

CHAPTER 2—The Refuge



Bob Danley/USFWS

Nearly 1,000 acres of Lee Metcalf National Wildlife Refuge consist of open water, mostly in wetland impoundments.

Lee Metcalf National Wildlife Refuge consists of 2,800 acres of lands and waters all located within Ravalli County near Stevensville, Montana. This chapter discusses the refuge's establishment, management history, purposes, and special values as well as its proposed vision, goals, and planning issues.

2.1 Establishment, Acquisition, and Management History

The following section describes the establishment, acquisition, and management history of the Lee Metcalf Refuge.

LEE METCALF NATIONAL WILDLIFE REFUGE

Lee Metcalf Refuge is approximately 2 miles north of Stevensville and 25 miles south of Missoula in Ravalli County, Montana. The refuge lies in the heart of the Bitterroot Valley, cradled between two mountain ranges: the Bitterroot Mountains to the west and the Sapphire Mountains to the east. Today, the refuge boundary encompasses 2,800 acres (figure 4). Elevation ranges from about 3,225 feet on the north end of the refuge to about 3,314 feet on the south.

The refuge contains upland habitat composed of floodplain and terrace grasslands, shrublands, or a combination of both. The refuge also has riparian habitat consisting of woodlands, wetlands, and wetland impoundments that have open water and persistent emergent vegetation. Other habitats include the

river channel and areas of either bare or very sparse vegetation (table 2).

The refuge serves as a staging and nesting area for migrating waterfowl, shorebirds, sandhill cranes, and other migratory birds. A variety of refuge habitats are home for native resident wildlife such as bats, white-tailed deer, porcupines, and beaver.

The refuge is located in the Bitterroot River floodplain, and the river runs through or alongside refuge lands for approximately 5 miles. The Bitterroot River has two forks with headwaters in the Anaconda-Pintler Mountains and in the Bitterroot Mountains at the Idaho and Montana stateline. The river flows north and has areas of inherently unstable channel configurations until its confluence with the Clark Fork River near Missoula. The floodplain at the refuge is characterized by multiple abandoned channels, backwater flooding, and entrances of two tributaries from the east (North Burnt Fork Creek and Three Mile Creek).

After establishment of the refuge in 1964, an extensive system of levees, ditches, and water control structures were constructed to capture and manage the available water supply with a primary purpose of providing migration and nesting habitat for waterfowl. By the late 1980s, more than 1,000 acres had been partially or completely impounded in 14 ponds for managed wetland units. Today, these ponds range in size from 8 acres to more than 200 acres, and their water levels are seasonally managed for waterfowl and shorebirds. Additionally, tributaries and natural springs have been altered by dams or weirs that have allowed the direction or level of surface waterflow to be manipulated. With 24 water claims and 1 water permit,

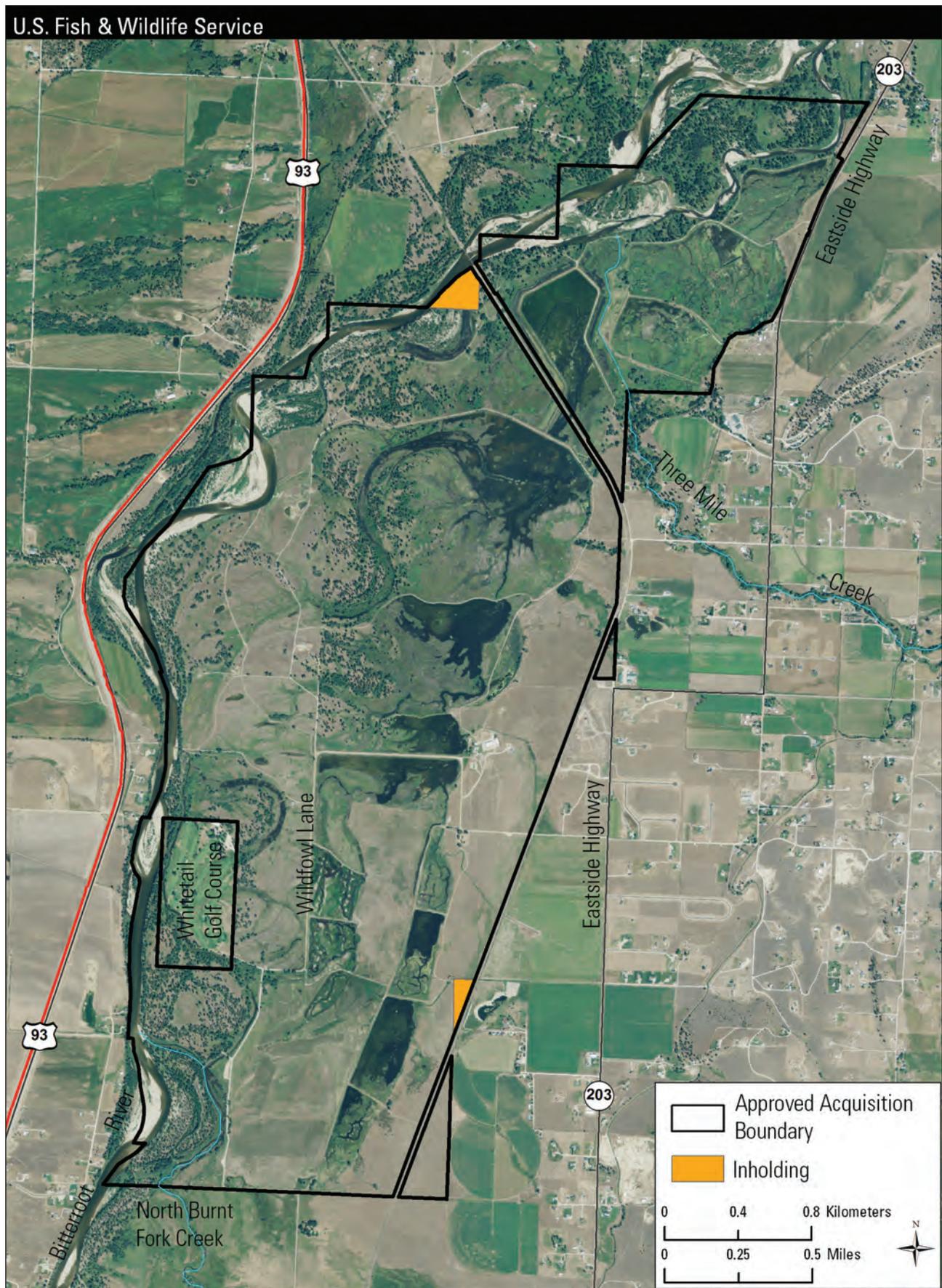


Figure 4. Approved acquisition boundary of Lee Metcalf National Wildlife Refuge, Montana.

Table 2. Habitat type and associated acreages found on Lee Metcalf National Wildlife Refuge, Montana.

<i>Habitat type</i>	<i>Acres</i>
Uplands (primarily tame grasses)	1,186.43
Woodlands and wetlands near woodlands	502.58
Wetland impoundments (open water, emergent vegetation)	958.19
River channel	62.73
Bare or sparse vegetation	89.59
Total	2,799.52

the refuge has the right to 34,209.38 acre-feet of water per year to use for habitat management purposes. The diverted water provides feeding, resting, and nesting habitat for migratory birds, wetland-related wildlife, and other resident wildlife.

Gallery and riverfront forest cover portions of the western third of the refuge. Soil types, elevation, and historical vegetation data suggest that several of the impoundments or ponds were once forested or consisted of native grasslands.

SUMMARY OF LAND ACQUISITION HISTORY

On December 10, 1963, the Migratory Bird Conservation Commission used the authority of the 1929 Migratory Bird Conservation Act (16 United States Code [U.S.C.] 715–715d, 715e, 715f–715r) (45 Stat. 1222) to approve the acquisition of 2,700 acres in 18 tracts of land to establish the Ravalli National Wildlife Refuge. In 1978, the refuge was renamed to honor the late Senator Lee Metcalf, who was instrumental in establishing this refuge, and to recognize his lifelong commitment to conservation. On February 4, 1964, the first purchase was made, Tract 21, consisting of 408.05 acres. Over the next 25 years, the Service purchased an additional 23 tracts for a total of 2,799.52 refuge acres (table 3). There were also two permits acquired from the Northern Pacific Railroad Company to access a pumping station and to cross the railroad tracks to access refuge lands. In 2009, a facilitation easement was recorded for an irrigation ditch that traverses through a subdivision.

2.2 Purposes

Every national wildlife refuge has a purpose for which it was established. This purpose is the foundation on which to build all refuge programs—from biology and public use to maintenance and facilities. The refuge purposes are found in the legislative acts or Executive actions that provide the authorities to either transfer or acquire a piece of land. Over time, an individual refuge may contain lands that have been acquired under various transfer and acquisition authorities, giving the

unit more than one purpose. The goals, objectives, and strategies in this final CCP (chapter 4) are intended to support the individual purposes for which the refuge was established.

The Migratory Bird Conservation Commission justification for establishing the Lee Metcalf Refuge was to provide a feeding and resting area for migrating waterfowl in a locality where some sanctuary is needed.

The legislative purposes of the Lee Metcalf Refuge are as follows:

For “use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” (Migratory Bird Conservation Act 16 U.S.C. 715–715d, 715e, 715f–715r, 45 Stat. 1222, as amended)

As “suitable for (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species ...”

“the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” (Refuge Recreation Act 16 U.S.C. 460k–460k–4)



In 1978, the refuge was renamed to honor the late Senator Lee Metcalf, who was instrumental in establishing this refuge, and to recognize his commitment to conservation.

Table 3. Land acquisition history for Lee Metcalf National Wildlife Refuge, Montana (1964–2009).

<i>Tract number</i>	<i>Acres</i>	<i>Date acquired</i>	<i>Means of acquisition</i>
21	408.05	02/04/1964	Fee
21a	25.39	02/04/1964	Fee
19	305.93	04/10/1964	Fee
25	167.10	06/09/1964	Fee
25a	90.86	06/09/1964	Fee
12	298.11	06/11/1964	Fee
24	9.47	06/12/1964	Fee
13	160	08/24/1964	Fee
11	309.32	05/21/1965	Fee
11a	4.27	05/21/1965	Fee
20	175.89	01/03/1966	Fee
15	2.23	06/14/1966	Fee
14a	5.13	06/15/1966	Fee
23	2.60	01/25/1967	Fee
10	26.48	06/12/1967	Fee
10a	292.53	06/12/1967	Fee
22	8.13	08/14/1967	Fee
27	336.31	12/06/1968	Fee
27-I	0.31	12/06/1968	Fee
19a	63.78	11/13/1974	Fee
29	4.4	06/12/1978	Fee
16	80	03/23/1988	Fee
17	16.23	05/23/1988	Fee
19b	0 ¹	10/01/1989	Fee—life estate
28M	0 ¹	12/01/1967	Permit from railroad company—pump station
28R	0 ¹	02/01/1970	Permit from railroad company—crossing
30D	7	01/09/2009	Easement
Total	2,799.52		

¹Acres figure is minimal.



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The refuge's upland habitat primarily consists of grassland, shrubland, and a combination of both.

2.3 Vision

A vision is a concept, including desired conditions for the future, that describes the essence of what the Service is trying to accomplish. The following vision for the Lee Metcalf Refuge is a future-oriented statement and is to be achieved through refuge management throughout the life of this CCP and beyond.

Lee Metcalf National Wildlife Refuge is a representation of the diverse native wildlife habitat once found abundantly between the Bitterroot and Sapphire Mountains and along the ever-changing Bitterroot River. This floodplain refuge, fed by mountain snow, is a diverse mosaic of forest, grassland, and riparian habitat that provides protected lands and waters for migratory and resident wildlife.

The refuge, in partnership with its neighbors, friends, and the community, is a conservation leader in the valley, ensuring that the biological integrity of this refuge and other valley habitats remains intact or, where appropriate, is restored.

These protected lands and waters are a place of discovery for visitors to experience fish and wildlife firsthand and where children can experience nature with all their senses. Visitors to the refuge can appreciate the beauty of the setting and experience a sense of wonder and pride to be preserving this part of the Bitterroot Valley and the National Wildlife Refuge System.

2.4 Goals

The Service developed nine goals for the refuge based on the Improvement Act, the purposes of the refuge, and information developed during project planning. The goals direct efforts toward achieving the vision and purposes of the refuge and outline approaches for managing refuge resources.

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.

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.

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 Bitterroot Valley.

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.

RESEARCH

Pursue and maintain compatible research projects that will provide information on refuge resources and address refuge issues to assist management in making decisions based on the best available information and science.

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.

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.

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.

OPERATIONS AND FACILITIES

Prioritize wildlife first and emphasize the protection of trust resources in the utilization of staff, volunteers, funding, and facilities.

2.5 Special Values

Early in the planning process, the planning team and public identified the refuge's unique qualities or special values—characteristics and features of the refuge that make it special, valuable for wildlife, and an integral part of the Refuge System. It was important to identify the special attributes of the refuge to recognize its value and to make sure that these attributes are conserved, protected, and enhanced through the planning process. These special values can be unique biological values as well as simple values like providing a quiet place to see a variety of birds and enjoy nature. The following list summarizes many of the qualities that make the refuge unique and valued:

- protects 2,800 acres of diverse habitats—riparian, wetland, and upland—in a rapidly growing county
- supports a healthy riparian corridor used by breeding neotropical songbirds
- contains gallery forest along the Bitterroot River
- provides a wildlife corridor that runs north to south along the Bitterroot River and east to west from North Burnt Fork Creek to Kootenai Creek
- contains the largest montane wetland complex in the Bitterroot Valley on which many migratory bird species are dependent for breeding and migration stopovers
- provides resting habitat for trumpeter swans primarily during migration
- provides habitat for a great blue heron rookery containing 12–18 nests
- provides habitat for one bald eagle nest and foraging habitat for one additional nest less than 0.5 mile from the refuge
- provides exceptional viewing opportunities for nesting osprey and maintains the longest running dataset for nesting osprey in Montana
- lies within the Bitterroot River Important Bird Area, as designated by the National Audubon Society
- provides habitat for 242 bird species, 40 mammal species, and 11 species of reptiles and amphibians
- contains 45 documented species of concern (38 birds, 3 mammals, 2 plants, 1 aquatic insect, and 1 amphibian) listed in Montana
- provides habitat for moose, black bear, and (occasionally) elk on the valley floor
- includes designated critical habitat for endangered bull trout
- includes a portion of the Bitterroot River, which is considered a blue ribbon trout fishery
- lies within the Bitterroot Valley, the traditional homeland of the Salish, Nez Perce, and Pend d'Oreilles native peoples
- located a few miles from Stevensville, the oldest continuous Euro-American settlement in Montana
- contains the historic Whaley Homestead, which was built in 1885 and is listed on the National Register of Historic Places
- offers one of the few places to hunt waterfowl on public land in Ravalli County and the entire Bitterroot Valley
- provides environmental education and research opportunities for more than 16,000 area students of all ages (Missoula to Hamilton)
- serves as a “window” on the Refuge System for its 143,000 annual visitors, providing the public with a multitude of wildlife-dependent recreational activities in a peaceful and beautiful setting
- provides a visitor contact area staffed by volunteers and an outdoor amphitheater with vistas of refuge wetlands, the heron rookery, and the Bitterroot Mountains
- provides universally accessible nature trails with views of multiple habitat types and opportunities to view a variety of wetland, grassland, and forest bird species
- contains a 2.5-mile-long designated National Recreation Trail
- contains portions of the Ice Age Trail and the Nez Perce Trail
- collaborates with a wide variety of area organizations to carry out the refuge mission (that is, land management, visitor service, historic restoration, and research)
- provides close-up wildlife viewing opportunities
- serves as a point of pride for area citizens
- provides research opportunities for dozens of wildlife and environmental researchers
- attracts dozens of volunteers who annually donate 8,500 work hours

2.6 Planning Issues

Several key issues were identified following the analysis of comments collected from refuge staff and the public and a review of the requirements of the Improvement Act and NEPA. Two public meetings, news releases in the local and regional press, an announcement in the Federal Register, and planning updates were used to solicit public input on which issues the CCP should address. Substantive comments (those that could be addressed within the authority and management capabilities of the Service) were considered during formulation of the alternatives for future management. These key issues are summarized below.

BITTERROOT RIVER MIGRATION

The Bitterroot River traverses the Bitterroot Valley floor and is characterized by a constantly migrating stream channel that flows through extensive cottonwood and ponderosa pine bottomland forest. Naturally, the river fluctuates in water volume depending on winter snowpack and spring precipitation. These fluctuations regularly flood braided river channels and may create new ones. Much of this flooding and migration is natural and can be beneficial. However, as development increases, many more landowners are installing riprap along their properties in an attempt to prevent riverbank erosion; this directs the river (and its energy and increased velocity) to unprotected areas and increases the rate of erosion above natural levels. Such erosion has occurred in the refuge's wildlife viewing area (WVA), where erosion has exceeded 100 feet in one area, partially destroyed a universally accessible paved trail, removed many large ponderosa pine and black cottonwood trees, and left a steep bank next to the shelter and terminus of the WVA accessible trail, a National Recreation Trail.

Additionally, increased erosion from upstream bank stabilization also contributes to a loss of riparian habitat, including both types of woodlands (riverfront and gallery forest) and wetlands (streams and sloughs). Woodlands provide a migration corridor for birds, a home to several bat species of State concern, and shade and habitat structure for terrestrial and aquatic species. The refuge faces challenges and uncertainty in managing riparian habitat in the face of intensified bank erosion, increased river velocities, and shorter and more dramatic flood frequencies due to upstream channel alterations and bank stabilization.

WETLAND IMPOUNDMENTS (OR PONDS)

Shortly after acquiring the first tract of refuge land, the Service constructed several impoundments (commonly referred to as ponds) to hold water for migratory waterfowl. These impoundments were mostly built atop agricultural fields. Before this area was



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Flooding of the Bitterroot River is a common occurrence on the refuge.

homesteaded in the 1870s, these lands consisted of native grassland and shrubland habitats, gallery forests, and some natural streams (as identified in a 1964 habitat map, figure 5). Currently, there are 958 acres of wetland impoundments.

Some impoundments are surrounded by persistent emergent wetland vegetation like cattail. Cattail is an aggressive emergent plant that can completely fill wetland areas; once established, it is extremely difficult to control and can limit habitat value for waterfowl and other migratory birds. However, a balanced mosaic of open water, cattail, and other emergent vegetation usually benefits nesting habitat for diving ducks; brood habitat for diving and dabbling ducks; and nesting and roosting habitat for rails, American bitterns, and red-winged and yellow-headed blackbirds.

The constantly migrating Bitterroot River has started to erode some levees on the north end of the refuge, making Pond 13 susceptible to river movements and leaving refuge staff with little control over its water level. The structures and levees on one other impoundment in the refuge's north end are threatened by erosion as well. Maintaining these impoundments may be costly and ecologically unsound, depending on the river's future channel migration.

Management of impoundments depends on a consistent water source and the ability to fill and drain wetlands. Refuge impoundments receive water from irrigation ditches diverted from the Bitterroot River, tributary creeks, natural springs, tile drainage of agricultural fields, and subsurface groundwater. Drainage and irrigation ditches may receive outflow from adjacent agricultural operations and residential and industrial septic systems, and such impacts on water quality could in turn pose a threat to refuge wildlife.

Also of concern is the presence of nonnative aquatic predators. In the early 1990s, MFWP and the refuge released 10,000 bass fingerlings into Otter Pond for ospreys and eagles and to promote recreational fishing; as a result, largemouth bass have spread to most ponds (Ponds 5–13). Largemouth bass can be voracious

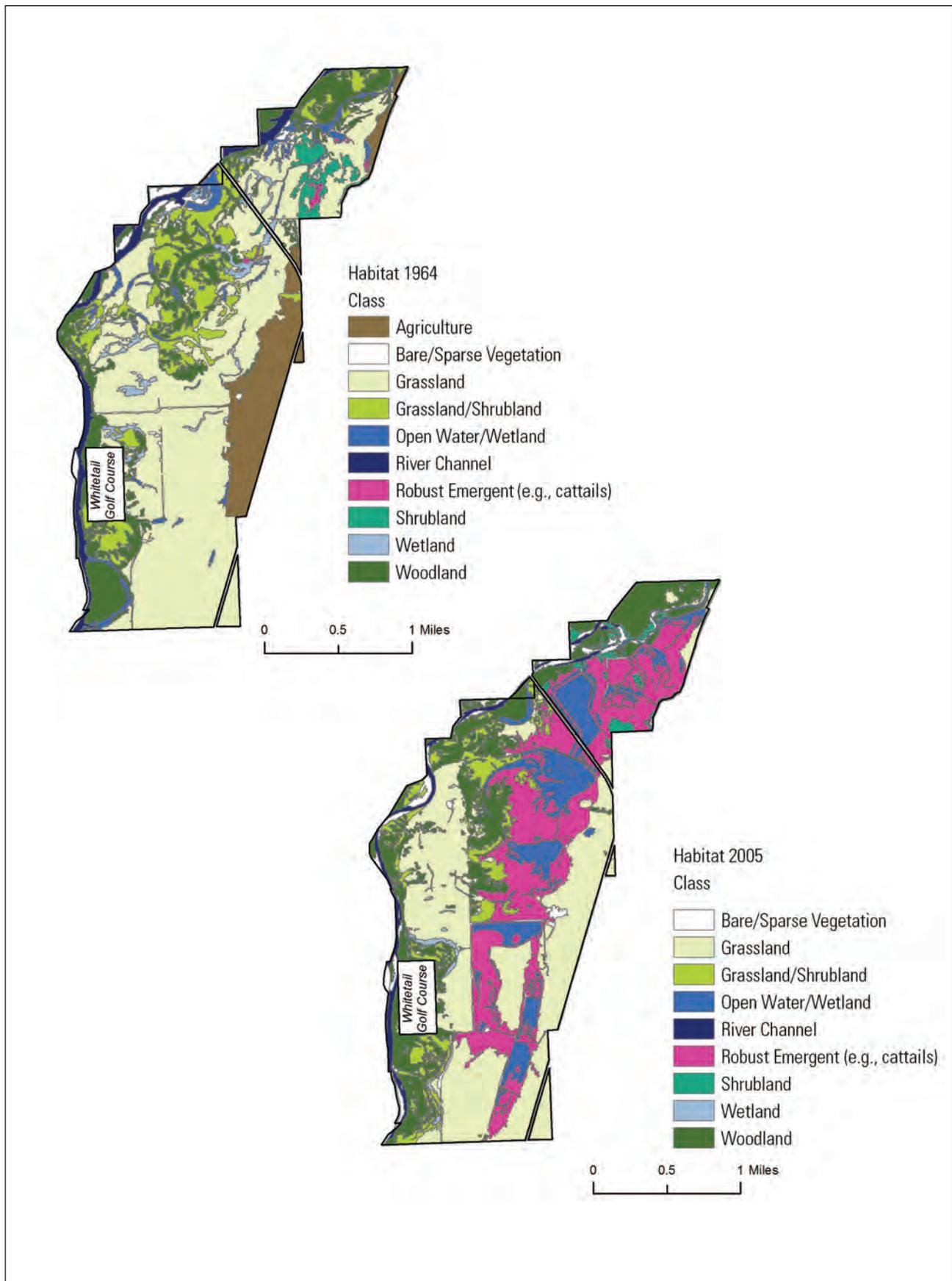


Figure 5. Composite vegetation community models Lee Metcalf National Wildlife Refuge, Montana, for 1964 and 2005 (Heitmeyer et al. 2010).

predators on fish, frogs, and aquatic insects and have been known to consume ducklings. In addition, bullfrogs also inhabit most of the impoundments. This nonnative amphibian displaces and consumes not only native amphibians but avian chicks, small snakes, and small mammals as well.

UPLAND HABITAT AND ASSOCIATED WILDLIFE

The intermountain and foothill grassland ecotype, which is found in the Bitterroot Valley and other broad mountain valleys in western Montana, contains some of Montana's most diverse fish and wildlife habitats. These areas also contain some of the largest populations of humans in Montana. The Bitterroot Valley area is considered a terrestrial conservation focus area in greatest need due to the loss of this habitat to agricultural production (MFWP 2005).

The refuge has 1,186 acres of upland habitat that consists of grassland, shrubland, and a combination of both. Due to the retirement of agricultural crops, encroachment of development, and spread of invasive plants, few native plant species remain, and wildlife value has been degraded. In many uplands, the dominant plant species are nonnative (tame) grasses and weeds such as smooth brome, crested wheatgrass, cheatgrass, knapweed, and thistle. A combination of management actions have been applied—prescribed fire, disking and seeding, herbicide application, and manual weed removal—with varying results.

WATER

Lee Metcalf Refuge receives surface water from tile drain ditches, springs, ephemeral and perennial creeks and subsurface flow, and three lateral irrigation ditches: the North Lateral Ditch, Middle Lateral Ditch, and South Lateral Ditch. These lateral ditches are supplied by the Supply Ditch, a primary canal that carries diverted Bitterroot River water from Victor to just north of the refuge. Water entering the refuge from the east often has a high nutrient load as it traverses or drains out of grazed or farmed lands. As a result, the refuge receives nutrient-rich drainage water that results in abundant algal growth during summer months.

In the past 5 years, algal growth has increased in the impoundments, possibly in part due to the combination of increased nutrient loading in surface water and potentially in subsurface water. Algal growth results in diminished water clarity and subsequent reduction in light penetration and vegetative quality of refuge impoundments.

Currently, the Montana Bureau of Mines and Geology has established shallow wells to collect subsurface water quality data and is also evaluating surface water quality within the refuge boundary.

The North Lateral Ditch, also called the Alleman Ditch, flows through private land, traverses alongside

Eastside Highway, and then enters the refuge on Rathbun Lane. In the last several years, the refuge has received water from this ditch, even though it has become silted and overgrown with vegetation. However, when the headgate is opened, the ditch tends to overflow and flood private lands.

East of the Eastside Highway, subdivisions have been developed along and over the Middle Lateral Ditch (also called the McElhaney Ditch) and affected the efficiency of flows leaving the Supply Ditch and reaching the refuge. Currently, refuge management is working with the Supply Ditch Association, landowners, and staff to replace this ditch with a pipeline. If successful, this effort could conserve water, provide a more reliable flow to the refuge, reduce noxious weed seed transfer from ditchbanks and neighboring lands, end periodic localized flooding, and possibly provide a gravity-flow water source into the refuge wheel lines, thereby saving thousands of dollars annually in pumping costs.

In recent years, much of the refuge water from the South Lateral Ditch (also called the Warburton Ditch) has not reached the refuge. Refuge law enforcement officers have monitored diversions along this ditch in the past.

Other historical ditches (now McPherson and Nickerson Creeks) remain on the refuge but have not been maintained in recent years.

INVASIVE AND NOXIOUS SPECIES

The State of Montana has identified 32 noxious plant species, which are nonnative plants that must be treated by rule of the Montana County Weed Control Act. Fifteen of these species have been found on the refuge. Invasive species prevent desirable native vegetation growth and often severely degrade habitat for native wildlife by altering its structure and its species and ecosystem interactions. When invasive species become widespread, they often change the habitat structure and vegetative variability that wildlife need for food and cover. These nonnative plants



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Invasive and noxious species are a threat to native plants on the refuge, including velvet lupine.

often create monotypic stands, using up soil moisture and nutrients and outcompeting more desirable native species. This change in plant species, structure, and diversity impacts habitat for migratory birds, a group of species for which this refuge was established.

Multiple factors have likely contributed to the noxious and invasive plant problem on the refuge. Historically, factors like soil type, flood frequency, topography, availability of irrigation, and dominant vegetation likely influenced how lands that now compose the refuge were used. Much of this land was managed for agriculture, including growing small grains and potatoes, haying, and grazing. It is also evident that croplands were leveled and parts of the refuge may have been drained. After refuge establishment, much of the agricultural land was developed into wetland impoundments or managed for migratory waterfowl food resources. Later, gravel levees were developed to protect refuge facilities from periodic flooding from the Bitterroot River. White-tailed deer move daily off the refuge and back from neighboring lands and potentially carry weed seeds in fur or scat. All of these actions—both before and after refuge establishment—disturbed the soil and created abundant opportunities for noxious and invasive plants to take root.

Land uses in and around the refuge contribute to invasive species challenges. Such uses include subdivisions, irrigation laterals and tile drains, roads, and uncontrolled weed infestations on neighboring lands. In particular, roads like Rathbun Lane and Eastside Highway present opportunities for invasive species transport and establishment, as does the county road, Wildfowl Lane, which runs west, north, and east through the southern half of the refuge. The Montana Rail Link traverses the width and length of the refuge and provides additional opportunity for weeds to spread on disturbed ground. Also, the Bitterroot River runs the length of the refuge, and the water current as well as recreationists often transport seed from one area to another along this waterway.

RESEARCH, INVENTORY, AND MONITORING

Over the years, research, inventory, and monitoring of refuge resources have been sporadic and minimal. In most cases, research is proposed by another agency or a university, not by refuge staff. Consequently, some management programs have not necessarily been designed from refuge-specific data or in response to critical refuge needs and issues. This had led in part to some of the habitat management difficulties described in this section.

VISITOR SERVICES

Each year, the refuge hosts more than 143,000 visitors from all over the country and the world. It is valued as a place to discover, enjoy the beautiful scenery, and be close to nature.

The refuge has always done well to accommodate visitors by providing facilities and programs intended for education and enjoyment. The refuge currently employs one outdoor recreation planner who manages and designs all programs. Dedicated volunteers assist with these programs and help greet visitors at the refuge headquarters. Nevertheless, there is tremendous potential for improvement, namely through providing new programs, tours, offsite programs, and interpretive displays and by expanding and improving current facilities, particularly the visitor contact area. Although the visitor contact area does allow for some interpretation, it is small (about 500 square feet) and inadequate for conducting tours, accommodating larger groups, or housing displays that could better interpret refuge resources and programs. The refuge is very popular with local schools and other groups; accordingly, there is a need for additional programs and an indoor classroom.

Many visitors asked for additional trails and opportunities to explore more of the refuge. Requests were also made to afford all visitors the same access provided to refuge hunters. The refuge currently has 2.09 miles of trails in the WVA, some of which require improvement or relocation. A portion of the trail in the WVA is slowly eroding as a result of the migrating Bitterroot River. The Kenai Nature Trail, located north of the refuge headquarters, is also very popular with visitors, but it is surrounded by a closed area that does not allow visitors to leave this trail.

Hunting for waterfowl and white-tailed deer is very popular on the refuge. The refuge is located in a State management unit that only permits archery hunting for big game. The refuge suspects that the lack of regeneration in the understory of the forest is a direct result of overbrowsing by white-tailed deer. Should this be the case, the refuge may need to work with the State to find other methods to better disperse the deer or reduce the population on the refuge.

STAFFING

Currently, the refuge employs eight full-time employees (three of whom are zone or state-wide support employees who do not exclusively support refuge operations). If the refuge is to accomplish the goals set forth in this CCP within the established timeframe, adequate staffing and resources will be needed.

