CHAPTER 2—The Refuge Complex

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Rocky Mountain Front Conservation Area.

The refuge complex consists of 163,304 acres of lands and waters encompassing the Benton Lake National Wildlife Refuge, Benton Lake Wetland Management District, Blackfoot Valley Conservation Area, Rocky Mountain Front Conservation Area, Swan River National Wildlife Refuge, and Swan Valley Conservation Area.

The Service is responsible for the protection of 7,098 acres of wetland easements, 4,294 acres of grassland easements, 628 acres of Farmer's Home Administration conservation easements, 120,838 acres of conservation easements, 16,617 acres of waterfowl production areas (16,337 fee title and 280 leased from the State), and 14,028 acres of refuge lands.

The refuge complex spreads across a 12-county area in northwestern Montana: Cascade, Chouteau, Glacier, Hill, Lewis and Clark, Liberty, Missoula, Lake, Pondera, Powell, Teton, and Toole. The refuge complex headquarters is located at the Benton Lake Refuge, 12 miles north of Great Falls.

2.1 Establishment, Acquisition, and Management History

The following section describes the establishment, acquisition, and management history of the national wildlife refuges, wetland management district, and conservation areas within the refuge complex. Table 2 summarizes the land acquisition history for the refuge complex.

Table 2. Land acquisition history for units of the Benton Lake National Wildlife Refuge Complex, Montana.

Complex unit	*County*	*Date acquired or established*	*Acres*	*Means of acquisition*
Benton Lake National Wildlife Refuge	Cascade, Chouteau, Teton	1929	12,234.92	Primary withdrawal
		1958–62	147.64	Fee title
		1958–62	76.88	Right-of-way easement
Benton Lake Wetland Management District	Cascade, Chouteau, Glacier, Hill, Lewis and Clark, Liberty, Pondera, Powell, Teton, Toole	1975	16,337	Fee title
			280	State lease land
			7,098	Wetland easement
			4,294	Grassland easement
			628	Farmers Home Administration easement
Blackfoot Valley Conservation Area	Lewis and Clark, Missoula, Powell	1994	23,845	Migratory Bird Conservation Funds
			19,361	Land Water Conservation Funds
			311	Donation
			474	North American Wetlands Conservation Act grant
Rocky Mountain Front Conservation Area	Teton, Lewis and Clark	2005	31,479	Migratory Bird Conservation Funds
	Pondera		45,368	Land Water Conservation Funds
Swan River National Wildlife Refuge	Lake	1973	1,568.81	Fee title
Swan Valley Conservation Area	Lake, Missoula	2011	0	None to date
Total	12 counties	1929–present	163,304.25	Various

Benton Lake National Wildlife Refuge

Originally owned and managed by the Bureau of Reclamation as part of the Sun River Reclamation Project, the Benton Lake Refuge (figure 5) was withdrawn from the public domain and became part of the National Wildlife Refuge System by Executive order of President Herbert Hoover in 1929. The original area of the refuge was 12,235 acres, of which about 3,000 was flooded wetland in 1928 (Great Falls Tribune 1929a).

The refuge was not staffed, with infrequent visits from refuge managers at the National Bison Range, until 1961, when local support from the Cascade County Wildlife Association prompted a major effort to increase the water supply and management capabilities of the refuge. A pump station, a pipeline, and water control structures were constructed from 1958–1962 to bring irrigation return water from Muddy Creek, about 15 miles to the west, to the Benton Lake Refuge. Acquisition of the pumping station near Power, Montana, brought the refuge to its current fee-title acreage of 12,383 acres. In addition, 76.88 acres of right-of-way easement were bought to accommodate the pipeline.

In 1962, the first water was pumped from Muddy Creek and managed by the new, permanent staff on the refuge. The historical Benton Lake bed was divided into six wetland management units (Unit 4 was later subdivided into three subunits) by dikes, ditches, and water control structures to facilitate the management of water.

Water management at Benton Lake Refuge, since the Muddy Creek pumping system was developed, has typically sought to consistently flood some wetland pools each year to provide breeding and migration habitat for waterfowl. In the uplands, management of the early 1960s included the breaking of more than 600 acres of native prairie for agricultural production, the planting of many shelterbelts, and a reduction in haying and grazing activities that had dominated the refuge's first 30 years.

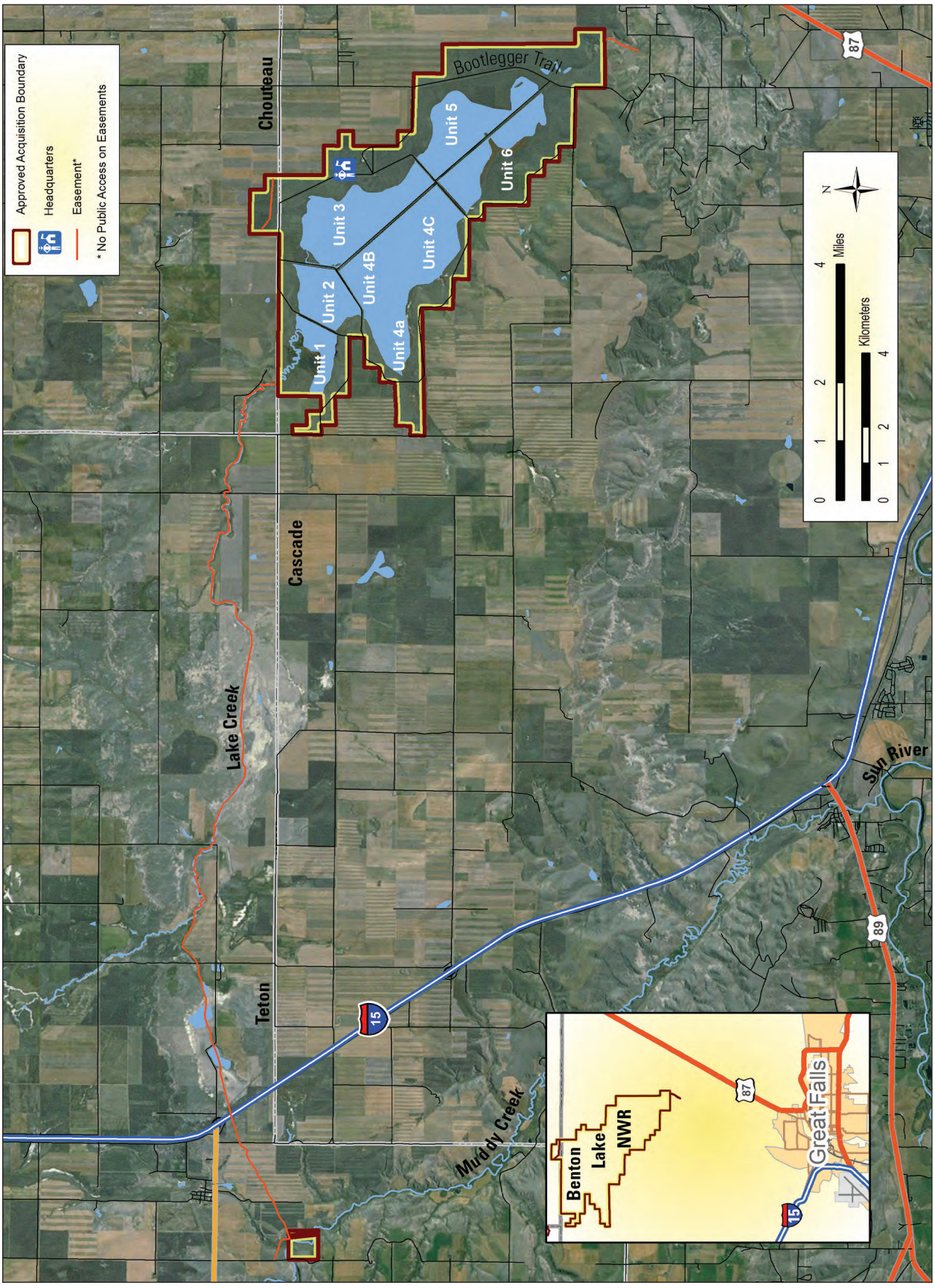

Figure 5. Map of Benton Lake National Wildlife Refuge, Montana.

Benton Lake Wetland Management District

The district, established in 1975, is spread over a 10-county area consisting of Cascade, Chouteau, Glacier, Hill, Lewis and Clark, Liberty, Pondera, Powell, Teton, and Toole in north-central Montana (figures 6 and 7). The district also manages conservation easement programs in Missoula and Lake Counties. There are several types of Refuge System lands within the wetland management district:

- waterfowl production areas, which are acquired in fee title
- perpetual wetland easements, which protect privately owned wetlands from being drained, filled, or leveled, while the landowner keeps all other rights
- perpetual grassland easements, which protect privately owned rangeland and hayland from conversion to cropland, and the landowner keeps all other rights
- perpetual Farmers Home Administration conservation easements, which help farmers reduce their debt load on farmland and protect wetlands and grasslands
- perpetual conservation easements, which primarily protect wetland and grassland habitats and prevent property from being subdivided for residential, commercial, or industrial purposes
- a grassland and wetland parcel leased from the State and managed similarly as a waterfowl production fee-title unit

Waterfowl production areas and wetland and grassland easements are bought from, or donated by, willing sellers through the Small Wetlands Acquisition Program authorized by the U.S. Congress in 1958 as an amendment to the Migratory Bird Hunting and Conservation Stamp Act of 1934. This program is funded by the sale of Federal Duck Stamps and loans against future duck stamp sales. The purpose of this important program is to make sure the long-term protection of breeding habitat, primarily within the PPPLCC's Prairie Pothole Region of the United States, for waterfowl and other migratory bird species.

The Service owns waterfowl production areas in fee title and manages them to provide breeding waterfowl with quality wetlands for courtship and brood rearing, as well as suitable grasslands for nesting. Habitats are managed using techniques such as prescribed grazing and fire, haying, and the farming and reseeding of former croplands to herbaceous cover. Most of the wetlands on waterfowl production areas within the refuge complex are subject to natural flooding and drying cycles and are not intensively managed or manipulated. These areas are open to migratory gamebird hunting, upland gamebird hunting, big game hunting, fishing, and trapping according to State seasons. Hunting opportunities attract people from across the United States and Canada. The Sands WPA and the H2–O WPA are closed to hunting in accordance with property deed restrictions.

Wetland easements are perpetual and prohibit the filling, leveling, draining, and burning of wetlands under easement. Wetland easements are real property interests that the Service buys from willing landowners and are permanent fixtures to land titles. The land remains in private ownership, and the landowner decides on public access. Since 1958 when the Small Wetlands Acquisition Program began, the Service has acquired a perpetual, real property interest in more than 2 million wetland acres for waterfowl production in the Great Plains States, which include Montana. The district currently manages 7,098 acres of perpetual wetland easements.

Conversion of grassland to cropland has generated a need for the protection of upland habitat next to wetlands. The loss of upland nesting cover has reduced the value and productivity of wetlands for nesting waterfowl and their broods, other migratory birds, and other wildlife. Grassland easements, like wetland easements, are perpetual and protect both existing and restored habitat. The purposes of the perpetual, grassland easement program are (1) to improve and protect the water quality of wetlands; (2) support upland nesting habitat for ground-nesting birds; (3) protect highly erodible soils; and (4) provide an alternative to buying uplands in fee title, leaving land in private ownership. Grassland easements are real property interests that the Service buys from willing landowners to ward against a loss of grassland cover to cropland conversion and development. Grassland easements also protect nesting birds by prohibiting haying or mowing until after July 15. Typically, haying and mowing is only conducted on tame grasslands. Grazing is not prohibited or regulated under the grassland easement. Money for grassland easements comes primarily from the Migratory Bird Hunting and Conservation Stamp Act and North American Wetland Conservation Act grants. The district currently manages 4,294 acres of perpetual grassland easements.

Farmers Home Administration conservation easements were developed by the U.S. Congress un-

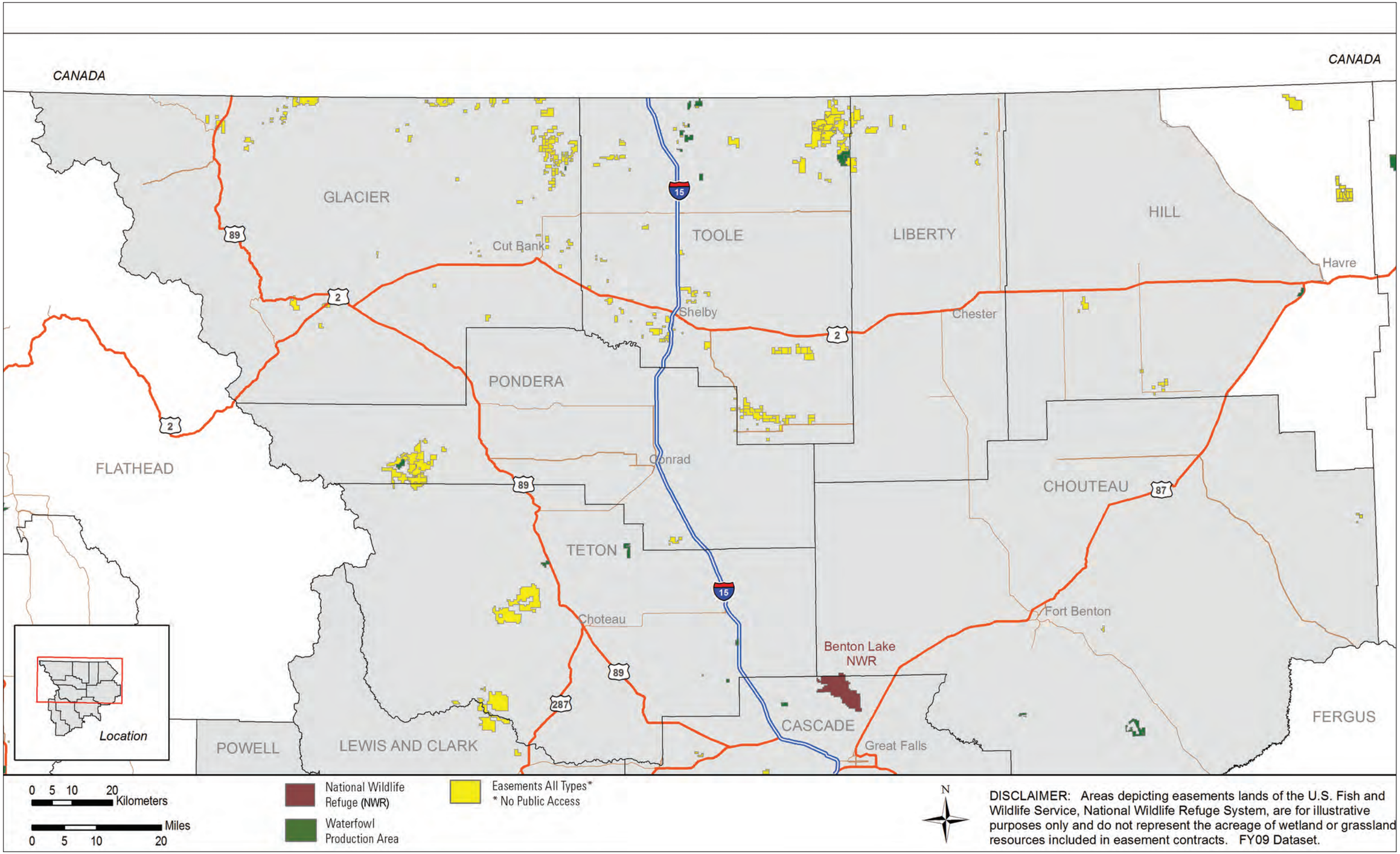

Figure 6. Map of easements and waterfowl production areas in the Benton Lake Wetland Management District (north), Montana.

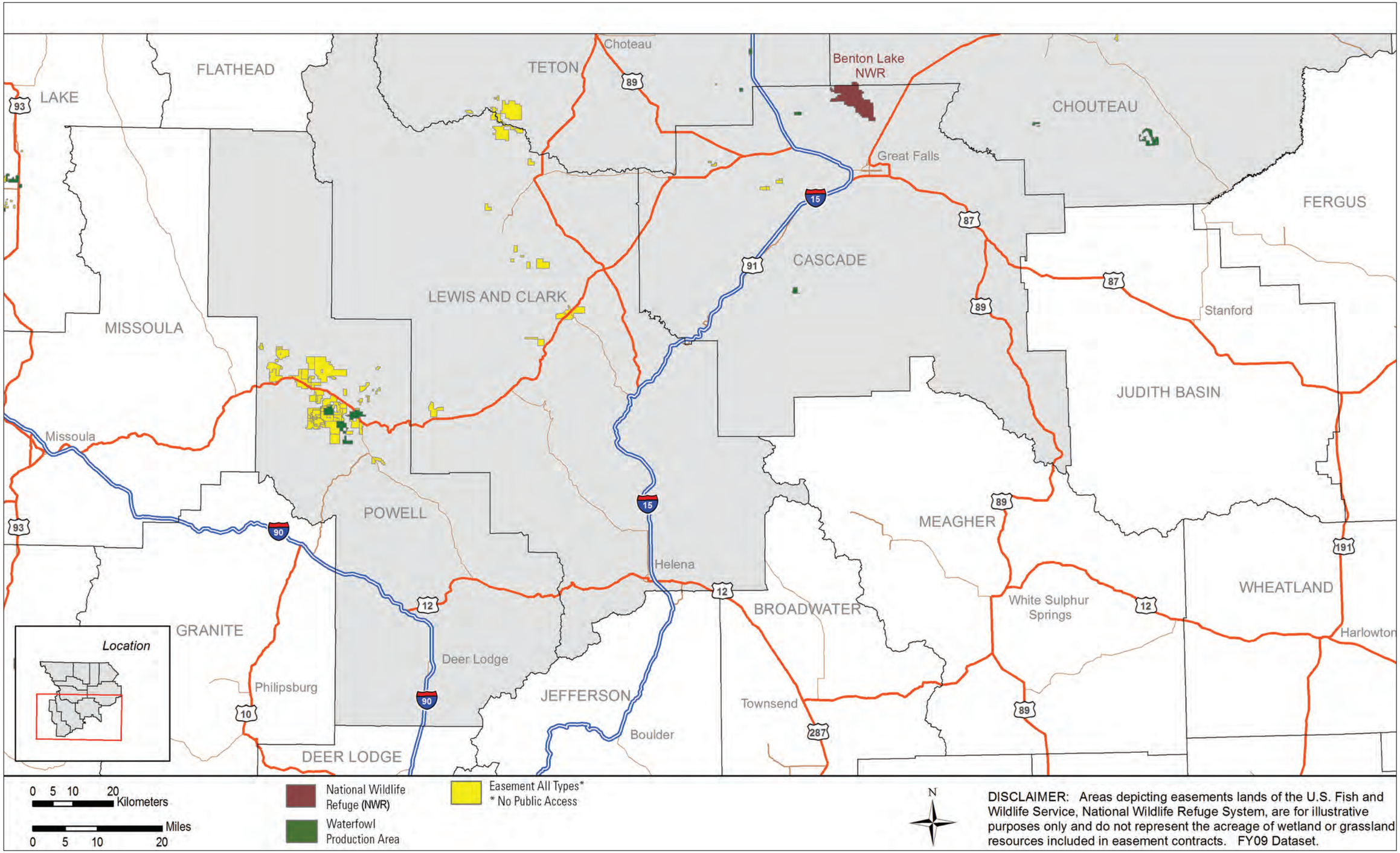

Figure 7. Map of easements and waterfowl production areas in the Benton Lake Wetland Management District (south), Montana.

der the Consolidated Farm and Rural Development Act of 1985 to establish easements for conservation, recreation, and wildlife purposes on properties that were foreclosed on by the Federal Government (inventory properties). The Service was designated as the easement manager on those easements worthy of inclusion into the Refuge System. The district currently manages 628 acres of perpetual Farmers Home Administration conservation easements.

As of 2012, the district has 23 waterfowl production areas totaling 16,617 acres (16,337 acres in fee title and 280 acres leased from the State), which are described in table 3.

More wetland and grassland easements may be acquired based on the availability of money from the North American Wetland Conservation Act grants, the Migratory Bird Conservation Fund, and the availability of willing landowners.

Table 3. Waterfowl production areas in the Benton Lake Wetland Management District, Montana.

Waterfowl production area	*Purchase year*	*Location*	*Total size (acres)*	*Habitat*		
				Tame grassland (acres)	Native grassland (acres)	Wetland (acres)
Arod Lakes	1992	8.5 miles southwest of Brady	797	628	0	169
Big Sag	1980	3 miles northeast of Highwood	350	181	0	169
Blackfoot	1978, 1988, 2004, 2010	7 miles southeast of Ovando	1,713	0	1,548	165
Blackhurst	1979	4 miles north of Ferdig	320	277	0	43
Brown	1980	3.5 northeast of Sunburst	260	215	0	45
Brumwell	1976	4 miles north of Power	252	73	0	179
Cemetary	1982	3 miles east of Sunburst	109	37	0	72
Danbrook	1979	6 miles east of Sweetgrass	327	220	0	107
Dunk	1980	5 miles northeast of Sunburst	80	52	0	28
Ehli	1978	8 miles east of Sweetgrass	475	171	154	150
Furnell	1976	2.5 miles south of Whitlash	1,995	0	1,871	124
H2–O	Donated in 2000	3 miles northwest of Helmville	1,803	863	705	235
Hartelius	1979	5 miles north of Vaughn	307	173	0	134
Hingham Lake	Leased from the State	2 miles northeast of Rudyard	280	0	167	113
Jarina	1986	12.5 miles west of Dupuyer	640	0	555	85
Kingsbury Lake	1980	4 miles southwest of Geraldine	3,734	248	2,054	1,432
Kleinschmidt Lake	1992	6 miles southeast of Ovando	1,120	0	1,062	58
Long Lake	1980	3.5 miles northeast of Sunburst	646	349	0	297
Peterson	1977	10 miles northeast of Santa Rita	94	51	15	28
Sands	Donated in 1983	3 miles west of Havre	379	84	129	166
Savik	1982	1.5 miles southwest of Bynum	397	0	143	254
Schrammeck Lake	1980	8 miles southeast of Cascade	420	122	0	298
Upsata Lake	2012	5 miles northwest of Ovando	119	0	61	58

Haystack Butte in the Rocky Mountain Front Conservation Area.

Blackfoot Valley Conservation Area

The Blackfoot Valley CA (figure 8)—originally the Blackfoot Valley Wildlife Management Area—was established on February 3, 1997, under the Fish and Wildlife Act of 1956 (16 United States Code [U.S.C.] 742a–j) and Emergency Wetlands Resources Act of 1986 (16 U.S.C. § 3901(b), 100 Stat. 3583). The Blackfoot Valley CA overlaps the district in Powell County. By establishing the conservation area, the Service expanded its authorization to protect habitat in Powell County beyond the district's Small Wetlands Acquisition Program to include the authority to buy easements with LWCF money within the conservation area boundary. This was important because some high-priority conservation areas that could not qualify under the Small Wetlands Acquisition Program were eligible for easements under the LWCF.

From 2009 to 2010, efforts were made to expand the project area for LWCF acquisition authority after overwhelming support for the expansion was received during CCP scoping meetings. Refuge staff completed a preliminary project proposal in November 2009, which was approved on April 8, 2010. Detailed planning began in May 2010, including a public scoping meeting in Ovando, Montana, on May 19, 2010. A draft EA and land protection plan was released for a 30-day public review from July 25 to August 25, 2010. The expansion of the existing conservation area from 23,500 acres to 103,500 acres and the subsequent LWCF acquisition authority was authorized, and the name of the project area was changed from Blackfoot Valley Wildlife Management Area to Blackfoot Valley Conservation Area on January 5, 2011. This expanded the project area from Powell County to include parts of Missoula and Lewis and Clark Counties.

The project area encompasses an 824,024-acre ecosystem that includes parts of Missoula, Powell, and Lewis and Clark Counties. Parts of these counties also make up the Blackfoot River watershed in western Montana and include the Ovando Valley and the Helmville Valley. The watershed is bordered on the east by the Continental Divide, on the south by

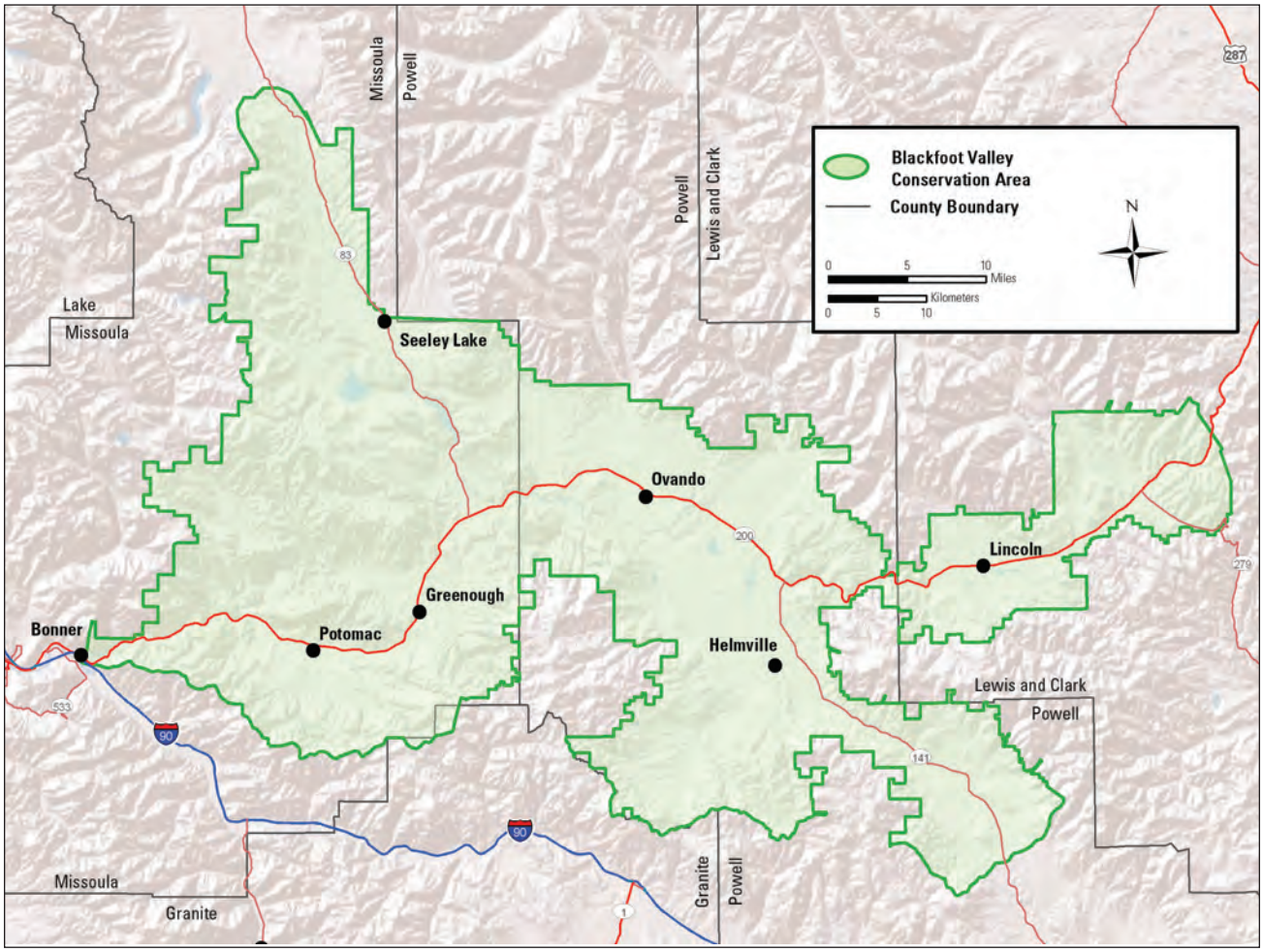

Figure 8. Map of the Blackfoot Valley Conservation Area, Montana.

the Garnet Range, on the north by the Bob Marshall Wilderness Complex, and on the west by the Rattlesnake Wilderness. The center of the project area lies about 55 miles east of Missoula.

Because the project area contains acquisition authority for both the Small Wetlands Acquisition Program and the LWCF, these options allow for purchases of fee-title waterfowl production areas and grassland, wetland, and conservation easements. Each individual easement has a variety of rights secured in the purchase, including the protection of grasslands from being plowed under; the draining, burning, or filling of wetlands; and the protection of habitats from being subdivided and developed. This integration of acquisition authorities provides a variety of choices for conservation in the Blackfoot Valley.

The Blackfoot, Kleinschmidt Lake, and H2–O WPAs form the anchor of the conservation area. The conservation easement program and waterfowl production areas located within the project area are administratively managed by the refuge complex office and from the maintenance facilities located on the H2–O WPA in Helmville by a permanent full-time position cofunded by the refuge complex and the Partners for Fish and Wildlife Program.

To date, 43,991 acres of wetland, grassland, and conservation easements have been obtained within the project area. The LWCF accounts for 19,361 acres of conservation easements and the remaining acreage includes 23,845 acres obtained with Migratory Bird Conservation Funds, 474 acres with North American Wetlands Conservation Act money, and 311 acres from donation.

The Blackfoot Valley CA is part of a conservation strategy to protect one of the last undeveloped, low-elevation river valley ecosystems in western Montana. It complements other components of a broad partnership known as the Blackfoot Challenge. These efforts include the Service's Partners for Fish and Wildlife Program work with private landowners to restore and enhance habitat on private lands and coordinated management activities on public lands throughout the entire Blackfoot Valley.

Rocky Mountain Front Conservation Area

The Rocky Mountain Front CA (figure 9) was established on August 10, 2005, under the Fish and Wildlife Act of 1956 (16 U.S.C. 742a–j) for the development, advancement, management, conservation, and protection of fish and wildlife resources. The conservation area is nested within the district and includes parts of Lewis and Clark, Teton, and Pondera Counties. As with the Blackfoot Valley CA, the project area contains acquisition authority for both the Small Wetlands Acquisition Program and the LWCF. These options allow for purchases of grassland, wetland, and conservation easements. Each individual purchase has a variety of rights secured, including the protection of grasslands from being plowed under; the draining, burning, or filling of wetlands; and the protection of habitats from being subdivided and developed. This integration of acquisition authorities provides a variety of choices for conservation along the Front.

From 2009 to 2010, efforts were made to expand the conservation area for LWCF acquisition authority after overwhelming support for the expansion was received during CCP scoping meetings. Refuge staff completed a preliminary project proposal in November 2009, which was approved on April 8, 2010. Detailed planning began in May 2010, including a public scoping meeting in Choteau, Montana, on May 17, 2010. A draft EA and land protection plan was released for a 30-day public review from July 25 to August 25, 2010. The expansion of the existing conservation area from 170,000 acres to 295,000 acres and the subsequent LWCF acquisition authority was authorized on January 5, 2011.

The expanded project area skirts along the eastern edge of the Crown of the Continent Ecosystem and is centered 65 miles northwest of Great Falls, Montana. Lying in the shadow of the rugged Continental Divide, the Bob Marshall Wilderness and Lewis and Clark National Forest mark its western boundary. The 1.5 million-acre Blackfeet Indian Reservation borders the project area on the north. The eastern boundary generally follows Highways 89 and 287 and is marked by a distribution of fescue grasslands. The southern boundary falls approximately along the watershed of the south fork of the Dearborn River.

To date, a total of 76,847 acres have been protected by the Service through conservation easements. The Service bought 31,479 acres with Migratory Bird Conservation Funds and 45,368 acres with the LWCF. Current activities include cooperation and partnerships with a variety of nongovernmental organizations to significantly leverage available Federal money to complete approved acquisitions within the project area. The conservation easement program is administratively managed by two permanent full-time positions located at the refuge complex headquarters facilities north of Great Falls.

The Rocky Mountain Front CA has been a successful model for partnerships with, and for connecting to lands already owned by, the State of Montana, TNC, the U.S. Department of Agriculture (USDA) Forest Service, the Montana Land Reliance, the

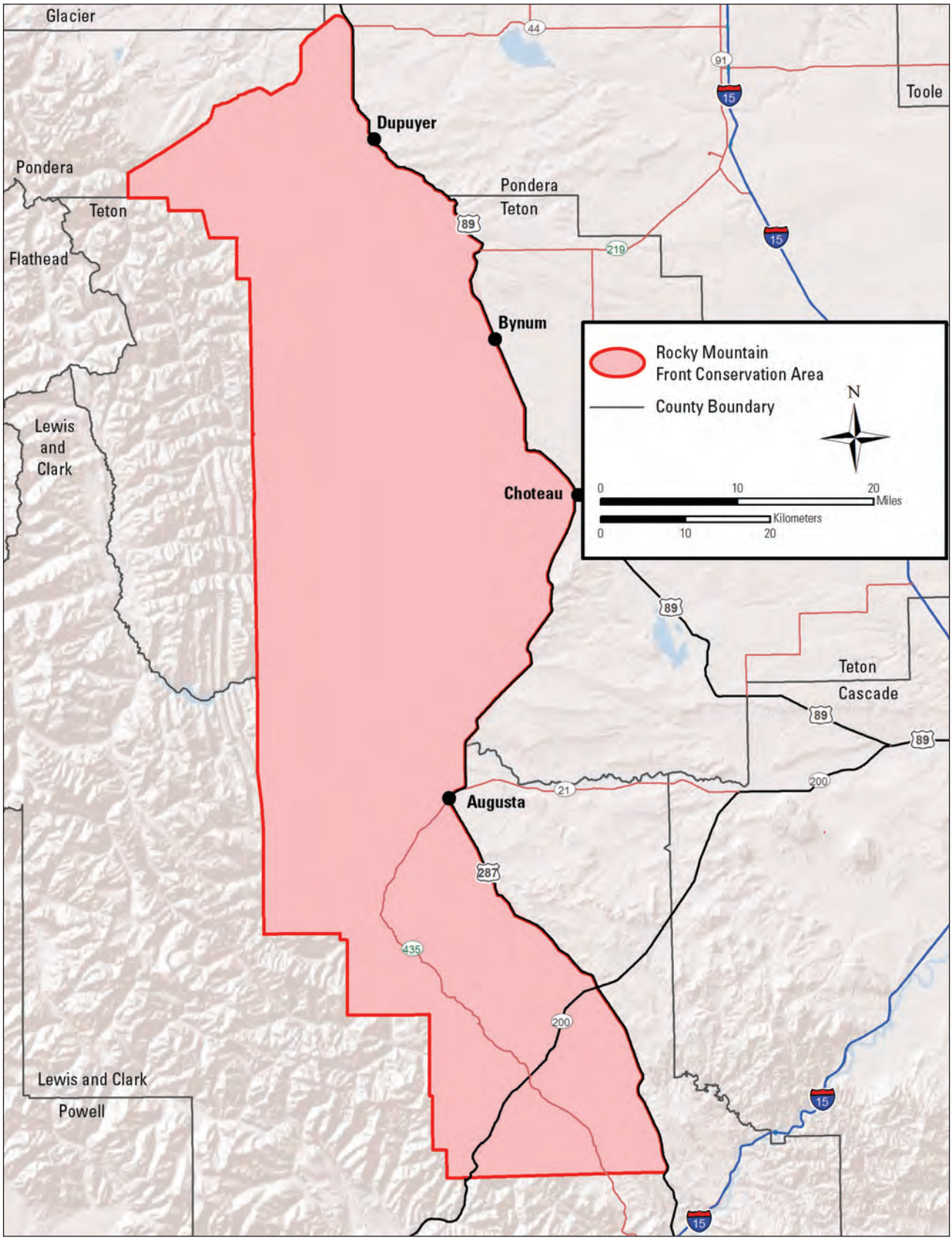

Figure 9. Map of the Rocky Mountain Front Conservation Area, Montana.

Boone and Crockett Club, and the Bureau of Land Management (BLM). In addition, local ranchers, business owners, and representatives of local governments have formed a landowner advisory council to find options and strategies for supporting ranching and rural lifestyles in the area. Conservation easements are a tool that they strongly support to conserve the ranching lifestyle along the Front.

Swan River National Wildlife Refuge

The Swan River Refuge is located in northwest Montana (figure 10), 38 miles southeast of the town of Creston, Montana, in the Swan Valley. The refuge was established on May 14, 1973, at the request of Montana Senator Lee Metcalf, who often hunted the area and who wanted to see it preserved. The refuge was established under the authority of the Migratory Bird Conservation Act. The 1,568.81-acre refuge lies within the flood plain of the Swan River above Swan Lake and between the Swan Mountain Range to the east and the Mission Mountain Range to the west. The Swan River Valley was formed when glacial water poured down the steep slopes of the Mission Range into Flathead Lake. The valley floor is generally flat, but rises steeply to adjacent forested mountain sides. Approximately 80 percent of the refuge lies within this valley flood plain. Deciduous and coniferous forests compose the remaining 20 percent. Swan River, which once meandered through the flood plain, has been forced to the west side of the refuge by past earthquakes and deposits of silt. These geologic events have created a series of oxbow sloughs within the refuge flood plain.

The refuge's objectives include providing waterfowl habitat and production and habitat for other migratory birds. It also provides nesting for bald eagles and a variety of other avian species. In addition, deer, elk, moose, beaver, otter, bobcat, black bear, and threatened species including grizzly bear, bull trout, and water howellia are known to inhabit the area. There are no significant human developments here aside from a small parking area from which one can access a kiosk and an overlook with interpretive panels.

When the refuge was under private ownership, it served as a cattle operation and, later, as a fur farm. Old ditches and dikes constructed during its private ownership have altered the hydrology of flooding events across the refuge. The degree of this alteration has yet to be decided but is being explored through new light detection and ranging (LIDAR) technology. Haying and grazing for habitat management have not been conducted in recent years. Finding willing cooperators is hampered by the distances farmers and ranchers need to travel to get to the refuge. Prescribed fire is still used as an alternate habitat management tool, however, concerns about the effects of burning on bull trout habitat, smoke management, and the U.S. Department of Agriculture (USDA) Forest Service inholding suggest the need for interagency planning, which may result in more challenging burns in the future.

Swan Valley Conservation Area

The Swan Valley is located on the western edge of the Crown of the Continent Ecosystem, approximately 30 miles southeast of Kalispell, Montana. The Bob Marshall Wilderness and Glacier National Park mark the eastern boundary, the Mission Mountains Wilderness and Confederated Salish and Kootenai tribal lands mark the western boundary, and the Blackfoot Valley flanks the southern side of the watershed. The project area encompasses an 187,400-acre landscape on the valley floor of the 469,000-acre Swan River watershed. The watershed contains about 332,000 acres in protected public ownership.

The Swan Valley CA (figure 11) was designated to help protect one of the last undeveloped, low-elevation coniferous forest ecosystems in western Montana. The Swan Valley is situated between the roadless areas of the Glacier National Park–Bob Marshall Wilderness Complex, the Mission Mountains Wilderness, and the Selway–Bitterroot Wilderness to the southwest. As such, it provides an avenue of connectivity between the Canadian Rockies and the central Rockies of Idaho and Wyoming.

From 2009 to 10, efforts were made to establish the conservation area after support for the establishment was received during CCP scoping meetings. Refuge staff completed a Preliminary Project Proposal in November 2009, which was approved on April 8, 2010. Detailed planning began in May 2010, including two public scoping meetings in Condon, Montana, on May 18 and June 2, 2010. A draft EA and land protection plan were released for a 30-day public review from July 26 to August 26, 2010. A finding of no significant impact was signed by the Service's Regional Director (Region 6) on September 24, 2010. The establishment of the conservation area and LWCF acquisition authority for up to 10,000 acres of conservation easements and up to 1,000 acres in fee title immediately next to the Swan River Refuge was authorized on May 18, 2011.

Due to its recent establishment, no easements or fee-title lands have yet been purchased within the Swan Valley CA. The conservation easement program is administratively managed by the refuge complex headquarters near Great Falls. If money

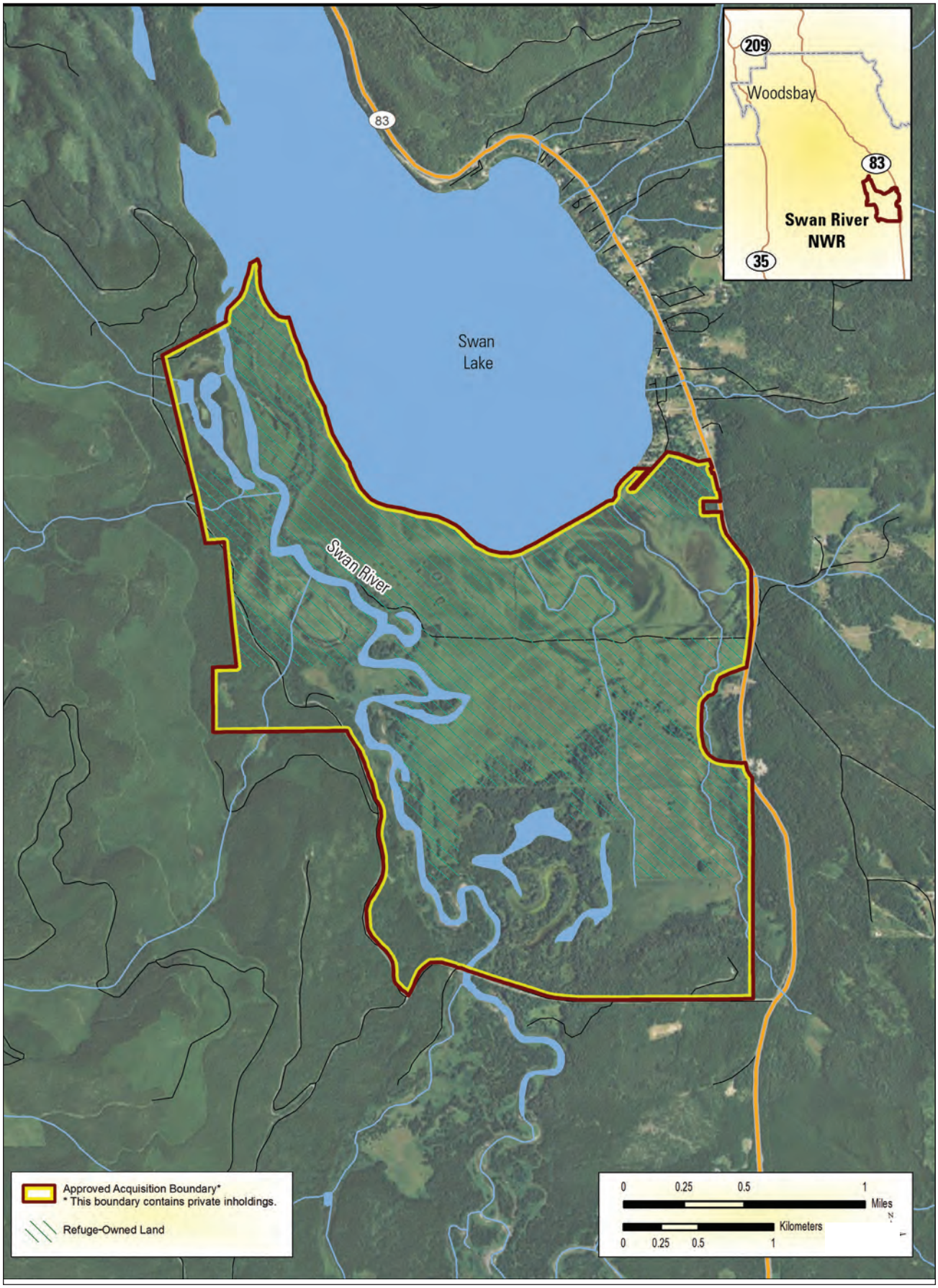

Figure 10. Map of Swan River National Wildlife Refuge, Montana.

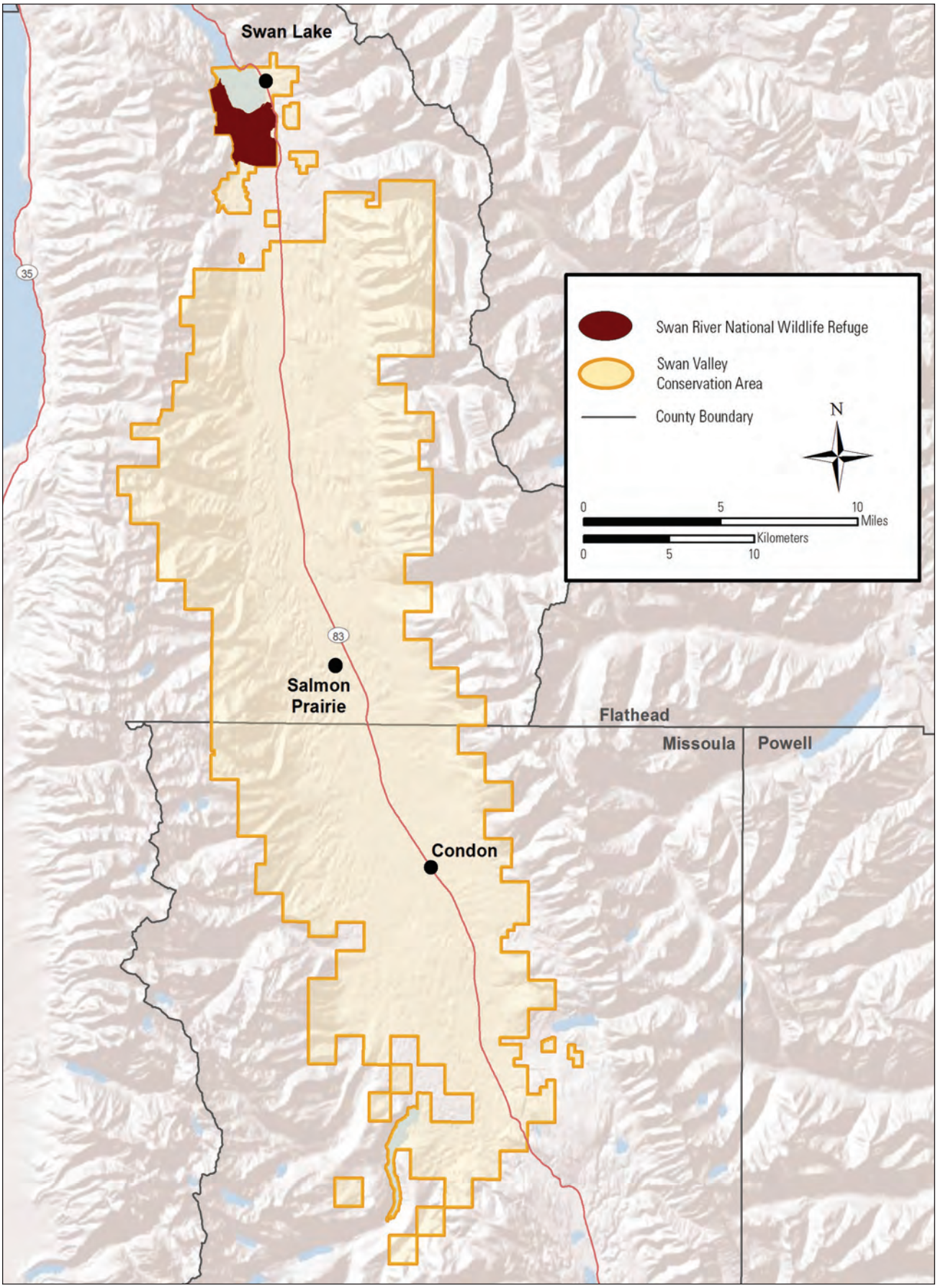

Figure 11. Map of the Swan Valley Conservation Area, Montana.

becomes available, the refuge complex will consider placing a full-time, permanent position within the valley to manage and administer the CA.

2.2 Purposes of the Refuge Complex Units

Every national wildlife refuge, wetland management district, and conservation area has a purpose for which it was established. This purpose is the foundation on which to build all refuge, district, and conservation area programs—from biology and public use to maintenance and facilities. No action undertaken by the Service or the public may conflict with this purpose. The refuge, district, and conservation area purposes are found in the legislative acts or Executive actions that provide the authorities to either transfer or acquire a piece of land for one of these units. Over time, an individual refuge or district 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 proposed in this CCP (chapter 4) are intended to support the purposes for which each refuge, district, and conservation area was established.

Benton Lake National Wildlife Refuge

The purposes of the Benton Lake Refuge are:

- As a refuge and breeding ground for birds (Executive Order 5228, dated November 21, 1929).
- For use as an inviolate sanctuary, or for any other management purpose, for migratory birds (Migratory Bird Conservation Act).

Benton Lake Wetland Management District

The purposes of the district are:

- As "Waterfowl Production Areas subject to all of the provisions of such Act [Migratory Bird Conservation Act] except the inviolate sanctuary provisions" (Migratory Bird Hunting and Conservation Stamp).
- For "any other management purpose, for migratory birds" (Migratory Bird Conservation Act).
- For "conservation purposes" (Consolidated Farm and Rural Development Act).

Blackfoot Valley Conservation Area

The purposes of the Blackfoot Valley CA are:

- For "conservation of the wetlands of the Nation to support the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions" (Emergency Wetlands Resources Act of 1986).
- For "the development, advancement, management, conservation, and protection of fish and wildlife resources" (Fish and Wildlife Act of 1956).

Rocky Mountain Front Conservation Area

The purpose of the Rocky Mountain Front CA is:

- For "the development, advancement, management, conservation, and protection of fish and wildlife resources" (Fish and Wildlife Act of 1956).

Swan River National Wildlife Refuge

The purpose of the Swan River Refuge is:

- For "use as an inviolate sanctuary, or for any other management purpose, for migratory birds" (Migratory Bird Conservation Act).

Swan Valley Conservation Area

The purpose of the Swan Valley CA is:

- For "the development, advancement, management, conservation, and protection of fish and wildlife resources" (Fish and Wildlife Act of 1956).

2.3 Vision for the Refuge Complex

A vision is a concept, including desired conditions for the future, which describes the essence of what the Service is trying to accomplish. The following vision for the refuge complex is a future-oriented statement designed to be achieved through refuge, district, and conservation area management throughout the life of this CCP and beyond.

The spirit of the American West resonates on both sides of the Continental Divide in the prairies, mountains, rivers, and wetlands of the Benton Lake National Wildlife Refuge Complex.

Here, migratory birds fill the sky, bull trout thrive, and grizzlies and wolves still roam. Visitors experience many of the same landscapes that Lewis and Clark explored on their journey through the "Crown of the Continent."

Conservation efforts in the refuge complex protect intact landscapes, manage productive habitats, and offer people opportunities to connect with wildlife in solitude under Montana's big sky.

These efforts rely on innovative public and private partnerships, are supported by the region's people, and harmonize with the historic rural economy.

2.4 Goals for the Refuge Complex

The Service developed a set of goals for the refuge complex based on the Improvement Act, the purposes of the refuge complex, and information developed during project planning. A goal is a descriptive, broad statement of desired future conditions that conveys a purpose, but does not define measurable units. The goals direct efforts toward achieving the vision and purposes of the refuge complex and outline approaches for managing refuge resources. The Service established seven goals for the entire refuge complex.

Landscape Conservation Goal

Actively pursue and continue to foster relationships within the Service, other agencies, organizations, and private partners to protect, preserve, manage, and restore the functionality of the diverse ecosystems within the working landscape of the refuge complex.

Habitat Goal

Actively conserve, restore, and manage upland and wetland habitats across the northern prairies and intermountain valleys of the refuge complex, through management strategies that perpetuate the integrity of ecological communities.

Wildlife Goal

Support diverse and sustainable continental, regional, and local populations of migratory birds, native fish, species of concern, and other indigenous wildlife of the northern prairies and intermountain valleys of northern Montana.

USFWS

Blackfoot Valley Conservation Area

Cultural Resources Goal

Identify and evaluate the cultural resources of the refuge complex and protect those that are found to be significant.

Visitor Services Goal

Provide opportunities for visitors of all abilities to enjoy wildlife-dependent recreation on Service-owned lands and increase knowledge and appreciation for the refuge complex's ecological communities and the mission of the National Wildlife Refuge System.

Administration Goal

Provide facilities, strategically allocate staff, and effectively use and develop sources of money, partnerships, and volunteer opportunities to support the long-term integrity of habitats and wildlife resources of the refuge complex.

Visitor And Employee Safety And Resource Protection Goal

Provide for the safety, security, and protection of visitors, employees, natural and cultural resources, and facilities throughout the refuge complex.

2.5 Special Values

Early in the planning process, the planning team and public identified the outstanding qualities, or special values, of the refuge complex. These special values are characteristics and features that make it special and valuable for wildlife. Identifying the special values of the refuge complex emphasizes its worth and makes sure that it is conserved, protected, and enhanced through the planning process. These special values can be unique biological resources, as well as something as simple as a quiet place to see a variety of birds and to enjoy nature.

Part Of A National System

The refuge complex is part of a national system of lands. In the 1920s, public agencies and private organizations attempted to elevate the public's awareness of wetland loss and to take positive steps to slow it. The Migratory Bird Conservation Act of 1929 authorized the Federal Government to acquire wetlands and associated uplands to conserve them as migratory bird habitat and thus to create a chain of stepping stones along major migration routes. The law also established a commission of Federal and State officials to evaluate lands for possible acquisition, and, in so doing, it established the National Wildlife Refuge System (Adair 2003).

Intact Landscapes

Some areas have the same composition of habitat and wildlife as they did 100 years ago. Refuge complex lands and waters are important corridors for birds, fish, and other wildlife.

Conservation Easements

The refuge complex's conservation easement programs protect existing native prairie areas and wetlands in perpetuity through the acquisition of grassland, wetland, and conservation easements on private lands. The Service, with willing private landowners, has protected more than 132,858 acres of grassland and wetland habitats throughout the refuge complex.

Intact Native Prairie

Large, intact native prairie communities can still be found throughout the refuge complex. Since approximately 50 percent of native grasslands have been lost in the PPPLCC's Prairie Pothole Region of Montana, the preservation of native prairie is extremely important (Ducks Unlimited 2003). Visitors to the refuge complex can experience the vastness and "big sky" of relatively undisturbed prairie landscapes. Native prairie areas are important to grassland-dependent species such as northern pintail, burrowing owl, chestnut-collared longspur, and Sprague's pipit as well as other species of concern. These wildlife species favor large expanses of native prairie and are sensitive to its development and conversion to agricultural uses.

Species Diversity

There is a high level of species diversity across the refuge complex, including migratory waterfowl, grassland birds, native trout, and "charismatic megafauna'" such as elk, gray wolf, and grizzly bear.

Diversity Of Water Features

A variety of waterbodies occurs within the refuge complex boundaries, including depressional wetlands, semipermanent wetlands, riparian corridors, and wild rivers. These wetland habitats serve many ecological functions as well as agricultural purposes.

Rare Species

Refuge complex lands harbor Federal and State species of concern. Threatened and endangered species include bull trout, grizzly bear, gray wolf, Canada lynx, and water howellia.

Migratory Birds

The lands of the refuge complex were established to protect and provide habitat for migratory birds that cross State lines and international borders, which are, by law, Federal trust responsibilities.

The refuge complex is of great value to waterfowl and shorebirds, as well as to other migrating, water-dependent bird species, because of the wide range of wetland and upland habitats that provide for the diverse life cycle needs of these species. Furthermore, the refuge complex has large, intact areas of native prairie that provide habitat for grassland birds, which is one of the most imperiled groups of migratory birds nationwide. In addition, the refuge complex serves as a valuable research site for the study of migratory birds, plant communities, and grassland and wetland management.

Cultural History

The refuge complex has a rich cultural history of Native American inhabitants, explorers, frontiersmen, outlaws, and early settlers. Evidence of early human occupation in the State of Montana dates back 11,000 years (Brumley 2006).

The Lewis and Clark expedition traveled extensively in the refuge complex on the Missouri River and in parts of the district and the Blackfoot Valley, Swan Valley, and Rocky Mountain Front CAs.

Public Use

The refuge complex is valued by hunters for its variety of hunting opportunities and by other visitors for its opportunities to view and photograph wildlife and their habitats.

The refuge complex attracts many visitors and tourist dollars to the communities surrounding the refuges and waterfowl production areas.

Rural Economies

The Service works closely with agricultural landowners in the surrounding communities and has an interest in preserving these working landscapes.

2.6 Planning Issues for Benton Lake National Wildlife Refuge Complex

Several key issues were identified following the analysis of comments collected from refuge complex staff and the public and through a review of the requirements of the Improvement Act and NEPA. Eight public meetings, news releases in the local and regional press, presentations to local agencies and organizations, 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 the formulation of the alternatives for future management. Key issues pertaining to the refuge complex are summarized below.

Climate Change

Climate change is anticipated, but there are many unknowns. The Service does not fully understand the effects that climate change will have on precipitation or temperatures, or the corresponding effects to habitat and wildlife species. The refuge complex's unique attributes—intact landscapes and diversity in terms of habitat and elevation gradient changes—put the refuge complex in a unique situation. The intact landscapes with functioning ecological processes are characterized by ecosystem resiliency and resistance and may be better suited for adapting to the extreme effects predicted by global climate change. For example, these relatively intact landscapes (the Rocky Mountain Front, Swan Valley, and Blackfoot Valley CAs) provide corridors for wide-roaming species and gradients for elevation migrations.

In areas of the refuge complex that are not as intact, such as the landscape around Benton Lake Refuge, managing to maximize resiliency and long-

term sustainability will become more critical with climate change.

Agricultural Conversion

Native prairies are being lost to agricultural tilling and plowing. These habitats are especially important for nesting migratory birds, including many shorebirds, waterfowl, and grassland bird species. Current and evolving Farm Bill Policy continues to make it profitable to convert native prairie into tillable land. This affects the Service's ability to protect these landscapes through easement programs.

The geographic area immediately east of the Rocky Mountain Front CA has been mostly converted to small grain production. However, within the CA, the presence of large cattle ranches, depressed grain prices, frequent high winds, and fragile soils has largely prevented grassland conversion in this area. Changes in global commodity prices or Federal farm policies, however, could quickly alter this situation.

Development

Due to increasing development pressure, many opportunities to protect habitat for wildlife may be permanently lost as these areas are used for residential, commercial, agricultural, and other purposes. Increased habitat fragmentation due to housing and associated road development is a threat to the refuge complex. The latest published statistics by the U.S. Census Bureau report that the State of Montana experienced a 9.7-percent increase in population from 2000 to 2010. Population change within the refuge complex varied, with Lake, Liberty, Missoula, and Lewis and Clark County experiencing the largest population growth rates of 5–15 percent. Cascade, Glacier, Pondera, and Toole Counties experienced moderate growth rates of 0–5 percent within the same period (U.S. Census Bureau 2011b).

In the Blackfoot and Swan Valley CAs, many new homes and resorts are "view properties" situated in low-elevation and midelevation forests, native grassland–sagebrush communities, and riparian habitats along major rivers such as the Blackfoot and Swan Rivers and their associated tributary streams. Along the Rocky Mountain Front, the demand for recreational property and the development of vacation home "ranchettes" has begun to spill over from western Montana and constitutes the single greatest threat to this ecosystem. In particular, the canyon mouths of the Dearborn, Sun, and Teton Rivers have become targets for several small recreational subdivisions.

Extractive industries such as coal mining and wind, oil, and gas development pose immediate threats to portions of the complex. In most instances, the Service does not own the subsurface mineral rights of the units in the refuge complex. In the district, renewed oil and gas exploration, in combination with new interests in wind development, has heightened the threat of accelerated fragmentation.

Invasive Plants, Nonnative Plants, and Noxious Weeds

The management of invasive plants, nonnative plants, and noxious weeds has been an issue throughout the refuge complex for many years.

Priority noxious weeds include spotted knapweed, leafy spurge, yellow and Dalmatian toadflax, common tansy, and tansy ragwort. Other nonnative grasses such as crested wheatgrass, reed canarygrass, Garrison creeping foxtail, Kentucky bluegrass, Japanese brome, and cheatgrass are also expanding rapidly on refuge lands. Nonnative grasses, forbs, and woody species are of concern because they can diminish the quality and suitability of habitat and reduce its potential to support many native wildlife species. Nonnative grasses often develop into a monoculture. Invasive species spread easily, replace native habitat, reduce diversity, and take a lot of time and money to control.

A large percentage of the Service's fee-title lands is comprised of nonnative grasses that should be replanted or restored to native species to provide optimal habitat conditions for wildlife. Shelterbelts of nonnative tree and shrub species were planted in Benton Lake Refuge and in several waterfowl production areas throughout the district where woody vegetation did not naturally occur. Whether or not these shelterbelts should be removed or supported needs to be evaluated.

The Blackfoot Valley has experienced the spread of nonnative plant species due to development and land use conversion. The Rocky Mountain Front has largely avoided the explosive spread of noxious weeds that has plagued much of western Montana over the past few decades. However, spotted knapweed and leafy spurge infestations have become established in the lower reaches of several riparian corridors. With plentiful sources in the region and limited government or private resources for control, the spread of noxious weeds into the area is a serious concern.

Loss of Ecological Processes

Natural fluctuations in water levels (seasonal flooding and drying), which are integral to a healthy functioning wetland system, have been altered at the Swan River Refuge. This is likely having a negative effect on health and long-term sustainability of the refuge complex's wetland habitat.

In addition, wetlands on and off of Service lands are susceptible to key stressors such as draining, sedimentation, alteration, pollution, and invasive species.

The use of fire and grazing to support native grasslands has declined. Grazing by cattle and prescribed fire mimic historical disturbance regimes once caused by the herbivory of bison and by lightning storms. Cattle grazing is used on approximately half of the waterfowl production areas within the refuge complex, however, livestock grazing does not occur on all units of the refuge complex.

The presence of USDA Forest Service lands within the refuge boundary complicates the Service's ability to conduct prescribed fires at the Swan River Refuge. Prescribed fires are critical for management to rejuvenate vegetation as well as to reduce litter and its associated fire hazard. Similarly, there is resistance to burning in populated areas due to safety concerns.

Water Quality

Elevated levels of selenium and salinity (as measured by high salinity concentrations) are present in the refuge complex and pose a threat to water quality. Many seepage areas exist in the refuge complex, especially surrounding the Benton Lake Refuge and across the district where native grasslands have been converted to agriculture. Both selenium and salinity, if their levels are high enough, can negatively affect wildlife, particularly their reproduction.

Wildlife Management

The refuge complex provides habitat for several wide-ranging carnivores of concern including the grizzly bear, Canada lynx, and gray wolf. Supporting the large landscapes that these species need is an issue for the refuge complex.

Protecting habitat and managing for a wide variety of migratory birds is a priority for the refuge complex. Waterfowl and other waterbirds, grassland songbirds, and riparian area-dependent birds are some of the highest priority groups. Grassland birds have experienced the most severe declines of any group of birds across the country.

© Randy Lakes

Sharp-tailed Grouse

Several wildlife diseases, such as botulism, West Nile virus, and chronic wasting disease, among others, are of concern within the refuge complex because of how they might affect human health, because there is a history of some disease occurrence in the refuge complex, or because new diseases may occur in the refuge complex.

Fisheries Management

Bull trout are known to occur within the part of the Swan River that flows through the Swan River Refuge. Northern pike (a nonnative fish species) migrates up Spring Creek and may be negatively affecting bull trout and waterfowl on the refuge. The refuge is closed to reduce the disturbance to nesting migratory birds during the pike spawning period, which prevents anglers from removing some of these fish.

Visitor Services

Visitor service programs and facilities to support the wildlife-dependent uses of hunting, fishing, wildlife observation, photography, environmental education, and interpretation are lacking throughout the refuge complex.

Some of the public are interested in more hunting opportunities on Service-owned lands. Others commented that there were too many hunters on some units, which has lowered the quality of their hunting experience. At Benton Lake Refuge, excessive vegetation, limited open water, and low-water levels were mentioned specifically as lowering the quality of hunting. Several comments suggested that significant management actions would be needed to improve conditions. Opening other parts of the

refuge to hunting that are normally closed while management actions were implemented on the current hunt units was also suggested.

One request was received from a commercial outfitter to conduct guided hunting on the Swan River Refuge. A formal evaluation was conducted, and it was found that this is not an appropriate refuge use. See chapter 4, "Section 4.6 Appropriateness and Compatibility," for more details.

Some people have expressed interest in fishing Spring Creek during the pike spawning run, but this would conflict with the Swan River Refuge closure intended to reduce disturbances to nesting migratory birds.

The public enjoys viewing wildlife on the refuges and waterfowl production areas. Opportunities throughout the refuge complex to expand the bird-watching experience for a wide variety of species has been requested.

The refuge complex is not meeting public demand for environmental education and interpretation programs. Expanding and updating these could enhance the public's knowledge of wildlife management issues and encourage support of the refuge complex, which would help wildlife populations in the future. There is some public confusion about which areas are open or closed and which uses are authorized or prohibited. Updated brochures, signs, and interpretive panels have been suggested to improve this situation.

Black-necked Stilt

Nonwildlife-Dependent Uses

On the Swan River Refuge, Bog Road was once believed to be county road. This four-wheel drive road has a history of being used for motorized recreation. The future administration of this road needs to be evaluated.

Another concern at the Swan River Refuge is noncompliance with a designated no-wake zone (boating) on the Swan River. The designation needs to be verified and enforcement efforts may need to be redirected to increase compliance and reduce wildlife disturbance.

Cultural Resources

Many of the cultural resource sites on the refuge complex are not adequately identified or protected, and it is likely there are many undiscovered sites.

Operations

Money and staff are not sufficient to fulfill the purposes and meet the goals of the refuge complex. The number of full-time equivalent positions (FTEs), a measure indicating the amount of available workforce, averaged 9.1 FTEs through the 1990s, and increased to an average of 10.80 during the last 10 years. Currently the refuge complex has 9.5 permanent FTEs, and 2 seasonal FTEs as money permits.

The refuge complex has grown from a single refuge with a moderately sized wetland management district in 1988, to two refuges, one wetland management district, and three conservation areas. This, coupled with the fact that several units are up to 5 hours away from the refuge complex headquarters, makes daily management and operations difficult to coordinate.

The refuge complex's organizational structure has also changed. It has come to house the following Service programs: Partners for Fish and Wildlife Program, regional invasive species program, zone law enforcement program, Refuge Inventory and Monitoring program, Montana Habitat and Population Evaluation Team (HAPET), and Montana realty program. Sharing across programs promotes the effective use of facilities and other resources, but it also creates administrative challenges.

Refuge complex staff need to identify, describe, and set priorities for unfunded needs in order to be able to compete effectively for money from the Service and from partners and other sources. Using creative partnerships and volunteers to supplement needs, although helpful, is not a complete, or always

reliable, solution. Visitor numbers and associated demands will increase in coming years. Given more resources, the Service could accomplish more of the goals and objectives described in this CCP.

Nomenclature

Naming the refuge complex after one refuge is confusing to the public. It was suggested that the Service change the name so that it better captures all of the lands of the refuge complex.

The name for Benton Lake Refuge also adds to confusion. "Lake" in the name implies a deep, permanent water source. Many visitors comment that (1) the refuge is not managed properly because the "lake" is dry; or (2) that certain lake-dependent recreational activities should be provided.

2.7 Planning Issues for Benton Lake National Wildlife Refuge

In addition to the planning issues identified for the refuge complex, several key issues were identified specifically for Benton Lake Refuge.

Adjacent Landowners and Land Uses

When private landowners keep their fields in grass through the Conservation Reserve Program (CRP), it helps to prevent the accumulation of salinity and selenium in seepage areas. This help may be lost if large areas currently in the CRP are converted to crops. It has been suggested by Refuge staff, the public, and interest groups that staff should consider working more with private landowners, particularly those surrounding the refuge, to build partnerships that improve water quality and reduce saline seeps.

Loss of Ecological Processes

Natural fluctuations in water levels, like seasonal flooding and drying, which is an integral part of a healthy, functioning, and self-sustaining wetland system, have been lost at the refuge. The most striking manifestations of the loss of fluctuating water levels and flooding intervals include: the domination of nonnative species such as Garrison creeping foxtail, the spread of monotypic stands of native and nonnative species that depend on stable water conditions (for example, cattail, alkali bulrush), lack of sediment solidification, increasing loss of open-water habitat, and the diversity of plant and wildlife species that result from dynamic water levels. However, there is uncertainty around whether or not dry periods need to be as long as occurred naturally or historically to restore and support wetland ecological health.

The functionality and productivity of wetlands are also related to the way water moves across the wetland and floods the basin. This water movement has been severely disrupted at the refuge. Instead of shallow sheet flow from Lake Creek across the wetland basin, the water is diverted into a distribution canal and flows first into deep ditches along the dikes, rather than spreading quickly across the basin, resulting in negative effects on sedimentation, selenium distribution, microtopography, vegetation, and invertebrate and seed availability for wildlife.

Declining Wetland Ecological Health

An absence of historical dry periods at the refuge to sustain wetland health is a concern. The altered source, depth, timing and duration of flooding affects contaminant and sediment loading and distribution and nutrient cycling. These changes are likely altering the type, distribution and biomass production of vegetation and invertebrates, which provide resources (for example, food, breeding habitat) required for wildlife to meet their life cycle needs.

In the years following the initial pump house construction and subsequent flooding of Benton Lake, the wetland basin was very productive, with tens of thousands of waterfowl, shorebirds and other waterbirds using the refuge. In recent years, however, refuge staff and the public have noticed significant declines in the number of waterbirds. Current estimates of waterfowl during the migration peak are at 10,000–30,000 birds, as compared to that 50,000–100,000 that was noted in the early years of refuge water management. Despite its designation as a Western Hemisphere Shorebird Reserve Network Site, the refuge rarely sees peak numbers of more than 500 shorebirds, according to refuge staff.

Water Quantity, Delivery, and Cost

Water management at the Benton Lake Refuge is a key issue for the refuge complex. The refuge's impoundments are intensively managed, with supplemental water transported across significant

distances at great financial cost. In recent years, the delivery and management of this water has cost as much as $135,000 annually. As costs for electricity have risen, so, too, have pumping costs. This has required reallocating money that would have been used for land management.

How best to use the water budget to maximize wetland health and migratory bird productivity needs to be addressed. How the refuge's water rights in Muddy Creek may be affected by changes in water management also needs to be defined.

Water Quality and Selenium Contamination

Selenium concentrations in the water, sediment, and biota of portions of the Benton Lake Refuge are currently at levels that can affect the reproduction of species that are particularly sensitive to it, such as waterfowl species. These levels have been increasing over the last 50 years, and, if they continue to increase, selenium could reach levels that cause reproductive failure in waterfowl and other waterbirds in some parts of the refuge in as little as 10 years.

The Sun River Watershed Group has been working to improve water quality in Muddy Creek, particularly by reducing sediment loading into the Sun River. They would like the refuge to continue withdrawing water, either through the pump house or a siphon, to help reduce flows in Muddy Creek.

Some interest groups identified a need for the refuge to continue to pump or siphon water from the Greenfields Irrigation District to dilute concentrations of contaminants like salinity and selenium that enter the refuge. The Service received several suggestions about the need to address selenium inputs from the Lake Creek watershed by working with landowners and partner organizations and to consider establishing a conservation easement program that includes the refuge, Muddy Creek, and Lake Creek watersheds. It was also suggested that working in the watershed should be a higher priority, and would be more effective, for improving water quality on the refuge than changes to management.

There may be more impairments to water quality from sediments, pesticides, and nutrient loading on the refuge that have not been studied.

Invasive Plants, Nonnative Plants, and Noxious Weeds

Nonnative grasses such as crested wheatgrass, Garrison creeping foxtail, Kentucky bluegrass, Japanese brome and cheatgrass are concerns on refuge lands. Several fields on the refuge are planted with nonnative grasses, which should be evaluated for replanting to native species to provide optimal habitat conditions for wildlife.

Shelterbelts of planted, nonnative trees and shrubs occur on the refuge where woody vegetation did not naturally occur. Shelterbelts were originally planted to increase wildlife diversity, but current research suggests that they increase predation and negatively affect imperiled grassland birds. Whether or not these shelterbelts should be removed or supported needs to be evaluated.

Wildlife Management

Managing the refuge to help a wide variety of migratory birds is a high priority. The public is also concerned about waterbirds such as white-faced ibis, black-crowned night-herons, and Franklin's gulls that use the refuge and depend on relatively deep, permanent water.

There is concern that the refuge wetlands should be flooded every year to provide wetland habitat for wildlife that compensates for other wetland habitat that has been drained or altered in Montana.

Botulism has been a problem in some of the refuge units in the past. Flooding Units 3–6 during late summer in hot, dry years has historically led to botulism outbreaks killing thousands of birds. Botulism needs to be considered in future management scenarios.

Hunting

In addition to hunters' concerns that the quality of waterfowl hunting at the refuge has declined significantly over the last several years, comments were received stating that the access for hunters with disabilities needs to be improved.

Wildlife Observation

The Benton Lake Refuge, because of its close location to the city of Great Falls, is especially valued by birdwatchers. The public has requested more opportunities to observe sharp-tailed grouse on their dancing leks, a very popular activity. Expanding birdwatching opportunities for a wide diversity of birds should be evaluated.