.)*

Refuge staff would work with partners to increase efforts to implement Recovery Team recommendations to achieve Wyoming toad population recovery objectives.

*(Applies only to Mortenson Lake NWR.)*

## Habitat Protection

When baseline data for the refuge has been obtained and evaluated, if the determination is made to retain Bamforth NWR in the Refuge System, refuge staff would work to use partnerships to investigate potential land tenure changes (e.g., fee title purchase, land exchange, conservation easement) to acquire contiguous blocks of refuge lands to facilitate refuge access to and active management of refuge lands.

*(Applies only to Bamforth NWR.)*

Refuge staff would use partnerships to investigate potential land tenure changes (e.g., fee title

purchase, land exchange, conservation easement) to provide habitat protection for the benefit of migratory bird species on the large wetland complex adjacent to the refuge.  
(Applies only to Hutton Lake NWR.)

Refuge staff would use partnerships to investigate potential land tenure changes (e.g., fee title purchase, land exchange, and conservation easement) to acquire inholdings within the refuge approved acquisition boundary and buffer areas, from willing landowners, to provide further protection for the Wyoming toad and other species of conservation concern.  
(Applies only to Mortenson Lake NWR.)

### Invasive Species

Refuge staff would develop partnerships to increase the monitoring and management of invasive species on the refuges.  
(Applies to all three Laramie Plains refuges.)

### Public Use

The refuge would remain closed to public use until data analysis indicates further management direction.  
(Applies only to Bamforth NWR.)

Refuge staff would work with partners to enhance wildlife observation and wildlife photography programs and facilities on the refuge. Refuge staff would work with partners to expand efforts to provide environmental education and interpretation on the refuge. The refuge would remain closed to hunting and fishing.  
(Applies only to Hutton Lake NWR.)

The refuge would remain closed to public use until Wyoming Toad population recovery goals have been met. If they are met within the life of the plan, opening the refuge to wildlife-dependent activities would be considered.  
(Applies only to Mortenson Lake NWR.)

### Research and Science

Refuge staff would use partnerships to increase research activities on the refuges. Universities and other entities would conduct specific research to identify refuge resources and obtain a better understanding of the effects of management activities. Applied research would be conducted to direct management decisions.  
(Applies to all three Laramie Plains refuges.)

### Cultural Resources

Cultural resources management would protect known and newly discovered artifacts and sites.  
(Applies to all three Laramie Plains refuges.)

### Partnerships

Increased emphasis would be placed on maintaining existing partnerships and developing new partnerships to achieve refuge goals and objectives. Increased efforts would be made to focus research-based partnerships on collecting baseline data for the refuges.  
(Applies to all three Laramie Plains refuges.)

### Budget and Staffing

The refuges would continue to be managed by Service staff headquartered at the Arapaho NWR near Walden, Colorado. An additional one-half FTE would be assigned to perform increased management of partnership activities on the refuges.  
(Applies to all three Laramie Plains refuges.)

## 3.5 COMPARISON OF ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

Table 2 provides descriptions of management actions and environmental consequences by resource and use topics for each of the three alternatives.



Great blue heron.

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**Table 2. Comparison of management alternatives and environmental consequences for the Laramie Plains NWRs, Wyoming.**

<b>MANAGEMENT ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES FOR THE LARAMIE PLAINS REFUGES</b>  <i>BAMFORTH NATIONAL WILDLIFE REFUGE HUTTON LAKE NATIONAL WILDLIFE REFUGE MORTENSON LAKE NATIONAL WILDLIFE REFUGE</i>			
<i>Management Categories</i>	<b>Alternative A— Current Management (No Action)</b>	<b>Alternative B— Enhanced Refuge Management (Proposed Action)</b>	<b>Alternative C— Partnerships</b>
Upland Habitat	<b>Management Action</b>		
	<i>Applies to all three Laramie Plains refuges:</i> Continue grazing uplands under special use permit.	<i>Applies to all three Laramie Plains refuges:</i> <ul style="list-style-type: none"> <li>• Monitor and evaluate upland habitat conditions to direct grazing program.</li> <li>• Manage grazing to achieve refuge objectives.</li> <li>• Consider other upland management techniques (prescribed fire, grazing, haying, and mowing).</li> </ul>	<i>Applies to all three Laramie Plains refuges:</i> Same as alternative B, except rely on partners to evaluate upland habitat conditions to direct grazing program.
	<b>Environmental Consequences</b>		
	<i>Applies to all three Laramie Plains refuges:</i> <ul style="list-style-type: none"> <li>• Current upland habitat conditions are maintained.</li> <li>• Continued lack of knowledge regarding grazing impacts to habitat and wildlife.</li> <li>• Other upland management techniques (prescribed fire, grazing, haying, and mowing) not actively pursued.</li> <li>• Native plant abundance and diversity would continue to decline.</li> <li>• Introduced cool-season grasses would continue to gradually increase.</li> </ul> <i>Applies to Bamforth NWR: Uncontrolled</i>	<i>Applies to all three Laramie Plains refuges:</i> <ul style="list-style-type: none"> <li>• Evaluation of upland habitat conditions results in data to determine appropriate grazing program (stocking rates, duration, timing) and guide management decisions.</li> <li>• Grazing program evaluation guides grazing.</li> <li>• Apply additional upland management techniques (prescribed fire, grazing, haying, and mowing).</li> <li>• Fire and grazing disturbances would approximate historical frequency, timing, and intensity. Associated nutrient cycles would largely</li> </ul>	<i>Applies to all three Laramie Plains refuges:</i> Same as alternative B, except success in achieving refuge objectives dependent on viable partnerships.

<b>Management Categories</b>	<b>Alternative A— Current Management (No Action)</b>	<b>Alternative B— Enhanced Refuge Management (Proposed Action)</b>	<b>Alternative C— Partnerships</b>
	<p>grazing continues due to lack of fencing with adjacent neighbors.</p>	<p>be restored.</p> <ul style="list-style-type: none"> <li>• The relatively arid soil surface environment would be less hospitable to introduced plant species.</li> <li>• The plant community would become increasingly dominated by native herbaceous species.</li> <li>• The diversity and abundance of species that use grassland would increase.</li> </ul>	
<p>Wetlands and Alkali Flats Habitat</p>	<b>Management Action</b>		
	<p><i>Applies to all three Laramie Plains refuges:</i></p> <ul style="list-style-type: none"> <li>• Limited staff, restricted water rights, and natural hydrology (closed basin) impede managed drawdown of wetlands.</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i></p> <ul style="list-style-type: none"> <li>• Same as A, plus increased efforts to monitor and manage refuge wetlands.</li> <li>• Consider other wetland-management tools (prescribed fire, grazing, haying, and mowing).</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i></p> <p>Same as alternative B, except rely on partners to conduct increased monitoring and management of wetlands.</p>
	<b>Environmental Consequences</b>		
<p><i>Applies to all three Laramie Plains refuges:</i></p> <ul style="list-style-type: none"> <li>• Wetland habitats continue to be dependent on natural processes resulting in little movement of water between impoundments.</li> <li>• Many wetland units would lack capacity to provide the full spectrum of wetland conditions, including dry marsh, densely vegetated marsh (regenerative phase), hemi-marsh, open marsh (degenerative phase), and open water.</li> <li>• Wetland soils would be infrequently oxidized, resulting in the rare germination of important annual plants that provide food sources for</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i></p> <ul style="list-style-type: none"> <li>• The capacity to provide the full spectrum of wetland conditions would increase. All phases would be represented, including dry marsh, densely vegetated marsh (regenerative phase), hemi-marsh, open marsh (degenerative phase), and open water.</li> <li>• Wildlife diversity would increase with more diverse wetland conditions.</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i></p> <p>Same as alternative B, except dependent on viable partnerships.</p>	

<b>Management Categories</b>	<b>Alternative A— Current Management (No Action)</b>	<b>Alternative B— Enhanced Refuge Management (Proposed Action)</b>	<b>Alternative C— Partnerships</b>
	wetland-dependent migratory birds.		
Water Rights	<b>Management Action</b>		
	<i>Applies to all three Laramie Plains refuges:</i> Continue to use existing water rights to enhance grassland and wetlands habitats when water is available.  <i>Applies to Mortenson Lake NWR:</i> Continue limited monitoring of water quality.	<i>Applies to all three Laramie Plains refuges:</i> Same as A, plus research availability of additional water rights and consider obtaining them where available to improve refuge habitats.  <i>Applies to Mortenson Lake NWR:</i> Increase water quality monitoring.	<i>Applies to all three Laramie Plains refuges:</i> Same as alternative B, except rely on partners to research availability of additional water rights.  <i>Applies to Mortenson Lake NWR:</i> Rely on partners to conduct water quality monitoring.
	<b>Environmental Consequences</b>		
	<i>Applies to all three Laramie Plains refuges:</i> Wetland conditions and wildlife habitat will be dependent on existing minimal water rights, resulting in minimal ability to accomplish managed drawdown of wetland habitats.  <i>Applies to Mortenson Lake NWR:</i> Minimal knowledge of refuge water quality and impacts on the Wyoming toad.	<i>Applies to all three Laramie Plains refuges:</i> Refuge habitats could be improved with acquisition of additional water rights resulting in <ul style="list-style-type: none"> <li>increased irrigation of refuge meadows and uplands;</li> <li>potentially less alkalinity in refuge wetlands;</li> <li>active management of water levels in wetlands.</li> <li>Increased capacity to provide the full spectrum of wetland conditions.</li> </ul> <i>Applies to Mortenson Lake NWR:</i> Increased knowledge of refuge water quality and impacts on the Wyoming toad and other wildlife.	<i>Applies to all three Laramie Plains refuges:</i> Same as alternative B, except success in achieving refuge objectives dependent on viable partnerships.
Threatened and Endangered Species	<b>Management Action</b>		
	<i>Applies to Mortenson Lake NWR:</i> Continue to coordinate with Wyoming Toad Recovery Team on Wyoming toad population recovery efforts.	<i>Applies to Mortenson Lake NWR:</i> Enhance Wyoming toad management efforts.	<i>Applies to Mortenson Lake NWR:</i> Same as alternative B, except rely on partnerships to enhance management efforts.
	<b>Environmental Consequences</b>		
	<i>Applies to Mortenson Lake NWR:</i> Continued efforts for Wyoming toad recovery.	<i>Applies to Mortenson Lake NWR:</i> Population recovery goals achieved quicker.	<i>Applies to Mortenson Lake NWR:</i> Same as alternative B, except dependent on viable partnerships.

<b>Management Categories</b>	<b>Alternative A— Current Management (No Action)</b>	<b>Alternative B— Enhanced Refuge Management (Proposed Action)</b>	<b>Alternative C— Partnerships</b>
Habitat Protection	<b>Management Action</b>		
	<p><i>Applies to Hutton Lake NWR:</i> No active investigation of long-term protection of large wetland complex adjacent to the refuge.</p> <p><i>Applies to Mortenson Lake NWR:</i> No investigation of acquiring buffer zones for protection of Wyoming toad.</p>	<p><i>Applies to Hutton Lake NWR:</i> Investigate willing landowner opportunity for long-term protection (fee title purchase, easement) of large wetland complex adjacent to the refuge.</p> <p><i>Applies to Mortenson Lake NWR:</i> Investigate acquiring buffer zones from willing sellers for protection of Wyoming toad.</p>	<p><i>Applies to Hutton Lake NWR:</i> Same as alternative B, except rely on partnerships to investigate willing landowner opportunity for long-term protection of large wetland complex adjacent to the refuge.</p> <p><i>Applies to Mortenson Lake NWR:</i> Rely on partners to investigate potential availability of buffer zones from willing sellers for protection of Wyoming toad.</p>
	<b>Environmental Consequences</b>		
	<p><i>Applies to Hutton Lake NWR:</i> Lost opportunity to protect wetland complex adjacent to the refuge.</p> <p><i>Applies to Mortenson Lake NWR:</i> Lost opportunity to increase habitat protection for Wyoming toad.</p>	<p><i>Applies to Hutton Lake NWR:</i> Long-term protection of wetland complex provides increased nesting and foraging areas for waterfowl and other migratory birds.</p> <p><i>Applies to Mortenson Lake NWR:</i> Buffer zones provide increased habitat protection for Wyoming toad.</p>	<p><i>Applies to Hutton Lake NWR:</i> Same as alternative B, except dependent on viable partnerships.</p> <p><i>Applies to Mortenson Lake NWR:</i> Same as alternative B, except dependent on viable partnerships.</p>
Invasive Species	<b>Management Action</b>		
	<p><i>Applies to all three Laramie Plains refuges:</i> Continue to manage for invasive species in accordance with state law and Service policy.</p> <p><i>Applies to Bamforth NWR and Mortenson Lake NWR:</i> Currently no known infestations.</p> <p><i>Applies to Hutton Lake NWR:</i> Tamarisk treated under MOA by Albany County Weed and Pest.</p>	<p><i>Applies to all three Laramie Plains refuges:</i> Increase monitoring and management of invasive species.</p>	<p><i>Applies to all three Laramie Plains refuges:</i> Same as alternative B, except rely on partners to conduct increased monitoring and management of invasive species.</p>
	<b>Environmental Consequences</b>		
	<p><i>Applies to all three Laramie Plains refuges:</i> Management of invasive species continues to be reactionary (occurring when problems are identified).</p>	<p><i>Applies to all three Laramie Plains refuges:</i> With increased monitoring of invasive species, management becomes proactive.</p>	<p><i>Applies to all three Laramie Plains refuges:</i> Same as alternative B, except dependent on viable partnerships.</p>

<b>Management Categories</b>	<b>Alternative A— Current Management (No Action)</b>	<b>Alternative B— Enhanced Refuge Management (Proposed Action)</b>	<b>Alternative C— Partnerships</b>
Public Use	<b>Management Action</b>		
	<p><i>Applies to all three Laramie Plains refuges:</i> Refuge remains closed to hunting and fishing.</p> <p><i>Applies to Hutton Lake NWR:</i></p> <ul style="list-style-type: none"> <li>• Provide self-directed opportunities for wildlife observation and wildlife photography.</li> <li>• Support refuge use by school groups for environmental education purposes.</li> <li>• Conduct interpretive talks upon request, when available.</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i> Same as alternative A.</p> <p><i>Applies to Hutton Lake NWR:</i> Increase wildlife observation, wildlife photography, environmental education, and interpretive programs and facilities.</p>	<p><i>Applies to all three Laramie Plains refuges:</i> Same as alternative A.</p> <p><i>Applies to Hutton Lake NWR:</i> Same as alternative B, except rely on partners to increase wildlife observation, wildlife photography, environmental education, and interpretive programs and facilities.</p>
	<b>Environmental Consequences</b>		
	<p><i>Applies to all three Laramie Plains refuges:</i></p> <ul style="list-style-type: none"> <li>• Hunting and fishing occur on other public lands in the area.</li> <li>• Minimize disturbance to wildlife and habitat.</li> </ul> <p><i>Applies to Hutton Lake NWR:</i></p> <ul style="list-style-type: none"> <li>• Public continues self-directed wildlife observation and photography.</li> <li>• Lack of regulatory information (signage, brochure) increases potential for negative habitat impacts due to uncontrolled access.</li> <li>• Minimal educational and interpretive opportunities for Laramie community.</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i> Same as alternative A.</p> <p><i>Applies to Hutton Lake NWR:</i></p> <ul style="list-style-type: none"> <li>• Enhanced opportunities for wildlife observation and wildlife photography.</li> <li>• Increased public awareness of natural resource ecology and refuge management.</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i> Same as alternative A.</p> <p><i>Applies to Hutton Lake NWR:</i> Same as alternative B, except success dependent on viable partnerships.</p>
Research and Science	<b>Management Action</b>		
	<p><i>Applies to all three Laramie Plains refuges:</i> Continue opportunistic biological monitoring under special use permit with efforts limited to sporadic inventories of vegetation composition.</p> <p><i>Applies to Hutton Lake</i></p>	<p><i>Applies to all three Laramie Plains refuges:</i> Service conducts applied research to guide management decisions.</p> <p><i>Applies to Bamforth NWR:</i> Service gathers baseline biological information to determine refuge resources.</p>	<p><i>Applies to all three Laramie Plains refuges:</i> Rely on partners to conduct applied research that would be used to guide management decisions.</p>

<b>Management Categories</b>	<b>Alternative A— Current Management (No Action)</b>	<b>Alternative B— Enhanced Refuge Management (Proposed Action)</b>	<b>Alternative C— Partnerships</b>
	<p><i>NWR:</i></p> <ul style="list-style-type: none"> <li>• WGF performs annual colonial waterbird and goose breeding surveys.</li> <li>• Maintain traffic counter.</li> </ul> <p><i>Applies to Mortenson Lake NWR:</i> Recovery Team continues to conduct biological monitoring for Wyoming toad population recovery.</p>	<p><i>Applies to Hutton Lake NWR:</i> Analyze traffic data to obtain better understanding of public use patterns and needs.</p> <p><i>Applies to Mortenson Lake NWR:</i> Service conducts increased monitoring and research to benefit migratory birds and other wildlife on the refuge.</p>	
	<b>Environmental Consequences</b>		
	<ul style="list-style-type: none"> <li>• <i>Applies to Bamforth NWR:</i> Refuge staff has little ability to implement science-based management or defend management actions.</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i></p> <ul style="list-style-type: none"> <li>• Knowledge of refuge resources enhanced through biological monitoring.</li> <li>• Data analysis guides management actions.</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i> Same as alternative B, except dependent on viable partnerships.</p>
Cultural Resources	<b>Management Action</b>		
	<p><i>Applies to all three Laramie Plains refuges:</i></p> <ul style="list-style-type: none"> <li>• Continue to protect cultural resources in accordance with federal and state laws, policies, and guidelines.</li> <li>• Regional archeologist is consulted during the planning phase of proposed projects and determines the need for an archeological site clearance from the Wyoming State Historic Preservation Office.</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i> Same as alternative A, plus consider cultural resources site survey.</p> <p><i>Applies to Hutton Lake NWR:</i> Where appropriate, interpret cultural resources to educate the staff, community, and visitors about the area's past.</p>	<p><i>Applies to all three Laramie Plains refuges:</i> Same as alternative B, except rely on partners to conduct cultural resources site survey.</p> <p><i>Applies to Hutton Lake NWR:</i> Where appropriate, rely on partners to interpret cultural resources to educate staff, community, and visitors about the area's past.</p>
	<b>Environmental Consequences</b>		
	<p><i>Applies to all three Laramie Plains refuges:</i> Existing cultural resources are protected; protection is extended to newly discovered resources.</p>	<p><i>Applies to all three Laramie Plains refuges:</i> Same as alternative A, plus more active identification of cultural resources.</p>	<p><i>Applies to all three Laramie Plains refuges:</i> Same as alternative B, except dependent on viable partnerships.</p>
Partnerships	<b>Management Action</b>		
	<p><i>Applies to all three Laramie Plains refuges:</i></p> <ul style="list-style-type: none"> <li>• Continue to work with local landowner to manage refuge</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i> Same as alternative A, plus expand efforts to develop, coordinate, and</p>	<p><i>Applies to all three Laramie Plains refuges:</i> Same as alternative B, except rely on partnerships to achieve refuge goals.</p>

<b>Management Categories</b>	<b>Alternative A— Current Management (No Action)</b>	<b>Alternative B— Enhanced Refuge Management (Proposed Action)</b>	<b>Alternative C— Partnerships</b>
	<p>water when available.</p> <ul style="list-style-type: none"> <li>Continue to work with the board of Albany County Weed and Pest to manage invasive species on the refuge.</li> </ul> <p><i>Applies to Mortenson Lake NWR:</i></p> <ul style="list-style-type: none"> <li>Continue partnership with Recovery Team to achieve Wyoming toad population recovery goals.</li> <li>Continue partnership with local landowner to graze the refuge to provide desired habitat condition for Wyoming Toad.</li> </ul>	<p>manage new partnerships to benefit the refuge.</p>	
	<b>Environmental Consequences</b>		
	<p><i>Applies to all three Laramie Plains refuges:</i></p> <ul style="list-style-type: none"> <li>Refuge continues to use water rights and receive water when available.</li> <li>Survey and control of invasive species on the refuges continues.</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i></p> <p>Partnerships augment refuge staff ability to understand and manage refuge resources.</p>	<p><i>Applies to all three Laramie Plains refuges:</i></p> <p>Same as alternative B, except dependent on viable partnerships.</p>
Refuge Operations	<b>Management Action</b>		
	<p><i>Applies to all three Laramie Plains refuges:</i></p> <ul style="list-style-type: none"> <li>Retain current staffing of 5 FTE employees.</li> <li>Continue refuge administration by Service staff headquartered at Arapaho NWR near Walden, Colorado.</li> <li>Continue the current level of funding to support refuge operations and maintenance.</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i></p> <ul style="list-style-type: none"> <li>Hire one additional FTE and assign to the Laramie Plains refuges and Pathfinder NWR to perform increased management activities.</li> <li>Increase funding to support baseline data collection efforts.</li> <li>Service performs year-round field work and planning on the refuges.</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i></p> <ul style="list-style-type: none"> <li>Assign ½ FTE to the Laramie Plains refuges to develop and manage partnerships.</li> <li>Increase funding to support the development and management of partnerships to achieve refuge goals.</li> <li>Rely on partners to conduct field work on the refuges.</li> </ul>
	<b>Environmental Consequences</b>		
	<p><i>Applies to all three Laramie Plains refuges:</i></p> <ul style="list-style-type: none"> <li>Management activities conducted on the refuges remain minimal.</li> </ul>	<p><i>Applies to all three Laramie Plains refuges:</i></p> <p>Increased opportunity to manage refuge resources.</p>	<p><i>Applies to all three Laramie Plains refuges:</i></p> <p>Same as alternative B, except success dependent on viable partnerships.</p>

