

CHAPTER 3— Alternatives and Environmental Consequences



Bob Danley/USFWS

Variegated meadowhawk is one of many dragonfly species found on Lee Metcalf Refuge.

The purpose of this chapter is to describe the management alternatives and associated environmental consequences considered for the Lee Metcalf National Wildlife Refuge. Alternatives are different approaches to unit management that are designed to achieve the refuge purposes, vision, and goals; the mission of the Refuge System; and the mission of the U.S. Fish and Wildlife Service. Alternatives are developed to address the substantive issues, concerns, and problems identified by the Service, the public, and other partners during public scoping and throughout the development of the draft CCP. This chapter contains the following:

- summary of alternatives (sections 3.1 and 3.2)
- summary of environmental consequences (section 3.3)
- detailed descriptions of alternatives and consequences (section 3.4)

3.1 Alternatives Development

The planning team assessed the planning issues identified in chapter 2, the existing biological conditions described in chapter 4, and external relationships affecting the refuge. This information contributed to the development of alternatives, each of which presents a distinct approach for meeting long-term goals. Each

alternative was evaluated on the basis of its approach to addressing planning issues and its expected success in meeting the vision and goals of the refuge and the Refuge System.

Alternative A, the no-action alternative, describes the current, ongoing management activities. This alternative might not meet all the CCP goals. It is provided as a basis for comparison with the other alternatives.

ALTERNATIVES CONSIDERED BUT ELIMINATED

There were no alternatives considered but eliminated from detailed study.

ELEMENTS COMMON TO ALL ALTERNATIVES

This section identifies the following key elements that will be included in the CCP regardless of the alternative selected:

- The Service would ensure that management of the refuge complies with all Federal laws, administrative orders, and policies that provide direction for managing units of the Refuge System. Among these mandates are the Improvement Act, the Endangered Species Act of 1973, the Clean Water Act of 1977, Executive Order 11990 (“Protection of Wetlands”), and Executive Order 11988 (“Floodplain Management”). The implementation of alternatives described in this draft CCP and EA would not lead to a violation of these or other mandates.

- Implementation of the management direction (goals, objectives, and strategies) would follow the refuge's best management practices.
- Each alternative would attempt to control invasive species through an integrated pest management approach that includes biological, chemical, and mechanical treatment methods followed by restoration and prevention of reinvasion.
- Through its actions the Service would not knowingly negatively affect an adjacent landowner without a mutual agreement and adequate compensation.
- Each alternative would provide equal protection and management of cultural resources.
- The refuge staff and its contractors, researchers, and other consultants would acquire all applicable permits, such as those for future construction activities.

3.2 Description of Alternatives

This section describes the alternatives considered by the planning team to achieve the proposed vision and goals and to address the issues. These alternatives include not only the current management (alternative A) but also the Service's proposed action (alternative B), which is incorporated into the draft CCP and further described in chapter 5. Table 4 in section 3.4 below provides a summary of the alternatives' actions with associated consequences.

These alternatives reflect options to address significant threats, problems, and issues raised not only by refuge staff but also public agencies, private citizens, other State, tribal, and Federal agencies, and other interested organizations.

ALTERNATIVE A (CURRENT MANAGEMENT—NO ACTION)

Alternative A, the no-action alternative, represents the current management of the refuge. This alternative provides the baseline against which to compare the other alternatives. It also fulfills the NEPA requirement that a no-action alternative be addressed in the analysis process.

Under alternative A, the Service's management activities would remain the same. The staff would perform issue-driven research and monitor only long-term vegetation changes. Funding and staff levels would remain unchanged, and programs would have the same direction, emphasis, and intensity as they do at present. Key elements of alternative A follow:

- Habitat and wildlife management actions would continue at present levels unless funding or staffing levels changed. Refuge habitat would continue to be

managed using existing water control structures, grazing, and prescribed fire. Results of management actions may or may not be able to be analyzed because monitoring would continue to be limited due to current funding levels. The refuge would continue to impound water in all refuge ponds.

- The Service would not take any actions to prohibit the migration of the Bitterroot River, even for road and trail protection.
- The culvert at North Burnt Fork Creek in the WVA would be replaced by a bridge.
- Prescriptive fire, prescriptive grazing, and natural flooding would be used to enhance the existing riverfront and gallery forest plant communities. Where appropriate, cottonwood and ponderosa pine would continue to be planted to expand the gallery forest areas, with a focus on sloughs and historical ditches.
- Unless eroded by the Bitterroot River, the wetland impoundments would be retained; however, management capabilities would be limited. The gravel pits would be retained and managed for boreal toad and Columbia spotted frog habitat.
- The Service would attempt to introduce more native plant species into tame grassland areas.
- The Service would work with partners to map and treat invasive species and monitor treated areas to prevent reintroduction and spread.
- Refuge staff would continue to perform issue-driven scientific research.
- Wildlife-dependent compatible priority uses (hunting, fishing, wildlife observation, wildlife photography, and interpretation) would continue at current levels. Outreach and education programs would continue, primarily onsite, but there would be insufficient resources to update signs, informational kiosks, and brochures or to improve hiking trails and access roads.
- Five full-time staff persons would continue to be assigned to the refuge along with four zone or state-wide support staff who could assist with refuge programs.

ALTERNATIVE B (PROPOSED ACTION)

This alternative constitutes the draft CCP (chapter 5) and focuses on the expansion and restoration of native plant communities on the refuge including grassland and shrubland, gallery and riverfront forests, and wetland impoundments. A significant part of the restoration proposal includes the control of invasive species. Grasses and shrubs native to the uplands (in the floodplains and on the alluvial fans, or areas of sedimentary deposits where fast-flowing streams have flown into flatter plains) would be restored to provide habitat for native wildlife including

grassland-dependent migratory birds. Before any restoration is conducted, invasive species (including seedbeds) will be reduced primarily with prescribed burning and farming.

Some wetland impoundments and Service (non-public) roads would be removed to allow for river migration scouring, which could help restore native gallery and riverfront forest for riparian-dependent wildlife. Most of the remaining impoundments would be managed to mimic natural conditions for wetland-dependent migratory birds.

The Service would expand and improve the refuge's compatible wildlife-dependent public use programs, particularly the wildlife observation, environmental education, and interpretation programs. The visitor contact area would be expanded into a visitor center with new displays and an additional combination conference room and environmental education classroom. New displays would be professionally planned and produced. The refuge would work with Ravalli County staff to designate the county road traveling through the refuge as an interpreted auto tour route, which would include pulloffs for wildlife viewing. A seasonal hiking trail would be added around Pond 8, and current trails would be improved for wildlife observation and photography. Interpretation and environmental education programs would be expanded using added staff and volunteers. All public use programs would provide visitors with a consistent message about the purposes and values of the refuge and the mission of the Refuge System. The refuge staff would be expanded by 3.5 individuals: an assistant refuge manager, two biological science technicians (one part-time), and a visitor services specialist.

Increased research and monitoring efforts, staff, funding, infrastructure, and partnerships would be required to accomplish the goals outlined in chapter 2 and the objective and strategies outlined in chapter 5. Additional staff and funding would be dependent on the regional priorities for those funds allocated to the Service for management of lands and waters within the Refuge System. Key elements of alternative B follow:

- Levees and ditches would be modified or created to reconnect floodplain habitats with the Bitterroot River, thereby providing the opportunity for overbank and backwater flooding into and out of the floodplain. These actions would facilitate the restoration of the natural braided migration patterns of the Bitterroot River across the refuge, where possible.
- Water control structures and obstructions in tributary and floodplain channels would be removed or modified to allow unimpeded flow from North Burnt Fork Creek and Three Mile Creek into the Bitterroot River. North Burnt Fork Creek would be reconnected with historical channels and the Bitterroot River.
- Water control structures would be replaced in Ponds 1–6, Pond 8, and Pond 10 so that water regimes could be managed for a more seasonal, annual dynamic that emulates natural increases in water distribution and depth in spring and gradual drying in summer and fall. Complete drawdown of each pond would occur on a rotational basis.
- Levees, ditches, and water control structures would be removed to facilitate the restoration and expansion of the gallery forest habitat (Ponds 7, 7a, 7b, 9, and D) and native grassland habitat (Pair Ponds and Potato Cellar Pond) while ensuring that restoration areas do not become new sites for invasive species.
- The pool height of Ponds 8 and 10 would be lowered to allow for the restoration of gallery forest to the west of these ponds.
- Once invasive species were well controlled on restoration sites (using primarily farming and prescribed fire), native plant communities would be restored based on geomorphology, soils, topography, and hydrologic features.
- As appropriate, vegetation would be removed from gravel pits to restore desirable boreal toad habitat. The presence or absence of Columbia spotted frogs (which may respond negatively to vegetation removal) would be monitored.
- Mechanical, chemical, and biological methods, including prescribed fire, would be used to convert introduced and tame grasses to native species, where possible. Prior to restoration, these sites would be treated for invasive species.
- Through partnerships, a program would be developed to treat and monitor off-refuge sources of early plant invaders.
- Plant communities would be inventoried and the responses of target species to restoration treatments would be monitored.
- Research projects that address refuge issues and support habitat and public use program objectives would be pursued and implemented.
- Work with the State to determine the viability of allowing hunters to use muzzleloaders and/or shotguns to harvest white-tailed deer within this archery-only hunting district.
- Current visitor services and facilities would be maintained and expanded significantly. Visitor services staff would be hired; new programs highlighting refuge habitats, wildlife, cultural resources, and restoration efforts would be created; and a seasonal walking trail around Pond 8 would be added.
- Refuge headquarters would be expanded to create a visitor center, classroom, and additional office space.
- Three and a half permanent, full-time employees would be added to the current staff.

ALTERNATIVE C

Alternative C contains many of the elements found in alternative B related to expanding visitor service programs and facilities. However, habitat management would be focused on maintaining the wetland impoundments, attempting to restrict the movements of the Bitterroot River throughout the refuge, and providing waterfowl and other waterbird habitat. Key elements of alternative C follow:

- To prevent river movement and natural overbank and backwater flooding, the Service would take action to repair and maintain eroded levees and dams.
- Water level management structures would be replaced as needed to continue providing impounded wetland habitat. Where possible, the water management of impounded areas would be changed to seasonal water regimes and periodic dry conditions to improve wetland production.
- Limited pheasant and turkey hunting opportunities would be provided in compliance with refuge and State regulations. The refuge would establish a fee program for using hunting blinds.
- Special fishing events would not be permitted in closed areas. The refuge would participate in other fishing events offsite.
- Three and half permanent, full-time employees would be added to the current staff, the majority of whom would work on visitor services programs.

3.3 Summary of Environmental Consequences

The Service assessed the potential environmental consequences of each alternative on the physical, biological, socioeconomic, and cultural resources of the refuge.

EFFECTS COMMON TO ALL ALTERNATIVES

The management activities and programs of all alternatives would, to the extent possible and practicable, avoid and minimize adverse effects on federally listed species. The sections below describe other effects expected to be common to all alternatives.

Environmental Justice

In keeping with the spirit and intent of Executive Order 12898 (“Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations”), no actions being considered in this draft CCP and EA would disproportionately place any adverse environmental, economic, social, or health effects on minority or low-income populations compared with the general public. The Service is committed to ensuring that all members of the public have equal

access to the Nation’s fish and wildlife resources, as well as equal access to information that would enable them to participate meaningfully in activities and policy shaping.

Cultural Resources

Each alternative would protect existing cultural resources and extend protection to newly discovered cultural resources. Limited cultural resource surveys have been performed on the refuge; additional surveys must precede new construction or excavation to fully satisfy provisions of NEPA and other applicable regulations concerning historical and archaeological resources. Any potentially negative effect from trail or facility construction would require review by the Mountain–Prairie Region’s archaeologist and consultation with the Montana State Historic Preservation Office.

Climate Change

The actions proposed in this draft CCP and EA would conserve or restore land and habitat, thus retaining existing levels of carbon sequestration throughout the refuge. This would contribute positively to efforts to mitigate human-induced global climate change. The use of prescribed fire, which releases carbon dioxide, should result in no net loss of carbon because new vegetation would quickly replace the burned-up biomass. Overall, there should be little to no net change in carbon sequestered on the refuge from any of the management alternatives. As it relates to global climate change, documenting the long-term changes in vegetation, species, and hydrology is an important part of research and monitoring. Invasive species may also become more prolific and widespread and more difficult to control in the wake of climate change. Management adjustments may be necessary over time to adapt to climate change. The refuge would continue to reduce its carbon footprint by using renewable energy (for example, wind and solar energy) and green technologies in the development of any new facilities.

Geology and Soils

All alternatives would positively affect soil formation processes on the refuge. Some disturbance to surface soils and topography would occur at locations selected for:

- administrative, maintenance, and visitor facilities;
- channel excavation and levee adjustment or removal;
- mechanical removal and eradication of invasive plant species;
- restoration of native habitat.

3.4 Detailed Descriptions of Alternatives and Consequences

Management actions are prescribed in the alternatives as a means for achieving the vision and goals for the refuge while responding to issues raised by Service managers, the public, and governmental partners. Because management would differ for each alternative, the environmental and social effects from implementation would likely differ as well.

Table 4 describes management direction and consequences of alternative A (current management) for comparison with alternatives B and C. In most instances, the proposed management alternatives outlined in alternatives B and C would differ from current management.

In this table, management actions and their consequences are organized first by major habitat types found on the refuge, followed by the proposals for invasive species, research, cultural resources, visitor services, partnerships, and operations and facilities. Columns in the table contain management actions for each alternative followed by the estimated potential effects from carrying out the actions of an alternative.

SOCIOECONOMICS

This section analyzes the local economic impacts associated with current management activities (alternative A) and the change in management activities associated with the proposed action (alternative B) and alternative C.

Alternative A (Current Management—No Action)

Alternative A, the no-action alternative, would not significantly change the refuge's contribution to the local economy. Visitation levels and visitor spending would likely increase only slightly, and the refuge would continue to employ eight full-time employees (3.5 of which are zone or state-wide support employees who do not exclusively support refuge operations).

Alternative B (Proposed Action)

Alternative B would increase the refuge's contribution to the local economy. Visitation under this alternative is expected to increase due to expanded and more frequent visitor services programs and events, new visitor center, new trail, and an interpreted auto tour route. Employment would increase from eight to 11.5 full-time equivalent employees, and many seasonal staff would be hired. Of these 11.5 employees, 8 would directly support refuge operations. The remaining 3.5 positions would continue to be zone or state-wide support employees. Accordingly, increases in visitor and employee spending in the local communities would be anticipated.

Alternative C

Alternative C would be the same as B.

CUMULATIVE IMPACTS

Cumulative impacts are the incremental effects of an alternative's actions when added to past, present, and reasonably foreseeable future actions. Cumulative impacts can be the result of individually minor impacts that can become significant when added together over time.

Whenever the environmental analysis process detects possible significant impacts on habitat, wildlife, or the human environment, mitigation measures must be put into place. This requirement is mandated by the Council on Environmental Quality, the agency that implements the National Environmental Quality Act.

None of the activities proposed in this draft CCP and EA are expected nor intended to produce significant levels of cumulative environmental impacts that would require mitigation measures. Nevertheless, the final CCP will contain the following measures to preclude significant environmental impacts from occurring:

- To protect federally listed species from intentional or unintended impacts, activities would be not be planned where these species occur, especially during periods such as nesting.
- All proposed activities would be regulated to lessen potential impacts on wildlife, fish, and plant species, especially during sensitive reproductive cycles.
- Monitoring protocols would be established to determine goal achievement levels and possible unforeseen impacts on resources. This would allow for application of adaptive resource management to ensure wildlife and habitat resources, as well as the human environment, are conserved.
- Five years after its approval, the final CCP could be revised to correct for unforeseen impacts that occurred during the first 5 years of plan implementation. Adaptive resources management would inform this revision.

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A (current management—no action)</i>	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
<p>GOAL for Bitterroot River Floodplain and Associated Wildlife. Manage and, where appropriate, restore the natural topography, water movements, and physical integrity of surface water flow patterns across the Bitterroot River floodplain to provide healthy riparian habitats for target native species and to educate visitors about the benefits of sustaining a more natural floodplain.</p>		
Floodplain—Actions		
<p>Remove or modify existing levees that impede movement of the Bitterroot River or allow them to further erode.</p> <p>Evaluate and modify refuge levees to allow for river movement while protecting selected refuge roads.</p> <p>Do not inhibit tendencies for the Bitterroot River to move primary discharge through the North Island Slough.</p> <p>Remove degraded government residence and allow natural flood events to occur.</p> <p>Allow the WVA to further erode as the Bitterroot River migrates eastward. Educate visitors about this process.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Expand efforts to remove or modify levees, berms, dams, roads, and ditches to reconnect floodplain habitats with the Bitterroot River; thereby providing opportunity for overbank and backwater flooding into and out of the floodplain.</p> <p>Facilitate the restoration of the natural braided migration patterns of the Bitterroot River across the refuge, where possible.</p> <p>Transition Ponds 11, 12, and 13—or portions of these pools—to riparian and gallery forest, reestablishing backwater channels on the Bitterroot River and creating flooded meadow and reduced wetland areas in nonchannel areas.</p> <p>Continue to allow Bitterroot River seasonal flows into and through North Island Slough.</p>	<p>Construct bioengineered channels, streambanks, or hardened banks on the river, and repair and maintain eroded levees, artificial structures, and dams that prevent natural overbank and backwater flooding and river movement.</p>
Floodplain—Environmental Consequences		
<p>As levees erode, the floodplain would again become connected to the river. Management capabilities of some wetland impoundments would be lost.</p> <p>The historical disconnection in fish passages would persist in North Burnt Fork Creek.</p> <p>Year-round access would be reduced as roads and levees are modified by erosion and natural flooding occurs.</p>	<p>The Bitterroot River would flow more naturally within the refuge floodplain supporting the maintenance and restoration of riparian habitats.</p> <p>Some restoration of natural fish passages may occur.</p> <p>Brood habitat may decrease for waterfowl but increase for neotropical migrants. Cavity nesters would eventually benefit from restoration of gallery forest.</p> <p>As habitats are restored, new opportunities for visitors to see and learn about wildlife and habitats native to the Bitterroot floodplain would be created.</p>	<p>Wetland impoundments would be retained and managed for water bird habitat.</p> <p>Refuge staff would spend significant time and funds to maintain and restore wetland impoundment and road infrastructure affected by natural river movements.</p> <p>Opportunities to restore the gallery forest and other native riparian habitats in the natural floodplain would not be pursued.</p>
Creeks and Tributaries—Actions		
<p>Allow North Burnt Fork Creek to function as an unimpeded riparian stream.</p> <p>Continue to monitor the streamflow of North Burnt Fork Creek through Francois Slough to evaluate the quality of fish passageways.</p> <p>Restore newly exposed banks to riparian habitat.</p> <p>To address the impeded channel of North Burnt Fork Creek and direct flow towards the northeast channel, replace the culvert with a bridge.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Remove water control structures and obstructions in tributary and floodplain channels to reconnect unimpeded flow from North Burnt Fork Creek and Three Mile Creek into the Bitterroot River.</p> <p>Reconnect the North Burnt Fork Creek with flow pathways through Francois Slough and into the Bitterroot River.</p> <p>Through partnerships, attempt to restore river and stream connectivity off-refuge to reestablish fish passage.</p>	<p>Connect North Burnt Fork Creek directly to the river, bypassing Francois Slough.</p>

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A</i> (current management—no action)	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
Creeks and Tributaries—Environmental Consequences		
<p>Management capabilities of some wetland impoundments would be lost.</p> <p>Managed foraging habitat for water bird species would decrease.</p> <p>Native fish may regain access to sections of North Burnt Fork Creek.</p> <p>Cottonwood and willow would potentially be restored to the riverfront forest.</p> <p>Elevated water temperatures, increased sedimentation, and unnatural amounts of persistent emergent habitat may result.</p>	<p>Water would move freely into the Bitterroot River to allow fish and other aquatic animals to use the North Burnt Fork Creek flowage corridor.</p> <p>Creek water temperatures would decrease and water and nutrient flow would improve, potentially enhancing native cold-water species habitat.</p> <p>There may be a loss of fishing opportunities.</p> <p>Breeding habitat for overwater nesting bird species would decrease, but the expanded willows and cottonwood areas would provide additional habitat for migratory birds that prefer riparian woodlands.</p> <p>Removal of concrete structures on North Burnt Fork Creek could cause head cutting along the stream and erosion of stream sides.</p> <p>There would be increased backwater flooding for fish movement.</p>	<p>There would be fewer obstructions to fish passage.</p> <p>There would be less water in Francois Slough for fishing and wildlife use.</p>
Topography and Flow Patterns—Actions		
<p>Retain nesting islands, level ditching, and water level management structures unless they are eroded by flooding.</p> <p>Allow the river to naturally scour Ponds 12 and 13.</p>	<p>Remove and/or breach spoil material berms (from the level-ditching) and levees along major drainages to systematically restore natural topography and reconnect natural waterflow patterns and corridors, where possible.</p> <p>Remove roads, berms, ditches, and other structures that disrupt natural sheet flow of water into the floodplain.</p> <p>Plant native or desirable vegetation on restored sites to prevent invasive species encroachment.</p>	<p>Construct hardened banks on the river, and repair and maintain eroded levees, artificial structures, and dams that prevent natural overbank and backwater flooding and river movement.</p>
Topography and Flow Patterns—Environmental Consequences		
<p>Level ditching would continue to affect water movement.</p> <p>Unnatural topography would continue to create sedimentation traps and unnatural plant communities that tie up nutrients and reduce productivity—ultimately increasing monocultures and decreasing diversity.</p> <p>Allowing river movements through the north end of the refuge would aid the restoration of the riverfront forest but may initially create new areas for invasive species.</p>	<p>Where possible, natural waterflow patterns and corridors would be restored to promote natural plant communities.</p> <p>Exposed soil would be a potential site for invasive plant establishment.</p> <p>There would be a reduction of persistent emergent habitat within impoundments.</p>	<p>The refuge would spend time and funds to maintain Ponds 11–13; however, the river may still continue to erode portions of Ponds 12 and 13.</p> <p>Opportunities to maintain and restore the gallery forest and other native riparian habitats in the natural floodplain would be reduced.</p>

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A</i> (current management—no action)	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
Reestablishment and Expansion of the Riverfront and Gallery Forest Plant Communities—Actions		
<p>Use prescriptive fire, prescriptive grazing, and natural flooding to enhance the existing riverfront and gallery forest plant communities.</p> <p>Encourage the natural regeneration of the shrubland component of the gallery forest (including, hawthorn, alder, wood’s rose, and dogwood).</p> <p>Plant cottonwood and ponderosa pine to expand gallery forest areas, focusing on areas with appropriate soils.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Lower maximum pool height of Ponds 8 and 10 to allow gallery forest restoration to the west of these impoundments.</p> <p>Restore distribution of plant communities to appropriate sites based on hydrogeomorphic (HGM) documented geomorphology, soils, topography, and hydrologic features.</p> <p>Reestablish riverfront forest along the margins of the Bitterroot River on newly deposited or scoured coarse material surfaces.</p> <p>Reestablish gallery forest communities on higher-elevation floodplain areas with sandy-loam soils on natural levees and other floodplain ridges that have 2–5 year flood recurrence intervals.</p> <p>Manage for persistent emergent habitats to the fringes of deeper depressions, Slocum loam soils, and more permanent water regimes.</p> <p>Sustain wet meadow communities on Slocum loam soils with 2–5 year flood frequencies.</p> <p>Restore native grassland in silt loam soils on higher floodplain elevations and on terraces.</p> <p>Agricultural crops would be grown to treat invasive species and prepare areas for restoration.</p> <p>Construct deer exclosures to protect newly planted areas and regeneration sites.</p> <p>Inventory plant communities and monitor responses of forest target species to restoration treatments.</p>	<p><i>Same as alternative A, except:</i></p> <p>Repair levees as they erode, preventing natural flooding.</p> <p>Use planting and prescribed fire for any gallery forest restoration efforts.</p>
Reestablishment and Expansion of the Riverfront and Gallery Forest Plant Communities—Environmental Consequences		
<p>Existing gallery and riverfront forest and associated shrubland would be expanded, providing some additional habitat for migratory birds and other wildlife.</p> <p>Waterfowl would continue to be provided natural food sources in managed wetland and upland units.</p> <p>Static emergent wetland habitat would continue to provide a persistent, historical level of waterfowl production.</p>	<p><i>Same as alternative A, except:</i></p> <p>Restoration would depend more on natural ecological processes such as flooding and scouring.</p> <p>Riverfront forest would be restored on newly scoured areas. Additional efforts to treat invasive species in these scoured areas would be needed.</p> <p>Gallery and riverfront forest would be expanded, providing additional habitat for migratory birds, including target species; however, some tree species may take the life of this CCP to reach sizes that are beneficial to some species, such as Lewis’s woodpecker.</p> <p>Wetland species habitat would decrease.</p> <p>Emergent vegetation would persist in ponds and deeper old river channels, providing habitat for native and nonnative aquatic species.</p>	<p><i>Same as alternative A, except:</i></p> <p>There would be a continued loss of both quantity and quality of riverfront and gallery forest habitats and wildlife that uses habitats.</p> <p>There would be a loss of natural regeneration from dry sites becoming drier and wet sites becoming wetter.</p> <p>Cattail populations would increase in impoundments, causing a drop in biodiversity.</p> <p>Diversity and density of nonnative plants would increase due to a loss of nutrient and sediment movement across the floodplain.</p> <p>Wetland impoundment habitat would be retained, but productivity would decrease due to a lack of nutrient regeneration and spread of cattails into open-water habitat.</p>

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A (current management—no action)</i>	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
	<p>Water birds would be provided desirable wet meadow habitat for nesting and foraging.</p> <p>Greater interspersion of open water and emergent habitats would provide better quality waterfowl brood and stop-over habitat.</p> <p>Restored grassland areas would provide habitat for grassland nesting birds, insects, rodents, and amphibians and reptiles.</p> <p>Cattail monocultures would be reduced in Ponds 1–6, 8, and 10, creating more interspersion of emergent and open-water habitat.</p>	
<p>GOAL for Wetland Impoundment Habitat and Associated Wildlife. Where appropriate, manage wetland impoundments to create a diversity of habitats for target waterfowl, shorebirds, and other associated native wetland-dependent species.</p>		
<p>Wetland Impoundments—Actions</p>		
<p>Continue to maintain water level management structures to manipulate water levels in Ponds 1–6 for water birds, including shorebirds and waterfowl.</p> <p>Allow Ponds 7, 7a, 7b, 9, and D; Potato Cellar Pond; and Pair Ponds to remain dependent on irrigation water, leaving them minimally managed.</p> <p>Pond 8, Pond 10, and Otter Pond would be periodically drained, and monocultures of cattails would be treated using prescribed fire and prescriptive grazing. Once reflooded, desirable emergent vegetation should be available for waterbirds.</p>	<p><i>Same as alternative A, except:</i></p> <p>Replace water management structures in Ponds 1–6, 8, and 10 to manage water regimes for a more seasonal, annually dynamic water regime that emulates natural increases in water distribution and depth in spring followed by rotational drying in summer and fall.</p> <p>While drawing down wetlands, treat exposed shorelines to prevent invasive species and monotypic stands of cattails from becoming established.</p> <p>Remove levees, ditches, and water control structures to facilitate the restoration and expansion of the gallery forest habitat (around Ponds 7, 7a, 7b, 9, and D) and native grassland habitat (around Pair Ponds and Potato Cellar Pond).</p> <p>Emulate long-term patterns of drier conditions in floodplain wetlands in most years, periodic complete drying in some years, and occasional prolonged flooding every few years.</p> <p>Determine the feasibility and methods for restoring the natural flow of Three Mile Creek, including sedimentation deposits, through Ponds 11–13.</p> <p>Remove levees, ditches, and water control structures from all higher elevation areas within the floodplain and on terraces.</p> <p>Maintain Ponds 8 and 10 at a lower elevation to allow for the reestablishment of gallery forest.</p>	<p><i>Same as alternative A, except:</i></p> <p>Maintain all wetland impoundments and replace structures as needed to continue providing impounded wetland habitat.</p> <p>Where possible, change the water management of impounded areas to seasonal water regimes and periodic dry conditions to improve wetland production.</p>

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A (current management—no action)</i>	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
Wetland Impoundments—Environmental Consequences		
<p>Impoundments that receive an infrequent water supply or do not hold water (for example, Potato Cellar Pond) would remain dry most years, providing occasional wetland habitat for wildlife.</p> <p>The impoundments would provide some brood, stopover wintering, foraging, and breeding pair habitat.</p> <p>The impoundments may provide a greater opportunity for the methalization and bioaccumulation of mercury.</p> <p>Cattails would be controlled in Pond 8, Pond 10, and Otter Pond providing more interspersed open water and emergent vegetation for wildlife.</p>	<p><i>Same as alternative A, except:</i></p> <p>New opportunities would exist to restore the unique gallery forest and associated shrublands.</p> <p>Sedge wetland habitat and grassland areas would be restored.</p> <p>Desirable wetland plants will be provided to waterfowl and other wetland-dependent wildlife.</p> <p>Shrub and sedge wetland habitat would be restored, providing important habitat for migratory birds and other wildlife.</p> <p>Drying cycles would increase productivity and release nutrients through aerobic decomposition.</p> <p>Eliminating permanent waterbodies could result in less bioaccumulation of mercury.</p> <p>There may be a decrease in fishing opportunities for largemouth bass at future fishing events.</p> <p>Waterfowl hunting may be affected next to ponds that would not be reflooded before the hunting season due to habitat objectives.</p>	<p>Additional marginal waterbird habitat would be provided at great expense. The Bitterroot River could continue to erode repaired structures and levees, particularly in the north end of the refuge.</p> <p>Little opportunity would exist to restore areas that were historically gallery and shrubland forests.</p> <p>A greater bioaccumulation of mercury may result in these permanent waterbodies.</p>
Gravel Pits (Ephemeral Wetlands)—Actions		
<p>Retain gravel pits for boreal toad and Columbia spotted frog habitat.</p>	<p><i>Same as alternative A, plus:</i></p> <p>As appropriate, remove vegetation to restore the desirable boreal toad habitat. Monitor impacts on Columbia spotted frogs.</p> <p>Do not harvest gravel from existing gravel pits except when necessary to restore boreal toad habitat. Do not attempt to protect these gravel pits from the river's movements.</p> <p>Monitor the use of gravel pits by boreal toad and Columbia spotted frog and the effects of vegetation removal on improving habitat.</p>	<p><i>Same as alternative B.</i></p>
Gravel Pits (Ephemeral Wetlands)—Environmental Consequences		
<p>The gravel pits would continue to provide egg laying habitat for the boreal toad and Columbia frog until the aquatic vegetation returns.</p>	<p>Removal of vegetation may affect Columbia spotted frogs that could also be using these pits.</p> <p>The results of the proposed management action would be monitored and adapted to verify that these techniques are providing habitat for both the boreal toads and Columbia spotted frogs.</p> <p>Certified weed-free gravel would be purchased or retrieved from removed levees.</p> <p>Gravel pits would not be protected from the river's movements. If these gravel pits are removed by the river, this breeding habitat for boreal toads and Columbia spotted frogs would be lost.</p>	<p><i>Same as alternative B.</i></p>

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A</i> (current management—no action)	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
GOAL for Grassland and Shrubland Habitat and Associated Wildlife. Create the conditions that will allow for the restoration, maintenance, and distribution of native grassland and shrubland species (such as rabbitbrush, needle and thread grass, Junegrass, and hairy golden aster) to provide healthy lands for a diverse group of target native resident and migratory wildlife species and to educate visitors about the historical plant and animal diversity of the valley.		
Native Vegetation Restoration—Actions		
<p>Continue to implement and evaluate tested techniques for reducing cheatgrass.</p> <p>Continue to reseed and use prescribed burning, grazing, irrigation, and invasive species treatments to introduce more native species into tame grassland areas.</p> <p>Continue to restore former agricultural fields to native bunchgrasses to outcompete cheatgrass and other invasive species.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Restore and expand grassland and sagebrush communities on high terrace elevations and on alluvial fans, where appropriate.</p> <p>Use farming to treat invasive species by continually farming specific areas until the seedbed is reduced or the field would be chemically fallowed. Restore these areas to native species found on that site. Monitor these areas to detect reinvasion.</p> <p>Use mechanical, chemical, and biological methods, including prescribed fire, to systematically begin to remove introduced and tame grasses, including dense nesting cover, from locations where native grassland communities were present, and restore native species where possible.</p> <p>Convert higher elevations of current impounded wetlands (Pair Ponds, southwest corner of Field S-1) back to native grassland and shrubland habitat (based on soil type) by removing levees and water control structures, and by restoring seasonal water regimes.</p> <p>Provide occasional disturbance through prescribed fire, mowing, or grazing to recycle nutrients and regenerate grass and forb species.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Manage all maintained and restored levees for tame grasslands and treat to remove invasive plants.</p>
Native Vegetation Restoration—Environmental Consequences		
<p>Tame grasslands would eventually be restored to native grasslands as resources became available.</p> <p>These restored native grassland areas would provide diverse, productive habitat for grassland-dependent wildlife.</p> <p>Initially, a loss of structure and a potential for the additional spread of invasive species would occur as areas are being restored.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Invasive species, which have currently overtaken these sites, would be reduced, which would provide a greater opportunity for the restoration of native species.</p> <p>Converting dense nesting cover and tame grasses to native grassland communities would result in a reduction in nest density of upland nesting waterfowl, upland gamebirds, and upland nesting songbirds until native species are fully established.</p> <p>Restoration of native grasses and shrubs would require intensive management, and it may be difficult to maintain native communities at this scale with such fragmentation of habitats surrounding the refuge.</p>	<p><i>Same as alternative A, plus:</i></p> <p>As levees are restored, soil would be exposed, providing new seedbeds for invasive species. Treating these areas and reseeding them to tame grassland would not provide the most diverse habitat, but it would suppress establishment of new invasive species areas and provide some cover for wildlife.</p>

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A (current management—no action)</i>	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
GOAL for Invasive and Nonnative Species. Prevent, reduce, and contain the invasion and spread of noxious, invasive, and harmful nonnative species within the refuge while working with partners to address off-refuge infestations within the surrounding landscape.		
New Invaders—Actions		
<p>Continue to manage new invaders through early detection and rapid response with the Service’s Montana Invasive Species Strike Team, refuge staff, and county cooperators for managing new invaders through early detection and rapid response.</p> <p>Train and certify employees and other cooperators in the identification of invasive species, GIS and mapping, and mechanical and chemical treatment methods.</p> <p>Continue to inventory the refuge for new invaders and monitor treatment effectiveness.</p> <p>Monitor and retreat areas to prevent reintroduction and spread.</p>	<p><i>Same as alternative A plus:</i></p> <p>Recruit one biological science technician to coordinate and implement the IPM program.</p> <p>Survey and monitor the potential impacts caused by pest, nonnative, and invasive wildlife and fish species.</p> <p>Promote and participate in an early detection, rapid response program with surrounding landowners and agencies to treat and monitor off-refuge sources of early invaders.</p> <p>Provide opportunities for volunteers, cooperators, and community support groups to actively participate in new invader treatments.</p> <p>Continue and expand partnerships to monitor aquatic invaders and wildlife and plant diseases.</p>	<p><i>Same as alternative B.</i></p>
New Invaders—Environmental Consequences		
<p>Through partnerships, new invaders would be identified, mapped, and monitored to eliminate them or contain their spread.</p> <p>Successful early detection and removal of new invaders would prevent further degradation of habitats and the wildlife that depend on them.</p>	<p><i>Same as alternative A, plus:</i></p> <p>The addition of a staff person dedicated to this program would enable the refuge to prioritize, plan, and implement an invasive species management program that would remove more invasive species and restore habitat.</p> <p>Restored areas would likely resist the invasion of new species and impede the reintroduction of eradicated invasive species.</p> <p>Heightened awareness and containment of new invaders within the landscape would help prevent new invaders from reaching the refuge.</p> <p>Understanding the impacts of noxious and other nonnative species would allow the refuge to prioritize management action and level of treatment.</p>	<p><i>Same as alternative B.</i></p>
Established and Widespread Invaders—Actions		
<p>Through partnerships, continue to map, prioritize, treat, and monitor known infestations using the Refuge Lands Geographic Information Systems database (RLGIS) and cultural, mechanical, biological, and chemical techniques.</p> <p>Train (and possibly certify) employees and cooperators in identification of invasive species, mapping techniques, chemical applications, and other cultural, mechanical, and biological treatments.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Continue to map and monitor treated areas and develop a weed database using RLGIS.</p> <p>Expand capabilities to treat and restore (as needed) identified priority areas to create contiguous blocks of habitat for native species.</p> <p>As soil is disturbed for restoration and management, treat and restore areas to native or desirable species.</p>	<p><i>Same as alternative A, except:</i></p> <p>Only treat State-listed noxious weeds outside the grassland units.</p> <p>Do not control bullfrogs on the refuge.</p>

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A</i> (current management—no action)	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
<p>Monitor and retreat areas to prevent reintroduction and spread.</p> <p>Investigate methods to better control invasive bullfrogs that feed on native wildlife.</p>	<p>Through partnerships, attempt to prevent the reinvasion of treated areas from off-refuge sources.</p> <p>Encourage volunteers and community support groups to participate in restoration programs.</p> <p>Prioritize treatment sites based on wildlife values and proposed habitat objectives and determine the best methods for control and eradication. Maintain a database of identified invasive species, their impacts on natural resources, and the most up-to-date and effective treatment methods including farming, grazing, haying, and other mechanical, chemical, and biological treatments.</p>	
Established and Widespread Invaders—Environmental Consequences		
<p>Established invaders would continue to be contained and controlled.</p> <p>There would be more effective control of bullfrogs but not eradication, primarily due to a lack of safe, effective control methods and outside sources of reintroduction.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Treated and restored areas would impede the reintroduction of eradicated invasive species and provide desirable wildlife habitat.</p> <p>Initially, little wildlife habitat would be provided, as native seed is costly and may be difficult to establish.</p> <p>Addressing established and widespread invaders could help restore native habitat and lessen opportunities for new invaders to become established.</p> <p>Restoring natural processes may control bullfrogs and allow native wildlife a competitive advantage.</p> <p>Understanding the impacts and treatments of these species would help determine the priority species and most effective methods for treatment.</p>	<p>Additional resources would be available to treat and control State priority noxious weeds.</p> <p>Uncontrolled, other non-listed species such as cattails and cheatgrass would continue to spread and degrade habitat.</p> <p>Bullfrog populations would expand, affecting native wildlife, particularly reptiles and amphibians.</p>
GOAL for Research. Pursue and maintain compatible research projects that would provide information on refuge resources and address refuge issues to assist management in making decisions based on the best available information and science.		
Existing and Proposed Research—Actions		
<p>Continue to participate with other Service divisions and the State in researching wildlife diseases on the refuge.</p> <p>Continue to authorize and cooperate in the Montana Bureau of Mines and Geology and Montana Department of Environmental Quality research on ground water quality of incoming surface and subsurface flows.</p> <p>Continue to investigate causes of variability in the number of nesting osprey on and near the refuge.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Evaluate all current research projects to determine their value in addressing refuge management concerns.</p> <p>Evaluate impacts on water quality caused by off-refuge water sources entering the refuge.</p> <p>Work with universities to study the methods and effects of restoring parts of the floodplain and associated habitat on the refuge.</p> <p>Evaluate the impacts of herbivory on the survival and recruitment of current and restored shrubland and forested areas.</p> <p>Complete a research project to deter-</p>	<p><i>Same as alternative B, except:</i></p> <p>Work with universities to further research the implications of maintaining the wetland impoundments.</p>

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A (current management—no action)</i>	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
	<p>mine the interchange between ground and surface water.</p> <p>Determine what visitors value on the refuge and what they hope to experience and learn. Use this information to develop future visitor services programs.</p> <p>Develop partnerships with local universities to provide opportunities for students to conduct research and monitoring projects that are beneficial to the refuge.</p>	
Existing and Proposed Research—Environmental Consequences		
<p>The refuge would have a greater understanding of the potential wildlife diseases that have or would occur on the refuge, including their impacts and treatments.</p> <p>Understanding the impacts of surrounding development on water resources would provide information to better address water quality issues.</p> <p>Understanding if the refuge is contributing to the decline of the osprey population would help the refuge determine if current management activities needed to be modified.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Approved research projects may cause some disturbance to wildlife and short-term impacts on refuge resources.</p> <p>A network of partnerships would be developed that could continually provide science-derived information on which to base management decisions and address refuge issues.</p> <p>The results of research projects could be applied on other conservation lands.</p> <p>Pursue grants to complete the restoration of the Whaley House and develop appropriate interpretation materials of previous land uses.</p>	<p><i>Same as alternative B, plus:</i></p> <p>The refuge would gain a greater understanding of the best methods to manage wetland impoundments and the effects of maintaining them.</p>
<p>GOAL for Cultural Resources. Provide opportunities for visitors to learn about the unique glacial, Native American, and Euro-American history of the Bitterroot Valley while maintaining and protecting the integrity of the refuge’s cultural and historical resources.</p>		
Known Cultural Resources—Actions		
<p>Rely on volunteers to continue incrementally restoring and interpreting the Whaley Homestead site.</p> <p>Continue to incorporate the unique history and culture of the Bitterroot Valley within its education and interpretive programs.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Through partnerships, provide visitors with information on the unique history of the Bitterroot Valley and the refuge including the Nez Perce and Salish tribes, Lewis and Clark, Whaley Homestead, and Stevensville (longest occupied town in Montana).</p> <p>Use partnerships and volunteers to continue to restore the Whaley Homestead and interpret its history. Evaluate the potential to use this site as a visitor contact area.</p>	<p><i>Same as alternative B.</i></p>
Known Cultural Resources—Environmental Consequences		
<p>Restoring the Whaley Homestead over many years would eventually ensure its longevity, but during the years of restoration, visitors would be unable to regularly learn about this historic homesite.</p> <p>Visitors would gain a greater understanding of the unique history and culture of the Bitterroot Valley.</p>	<p>Visitors would gain a greater understanding of the importance and value of this area to Native American tribes as well as the Euro-American history of the refuge and Bitterroot Valley.</p> <p>The Whaley Homestead would be available to the public to learn about the history of this historical homestead site.</p>	<p><i>Same as alternative B.</i></p>

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A</i> (current management—no action)	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
Undocumented Cultural Resources—Actions		
<p>Continue to comply with Section 106 of the National Historic Preservation Act prior to initiating projects.</p> <p>Document discovered cultural resource sites and ensure their protection.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Work with the zone archeologist, contractors, Native American tribes, the State Historic Preservation Office, universities, and other partners to begin a comprehensive cultural resource inventory.</p> <p>As the refuge learns more about the history and culture of the area, continue to update the cultural history displays with this new information, as appropriate.</p>	<p><i>Same as alternative B.</i></p>
Undocumented Cultural Resources—Environmental Consequences		
<p>Compliance with requirements of Section 106 would ensure cultural resources are protected prior to disturbing sites.</p> <p>Inventory of the refuge's cultural resources would continue at a minimal level. This lack of knowledge would make it more difficult to adequately protect cultural resources sites from theft and vandalism.</p>	<p><i>Same as alternative A, plus:</i></p> <p>A comprehensive cultural resources survey would enhance Service protection of these resources from public use activities.</p> <p>A cultural resource display that can be revised would keep the display interesting and provide visitors with new information and an appreciation for the unique history of this area.</p>	<p><i>Same as alternative B.</i></p>
<p>GOAL for Visitor Services. Provide visitors of all abilities with opportunities to participate in and enjoy quality, compatible wildlife-dependent recreation, environmental education, and interpretation programs that foster an awareness and appreciation of the importance of protecting the natural and cultural resources of the refuge, the Bitterroot Valley, and the National Wildlife Refuge System.</p>		
Hunting—Actions		
<p>According to State regulations, continue to provide a quality white-tailed deer (archery only) hunt, (excluding the WVA and headquarters).</p> <p>Continue to provide a quality waterfowl hunt from designated blinds on the southeast part of the refuge, according to State regulations (figure 6).</p> <p>Continue to monitor hunter satisfaction and harvest information.</p> <p>Continue to collaborate with volunteer instructors and the State to provide hunter education programs to youth.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Work with the State to determine the viability of allowing hunters to use muzzleloaders and/or shotguns to harvest white-tailed deer within the refuge portion of this archery-only hunting district (currently Hunting District 260). The areas where firearms are permitted may be rotated depending on management objectives. The number of hunters permitted to use firearms would be limited. This hunt would be evaluated if it was determined that deer numbers on the refuge needed to be reduced due to overbrowsing of native habitats.</p> <p>Allow archery hunters with disabilities to access refuge roads near the Whitetail Golf Course (within the refuge boundary).</p>	<p><i>Same as alternative B, plus:</i></p> <p>Establish a fee program for hunters or introduce a recreation fee and charge for blind use.</p> <p>Provide limited pheasant and turkey hunting opportunities, according to State and refuge-specific regulations.</p>
Hunting—Environmental Consequences		
<p>Hunters, including those with disabilities, would continue to be provided high quality hunting opportunities.</p>	<p><i>Same as alternative A, including:</i></p> <p>Providing additional and more effective methods to harvest deer may increase hunter success and reduce overbrowsing by deer.</p> <p>Permitting additional methods of harvest would provide opportunities for a greater number and different types of hunters.</p>	<p><i>Same as alternative B, plus:</i></p> <p>While the fee may provide additional funds for hunting programs, it might lead to declining hunt visits.</p> <p>A new hunting opportunity would be provided to pheasant and turkey hunters.</p> <p>Due to the refuge's size, adding another hunting program (such as the proposed pheasant and turkey hunts) would</p>

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A (current management—no action)</i>	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
	<p>There would be some risk associated with using modern weapons. Additional safety precautions, such as requiring the use of hunter orange, would alleviate some of this risk. Limitations on hunting hours and locations would also be used to reduce risk and disturbance to other refuge users.</p> <p>The potential for dispersed or decreased deer numbers may allow more vegetation in the gallery forest to recover and survive to provide habitat for migratory birds.</p> <p>Additional signage and maps would be needed to provide information on locations, regulations, and safety.</p> <p>There would be additional short-term wildlife disturbance due to additional hunting activities.</p>	<p>most likely negatively affect the quality of other hunting programs and wildlife observation opportunities and further disturb non-target wildlife.</p>
Fishing—Actions		
<p>Allow fishing only in the WVA (including the Bitterroot River), according to State regulations.</p> <p>Maintain the accessible fishing platform in the WVA (figure 6).</p> <p>Do not allow boats anywhere on the refuge.</p> <p>If compatible, continue to provide opportunities for cooperators to host a youth and a universally accessible fishing clinic each year. The Service would continue to cooperate with MFWP, which would transfer caught largemouth bass to other State nonnative fishing waters.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Work with partners to restore Francois Slough and North Burnt Fork Creek to enhance this waterway for native cold water species.</p>	<p><i>Same as alternative B, except:</i></p> <p>Prohibit special fishing events in closed areas. The refuge would participate in other fishing events offsite.</p> <p>Provide limited and seasonal fishing to the public in Pond 8.</p>
Fishing—Environmental Consequences		
<p>Fishing would continue to be permitted in designated areas on the refuge.</p> <p>Youth would continue to be provided this opportunity to successfully catch fish and be encouraged to appreciate the sport of fishing.</p> <p>Fishing events may disturb wildlife, but the disturbance would be limited to the one or two day special event.</p> <p>Children would not only be taught fishing techniques but they may come to appreciate and even want to further explore the natural environment that surrounds them.</p> <p>Focusing the event on capturing largemouth bass would give the Service an opportunity to teach the students about the impacts of nonnative fish.</p> <p>Allowing youth and accessible fishing events would continue to cause some dis</p>	<p><i>Same as alternative A, except:</i></p> <p>Stream restoration projects would support initiatives to restore a native cold-water fishery.</p>	<p><i>Same as alternative B, except:</i></p> <p>This would still promote the enjoyment of fishing. Nevertheless, students would not be afforded the opportunity to fish on the refuge and learn about refuge resources as part of associated programs.</p> <p>Allowing the public to fish Pond 8 would provide an additional fishing opportunity on the refuge, but it may reduce bass numbers and would disturb the wildlife that uses this pond.</p>

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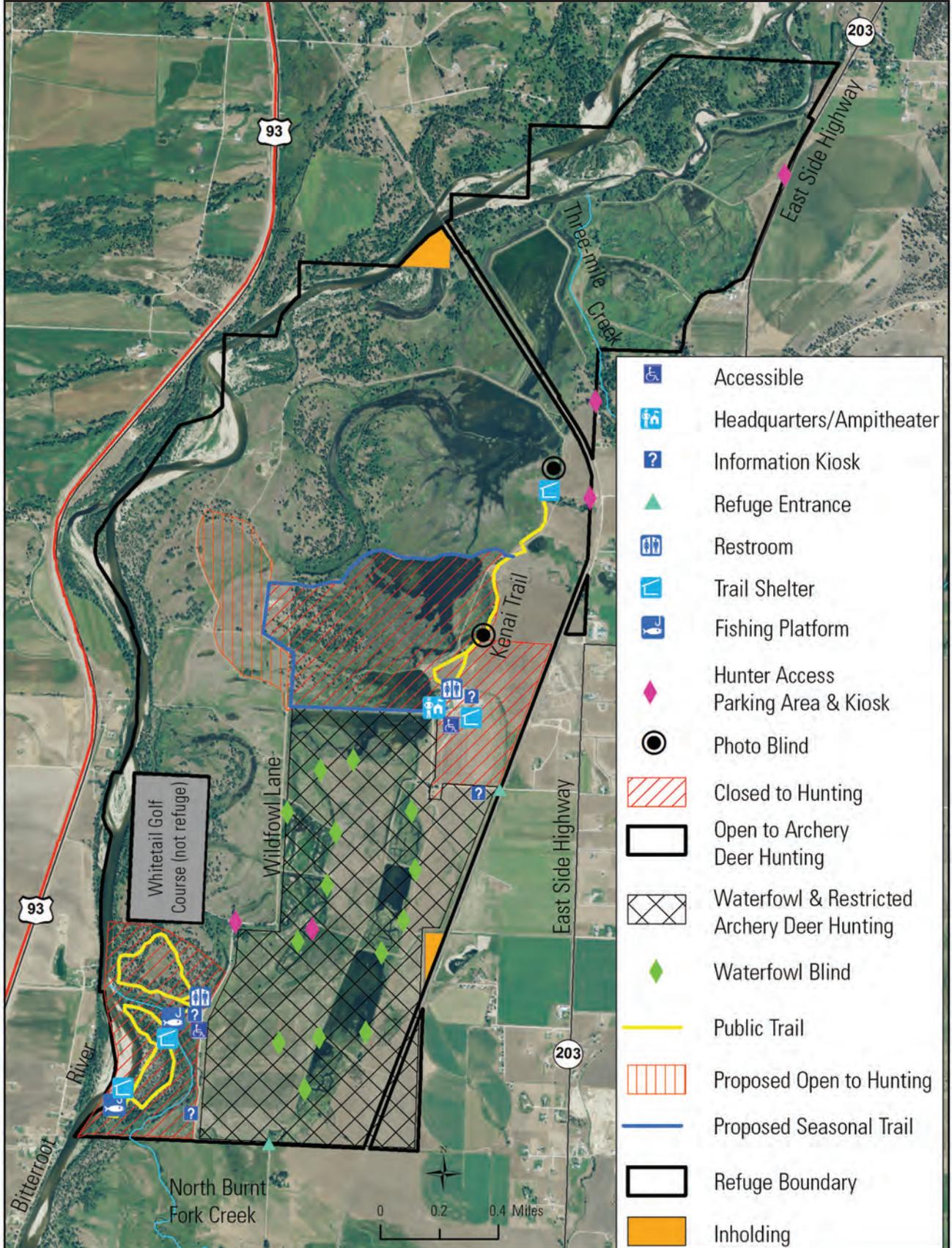


Figure 6. Public use map for Lee Metcalf National Wildlife Refuge, Montana.

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A (current management—no action)</i>	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
<p>turbance to wildlife and may provide an incentive to maintain a nonnative fishery.</p> <p>Transferring bass to other nonnative fisheries in the State may decrease opportunities in the short term for easily catchable bass for fishing events.</p> <p>Transferring bass to State waters encourages anglers to use those areas rather than the more sensitive and often imperiled fish habitats in the State, such as those that contain threatened cold-water species like bull trout.</p>		
Wildlife Observation—Actions		
<p>Continue to maintain and manage the WVA and associated facilities.</p> <p>Allow the continued erosion of the trail along the Bitterroot River (within the WVA) by the river’s movement.</p> <p>Continue to allow visitors to move off the established trail in the WVA, creating multiple trails throughout.</p> <p>Continue to maintain the three groups of refuge walking trails, three viewing platforms, and associated facilities.</p>	<p><i>Same as alternative A, except:</i></p> <p>Work with the county to develop Wildfowl Lane—the county road that travels through the refuge (figure 6)—into an auto tour route with accompanying interpretation.</p> <p>To reduce disturbance to waterfowl and provide a more stable trail, move portions of the Kenai Nature Trail (figure 6) to the existing two-track maintenance road, and upgrade the road to that trail. Visitors would continue to be prohibited from moving off trail into the adjacent closed areas.</p> <p>Develop a walking trail around Pond 8 (figure 6). This trail may only be opened seasonally to protect waterfowl and other waterbirds using ponds 8 and 10 (figure 7) and nesting migratory birds using the gallery forest west of these ponds. The trail may be opened in the winter when migratory birds are no longer using these ponds.</p> <p>Update current wildlife list to meet Service standards.</p>	<p><i>Same as alternative B, except:</i></p> <p>The portion of the paved wildlife viewing trail that is eroding would be relocated within the WVA.</p> <p>The Kenai Nature Trail would be closed past the loop turnoff, but visitors could use the road below the trail to return to the trailhead.</p>
Wildlife Observation—Environmental Consequences		
<p>Visitors would continue to be provided opportunities to view wildlife on the refuge, excluding the eroded trail within the WVA.</p> <p>Visitors would be advised to stay on trails, lessening impacts on vegetation and the transporting of invasive species.</p>	<p>Additional wildlife observation opportunities would be provided.</p> <p>Additional wildlife disturbance may occur along newly established trails.</p> <p>An official auto tour route may lead to increased vehicle traffic but would add interpretive opportunities.</p> <p>Relocating the Kenai Nature Trail may decrease disturbance to waterfowl while adding a more level walking surface for a greater variety of visitors.</p> <p>Development and use of the loop trail around Pond 8 could disturb wildlife, particularly the heron rookery; seasonal restrictions could resolve this.</p>	<p>Relocating the WVA trail would retain a wildlife observation opportunity; however, it would be costly, would affect additional habitat, and may increase wildlife disturbance. This new trail could be eroded in the future as the river continues to move.</p> <p>Closing the Kenai Nature Trail past the loop turn off would prevent visitors from accessing a closed part of the refuge. The opportunities to view wildlife would be offset by the addition of the loop section of this trail.</p>

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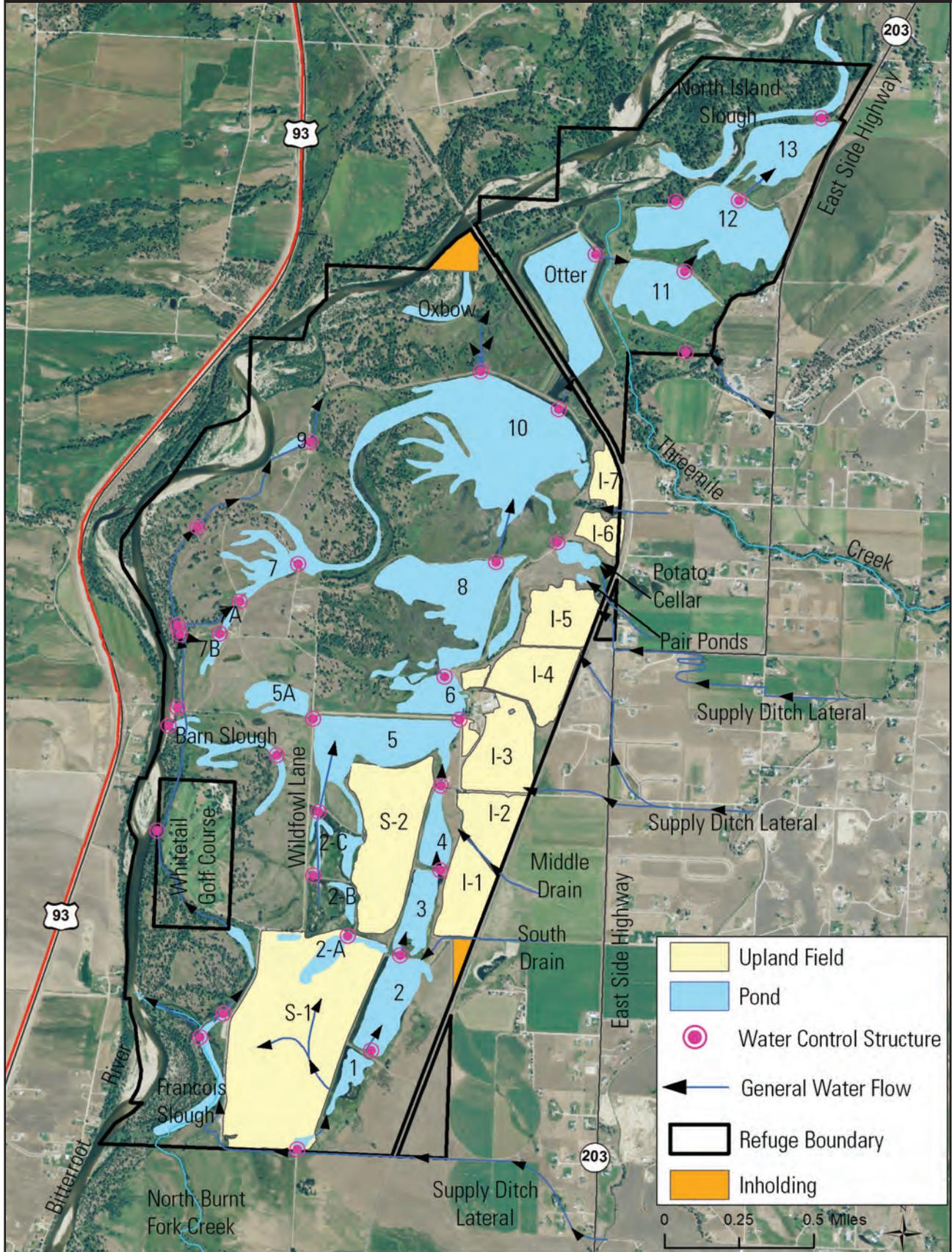


Figure 7. Ponds and upland fields in Lee Metcalf National Wildlife Refuge, Montana.

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A (current management—no action)</i>	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
Wildlife Photography—Actions		
<p>Continue to maintain two stationary photography blinds (figure 6).</p> <p>Evaluate requests for conducting commercial photography in closed areas on a case-by-case basis, as well as any request to conduct commercial filming. If determined appropriate and compatible, specify conditions in the required special use permit.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Provide two portable photo blinds for use in areas currently open to the public.</p> <p>Upgrade waterfowl hunting blind 2 to provide a photo blind for photographers with disabilities.</p> <p>Through partnerships, conduct an annual wildlife photography workshop.</p>	<p><i>Same as alternative B.</i></p>
Wildlife Photography—Environmental Consequences		
<p>Quality wildlife photography opportunities would continue to be provided.</p> <p>Quality photographs of the refuge would provide the public with opportunities to appreciate refuge resources and wildlife.</p> <p>Wildlife may be disturbed, particularly by photographers not using a blind.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Photographers, including those with disabilities, would gain additional opportunities to enjoy and photograph wildlife from blinds.</p> <p>Mobile photo blinds may provide more and unique opportunities to photograph wildlife, but they may cause greater disturbance to wildlife than stationary blinds.</p> <p>Through the workshop, photographers would improve their skills while learning how to minimize disturbance to wildlife.</p>	<p><i>Same as alternative B.</i></p>
Environmental Education—Actions		
<p>Through partnerships, continue to organize and provide 15–20 on- and off-refuge annual and special events for adults and students.</p> <p>Continue to provide onsite environmental education programs to more than 1,000 students annually.</p> <p>Continue to allow teachers and students to independently explore the refuge’s public areas.</p> <p>Continue to maintain, develop, and provide educational kits related to refuge resources and associated field supplies for teachers and students.</p> <p>Continue to serve as the State coordinator for the Junior Duck Stamp Program.</p> <p>Continue to collaborate with universities to provide outdoor classrooms that promote the refuge and the Refuge System.</p>	<p><i>Same as alternative A, plus:</i></p> <p>If additional visitor services staff are hired, expand environmental education programs and activities on and off the refuge to at least 1,500 adults and 4,000 students.</p> <p>Recruit one environmental education specialist to work with local schools.</p> <p>Recruit a visitor services specialist to work with volunteers, manage the visitor center, and develop and present programs.</p> <p>Provide at least five offsite school presentations annually.</p> <p>Add a new classroom and associated supplies to the new visitor center for environmental education programs.</p> <p>Conduct annual teacher workshops to give teachers the tools to independently explore and teach students about the refuge.</p> <p>Create multimedia kits for teachers to provide background information to students before they participate in refuge programs.</p> <p>Organize or participate in an additional five annual environmental education events.</p> <p>Develop an education kit and program that explains the history and value of the restoration efforts proposed under this alternative.</p>	<p><i>Same as alternative B, plus:</i></p> <p>The refuge would sponsor an Elderhostel event annually for senior citizens.</p>

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A</i> (current management—no action)	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
	<p>Expand the refuge’s online presence (social media, blog, and Web site) to include interactive educational opportunities and to help teachers plan field visits.</p> <p>Work with the State, local schools, universities, the Confederated Salish and Kootenai Tribes, Nez Perce, and other partners to create programs that highlight not only the values of the refuge and the Bitterroot Valley but its history and culture.</p>	
Environmental Education—Environmental Consequences		
<p>Outreach would be conducted to the same local schools and communities to develop an appreciation and awareness about the refuge and its resources.</p> <p>Most school programs would continue to be onsite, resulting in lost opportunities to reach additional students who cannot travel to the refuge.</p> <p>The lack of additional staff and programs would result in lost opportunities to reach a broader audience to educate them about the value of and threats to refuge resources and the Refuge System.</p>	<p><i>Same as alternative A, plus:</i></p> <p>New visitor services staff would provide additional resources and opportunities to develop and provide quality environmental education programs for students and adults. This may result in greater awareness and support for protecting and restoring refuge resources and the greater Bitterroot Valley ecosystem.</p> <p>An expanded self-study environmental education program would allow more students and teachers to independently learn about and appreciate the refuge and the Refuge System.</p> <p>Reaching more students while they are developing their environmental ethics may result in a greater awareness and appreciation of—and desire to protect—their surrounding natural resources.</p> <p>Visitors would gain a better connection to the refuge through firsthand experience and a heightened awareness of the unique history and culture of the Bitterroot Valley.</p> <p>Additional onsite programs and facilities may cause additional disturbance to wildlife and their habitats.</p>	<p><i>Same as alternative B, plus:</i></p> <p>The annual program for elderly visitors would provide an opportunity to teach them about the value of refuge resources and the Refuge System.</p> <p>This annual event would require additional resources and staff time to implement.</p>
Interpretation—Actions		
<p>Continue to maintain five kiosks including three with interpretive panels.</p> <p>Continue to maintain and update interpretive displays in the refuge visitor contact area.</p> <p>Update refuge brochures as needed.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Use volunteers to provide interpretive programs on the history of the refuge, the surrounding Bitterroot Valley, the Whaley Homestead and other cultural resources, and the value of the refuge and surrounding areas to Native Americans.</p> <p>Update interpretive panels to have a consistent appearance and highlight the history and restoration of floodplain habitats.</p> <p>Provide interpretive signs combined with brochures, podcasts, and other digital media to interpret the resources within the WVA, the relocated Kenai Nature Trail, new auto tour route, and hiking trail around Pond 8.</p>	<p><i>Same as alternative B, except:</i></p> <p>Interpretive panels and other interpretive programs would focus more on wetland management rather than restoration of floodplain habitats.</p>

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A (current management—no action)</i>	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
	<p>Install panels at strategic locations that interpret the cultural resources of the refuge and the Bitterroot Valley including the importance of this area to Native Americans.</p> <p>Collaborate with Travelers Rest State Park to participate in events highlighting the history of Lewis and Clark in the Bitterroot Valley.</p> <p>Create a pulloff and interpretive kiosk at north end parking lot used by hunters.</p> <p>Update all brochures to meet Service graphic standards.</p>	
Interpretation—Environmental Consequences		
<p>Visitors would continue to be provided some interpretation of the refuge and its resources. There would continue to be missed opportunities to reach a wider audience, even off-refuge, and interpret other public use areas, such as walking trails.</p>	<p><i>Same as alternative A, plus:</i></p> <p>New technology and increased accessibility would appeal to a broader audience both on and off the refuge.</p> <p>There would be a greater opportunity to reach additional visitors with a more integrated and multimedia program of interpreting refuge wildlife, habitat management and floodplain restoration, history, culture, and land use.</p> <p>Professionally designed exhibit spaces could provide a more consistent and effective way of learning.</p> <p>Additional signage would need to be placed and used carefully so as not to detract from the visitors experience.</p> <p>Interpretive panels and other multimedia tools are costly and would take staff time and resources to develop.</p>	<p><i>Same as alternative B, except:</i></p> <p>Interpretive programs would provide a greater understanding of managing wetland impoundments.</p>
Roads and Trails—Actions		
<p>Maintain 18.1 miles of existing roads, including 2.8 miles of public roads.</p> <p>Maintain 3.5 miles of existing walking trails (figure 6).</p>	<p>Eliminate 3.3 miles of the current Service-access road system (figure 8). The roads would be systematically eliminated or modified through a priority system dependent on the objectives of the proposed restoration program. No public roads (namely Wildfowl Lane) would be eliminated.</p> <p>Improve access to the WVA by replacing the gate with bollards that allow wheelchairs to pass through.</p> <p>Designate the publically accessible county road (Wildfowl Lane) as an auto tour route.</p> <p>Add a partially accessible loop walking trail around Pond 8 (figure 8).</p>	<p><i>Same as alternative B.</i></p>
Roads and Trails—Environmental Consequences		
<p>Maintaining 18.1 miles of roads is costly, and these roads fragment habitats and potentially impede sheet flow from the Bitterroot River and its tributaries.</p>	<p>Eliminating unnecessary Service access roads would reduce maintenance costs. Removing roads would reduce fragmentation and restore sheet flow to some</p>	<p><i>Same as alternative B.</i></p>

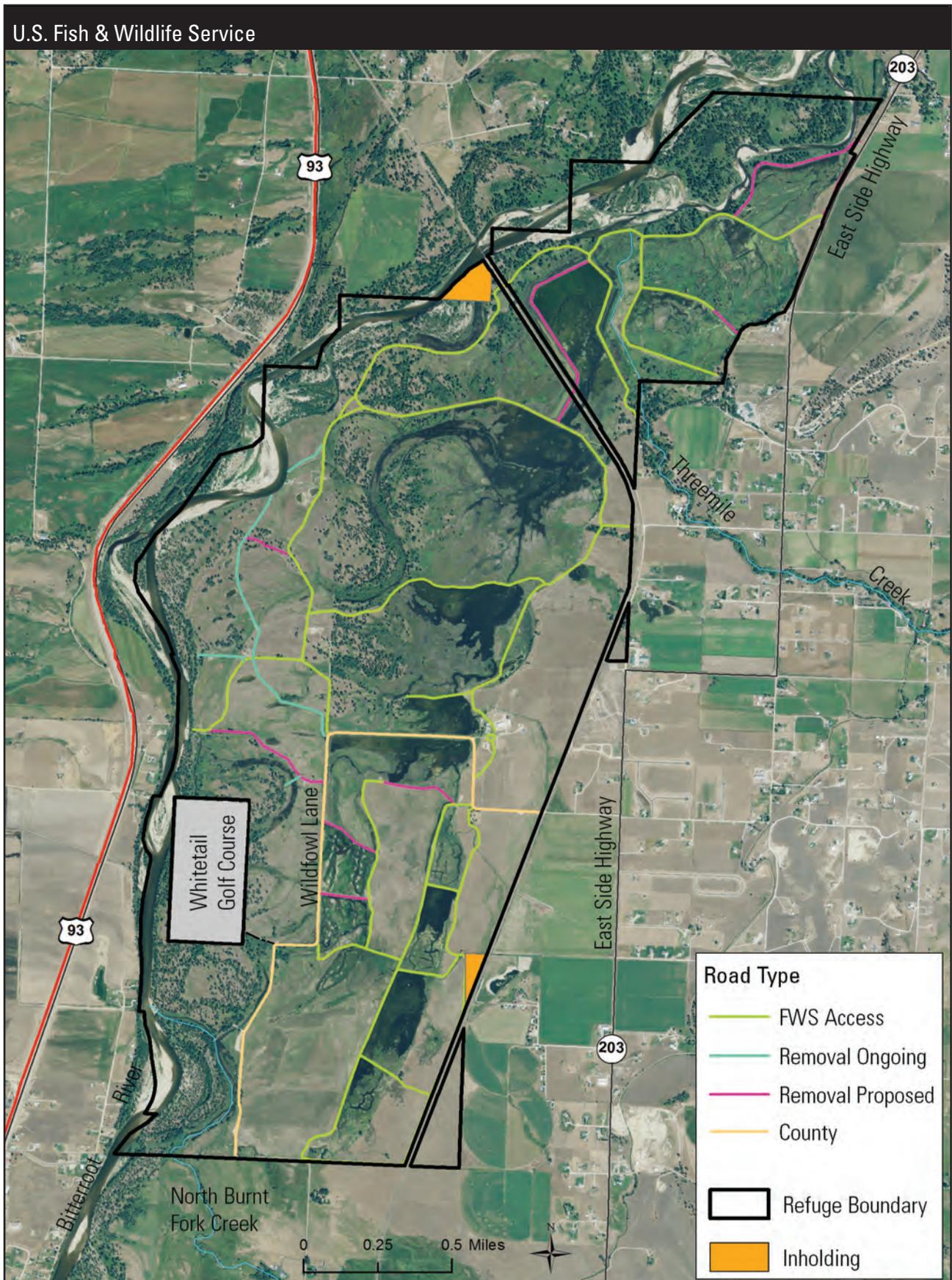


Figure 8. Roads within Lee Metcalf National Wildlife Refuge, Montana, including those Service roads proposed for removal.

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A (current management—no action)</i>	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
<p>This expansive system of roads would continue to serve as an avenue to transport invasive species.</p> <p>The existing system of roads and trails would continue to allow Service personnel and members of the public to access and utilize the refuge.</p>	<p>areas while supporting proposed restoration efforts.</p> <p>Removing roads would make it more challenging for Service personnel to access certain parts of the refuge; fewer direct routes would require more walking and all-terrain vehicle use.</p> <p>Improving access to the WVA would allow visitors with disabilities to better access and enjoy this area.</p> <p>Development and use of the loop trail around Pond 8 could disturb wildlife, particularly the heron rookery; however, it would provide additional ways to enjoy the refuge, including wildlife observation and photography opportunities.</p>	
Signage—Actions		
<p>Maintain current refuge signage and replace if damaged.</p>	<p>Add directional signs along Interstate 90 and improve signs along Highway 93. Post a sign on the environmental education shelter in the WVA and at the Poker Joe access point to alert river floaters and other visitors that they are entering the refuge.</p> <p>Post a regulatory sign in public use areas including trailheads and the WVA.</p> <p>Add more consistent boundary signage—particularly along the refuge’s west side—identifying areas open or closed to the public.</p> <p>Verify that electronic directional devices (for example, global positioning system units) and Web sites correctly identify the location of the refuge.</p> <p>Use signage to direct people to the east entrance (rather than south entrance) to provide quicker access to the refuge headquarters.</p>	<p><i>Same as alternative B, plus:</i></p> <p>Investigate the potential and benefits of using a billboard along Interstate 90 to direct visitors to the refuge.</p>
Signage—Environmental Consequences		
<p>Regulatory signs are insufficient to prevent violations of refuge regulations. Lack of proper signage causes public confusion (especially regarding hunting along the river, dog walking, staying on designated trails, etc.) and increases the chance for violations to occur.</p> <p>Currently, the refuge’s boundary is not adequately marked by signs.</p> <p>Maintaining and enforcing the boundary along and across the Bitterroot River would improve protection of refuge resources, but would be difficult to enforce.</p> <p>Entrance signs would continue to adequately identify the refuge and direct visitors to the refuge office.</p>	<p>Quality, useful signage would better orient and educate visitors, make them feel more welcome, reduce violations, and enhance the visitors’ experiences.</p> <p>The refuge would need to strategically use and place signs to minimize sign pollution that could detract from a visitor’s experience.</p>	<p><i>Same as alternative B, plus:</i></p> <p>A billboard on the highway could notify motorists about the refuge, promote the Refuge System, and encourage visits. The sign could also contribute sign pollution along our highways. There would be some costs to maintaining this sign.</p>

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A</i> (current management—no action)	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
Visitor Contact Area—Actions		
<p>Continue to host approximately 143,000 visitors who drive through the refuge. Many of these visitors (over 6,000) would continue to stop at the refuge’s 513-square-foot visitor contact area.</p> <p>Maintain current displays that focus on the wildlife of the Bitterroot Valley through interpretive signs and several preserved birds and mammals.</p>	<p>Expand the visitor contact area into a full visitor center and office with professionally designed and developed displays, exhibits, environmental education classrooms, and additional office space.</p> <p>Develop a consistent, interactive theme for the visitor center that focuses on floodplain restoration, native wildlife, migratory birds, the refuge’s cultural and natural resources, and the role of the Refuge System.</p> <p>Recruit one full-time, permanent visitor services specialist to manage the visitor center, develop programs, and recruit and supervise volunteer staff.</p>	<p><i>Same as alternative B.</i></p>
Visitor Contact Area—Environmental Consequences		
<p>The existing, undersized visitor contact area would remain unable to accommodate the refuge’s thousands of visitors (143,000 annually). Also lacking an overriding theme and Service branding, the station would continue to provide more of a “natural history museum” experience. As such, it would provide visitor enjoyment but may not convey the overall values of the refuge and the Refuge System.</p>	<p>Additional funds would be required to expand the current visitor contact center and office area; funding would also be required to cover maintenance costs, including utilities.</p> <p>Additional space would be available to accommodate the thousands of visitors currently using the refuge as well as staff. The additional space would also provide opportunities to develop professionally planned and produced displays and exhibits to more effectively teach visitors about the refuge while highlighting programs, management challenges, and the values of the Refuge System.</p> <p>Visitors would receive a consistent message that highlights the purposes of the refuge, the benefits of a healthy and functioning floodplain system, the unique history of the Bitterroot Valley, and the value of the Refuge System.</p> <p>The visitor services specialist would help develop and maintain professionally planned and produced displays and conduct interpretive programs. The manager would also recruit and supervise additional seasonal volunteer staff who could assist with visitor services programs at a minimal cost to the Service.</p>	<p><i>Same as alternative B.</i></p>
<p>GOAL for Partnerships. Maintain and cultivate partnerships that help achieve the vision and supporting goals and objectives of the Lee Metcalf National Wildlife Refuge Comprehensive Conservation Plan and support other initiatives designed to protect and restore habitats for Federal trust species within the Bitterroot River Valley.</p>		
Volunteer Program—Actions		
<p>Continue to implement and supervise a volunteer program, which generates more than 8,400 hours of volunteer time each year.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Recruit a volunteer and partnership coordinator to supervise and expand a quality volunteer program and cultivate and maintain partnerships.</p>	<p><i>Same as alternative B.</i></p>

Table 4. Summary of CCP alternatives for Lee Metcalf National Wildlife Refuge, Montana.

<i>Alternative A (current management—no action)</i>	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
Volunteer Program—Environmental Consequences		
<p>The refuge would continue to receive assistance from a cadre of dedicated volunteers to accomplish projects at minimal cost to the Service.</p> <p>Managing and supervising this program would continue to require a great amount of time, preventing the program coordinator (the current outdoor recreation planner) from focusing on other visitor services programs.</p>	<p><i>Same as alternative A, plus:</i></p> <p>The volunteer coordinator would provide the resources to effectively expand the volunteer program, allowing more refuge projects to be accomplished.</p>	<p><i>Same as alternative B.</i></p>
New and Existing Partnerships—Actions		
<p>Work with partners to restore the connectivity of North Burnt Fork Creek for native fish species and riparian habitat.</p> <p>Continue to participate in the inter-agency weed group to address invasive and nonnative species on and next to the refuge.</p> <p>Continue to work with the Montana Preservation Alliance, State Historic Preservation Office, and Stevensville Museum to restore and preserve the Whaley Homestead.</p>	<p><i>Same as alternative A, plus:</i></p> <p>Work with Montana Rail Link to address impacts from riprap, the railroad trestle, and the rail bed.</p> <p>Receive assistance from the Confederated Salish and Kootenai Tribes and other tribes with a cultural connection to the Bitterroot Valley in developing programs and displays highlighting their histories and uses of natural resources.</p> <p>Work with the Bitterroot Land Trust to participate in the implementation of protecting habitat and wildlife corridors on private lands surrounding the refuge.</p> <p>Collaborate with students of various disciplines from local and State universities to develop a greater understanding of refuge resources, develop programs, and address issues.</p> <p>Work with the Whitetail Golf Course (located within the refuge acquisition boundary) to discuss wildlife habitat and mutual concerns, such as invasive species.</p> <p>Work with the State of Montana to address trespass through adjoining State lands.</p>	<p><i>Same as alternative B.</i></p>
New and Existing Partnerships—Environmental Consequences		
<p>Partnerships would allow the refuge and their partners to share information and combine resources to develop projects or learn more about areas of mutual interest.</p> <p>Partnerships may allow the refuge to have a greater impact not only on the refuge but also in the surrounding Bitterroot Valley.</p>	<p>These additional partnerships would allow the refuge to learn more about its resource, resolve issues, develop more effective programs, participate and contribute to regional restoration and protection programs, and share knowledge and resources with others.</p>	<p><i>Same as alternative B.</i></p>
<p>GOAL for Operations and Facilities. Prioritize wildlife first and emphasize the protection of trust resources in the utilization of staff, volunteers, funding, and facilities.</p>		
Staff—Actions		
<p>Continue to employ the current staff, which consists of a refuge manager, outdoor recreation planner, administrative support assistant (also a business team</p>	<p><i>Same as alternative A, plus:</i></p> <p>Recruit the following permanent staff to accomplish the actions described in this alternative: assistant refuge man</p>	<p><i>Same as alternative B.</i></p>

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<i>Alternative A</i> (current management—no action)	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
<p>member), law enforcement officer, and maintenance worker.</p> <p>Continue to supervise, support and provide resources for several zone or state-wide support staff, including a fire management officer, range/fire technician, business team staff member, and regional maintenance team member. Provide space and support for the IPM strike team.</p>	<p>ager, biological science technician, career seasonal (part-time) biological science technician, and visitor services specialist (to manage visitor center and volunteers and develop and present programs).</p> <p>Continue to work with Montana universities to develop a volunteer program by providing college credit in exchange for volunteer work experience.</p> <p>Actively recruit additional volunteers to assist with expanded visitor services programs and habitat management and restoration projects.</p>	
Staff—Environmental Consequences		
<p>Programs would be maintained at current levels. Refuge management would continue to be selective regarding which projects to complete and may possibly limit additional projects, including expanding habitat restoration and visitor services programs.</p>	<p><i>Same as alternative B, plus:</i></p> <p>Additional staff would be available to fully implement the objectives and strategies of the CCP, restoring and improving habitats and expanding quality visitor services programs.</p>	<p><i>Same as alternative B.</i></p>
Facilities—Actions		
<p>Maintain the current 513-square-foot visitor contact area for visitor use and interpretation of resources.</p> <p>Do not expand office space or equipment storage areas.</p>	<p><i>Same as alternative A, except:</i></p> <p>Expand the visitor contact area into a visitor center, add office space, and add a combined classroom and conference room.</p> <p>Relocate the pole barn closer to the maintenance area.</p> <p>Construct a duplex to provide housing for seasonal, transitional, and detailed staff.</p> <p>Purchase a seed storage bin for storing native seed.</p> <p>Through partnerships, rehabilitate and maintain the historical Whaley Homestead.</p> <p>Incorporate green technology and renewable power sources into all new construction and rehabilitation activities.</p> <p>Purchase an excavator to complete proposed restoration projects.</p> <p>Add a wash bay and containment area for washing equipment and vehicles to reduce the spread of invasive plants.</p>	<p><i>Same as alternative B, plus:</i></p> <p>Restore the Grube Barn to create an environmental education center. Use solar or other alternative power sources to power this facility.</p> <p>Construct a shelter over the existing amphitheater that blends into the natural environment.</p> <p>Install an elevated observation deck along one of the new refuge trails.</p>
Facilities—Environmental Consequences		
<p>The existing, undersized visitor contact area would remain unable to accommodate the refuge's thousands of visitors and provide little opportunity to expand and improve interpretive displays.</p> <p>The existing eight offices, which are fully occupied by current refuge and regional staff, would remain unable to accommodate additional staff, including seasonal employees.</p> <p>Equipment would continue to be stored</p>	<p>The thousands of refuge visitors would be better accommodated and interpretive facilities and programs could be expanded.</p> <p>The additional office spaces would provide work areas for added staff.</p> <p>Additional storage areas would provide secure areas to store equipment and supplies.</p> <p>Additional housing would enable the refuge to recruit and support additional</p>	<p><i>Same as alternative B, plus:</i></p> <p>Restoring the Grube Barn and covering the amphitheater would provide environmental education facilities that could be used in all weather conditions.</p> <p>The additional observation deck would provide new opportunities for visitors to view wildlife. There may be some additional disturbance to wildlife.</p> <p>There would be costs associated with these projects. The cost could be substantial</p>

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<i>Alternative A (current management—no action)</i>	<i>Alternative B (proposed action)</i>	<i>Alternative C</i>
outside or in unsecured areas. There would continue to be insufficient storage for equipment used by other Service programs based at this refuge.	seasonal staff, including those from other Service programs based at the refuge. Restoring the Whaley Homestead would provide opportunities for interpreting part of the history of the Bitterroot Valley and refuge.	for rehabilitating and maintaining the Grube Barn, given the age and condition of this building.

Abbreviations: HGM = hydrogeomorphic, IPM = integrated pest management, RLGIS = Refuge Lands Geographic Information System, WVA = Wildlife Viewing Area, MFWP = Montana Fish, Wildlife & Parks.

