

# APPENDIX E. Analysis of Hunting Opportunities at Pierce, Franz Lake, and Steigerwald Lake National Wildlife Refuges

## Introduction

The National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 668dd et seq.) directs the Secretary of the Interior to recognize compatible, wildlife-dependent recreational uses as priority general public uses of the National Wildlife Refuge System (System), to provide increased opportunities for families to experience compatible wildlife-dependent recreation, and to ensure these uses receive enhanced consideration over other general public uses in planning and management for the System. Priority wildlife-dependent uses of the System, as defined by statute, are hunting, fishing, wildlife observation and photography, and environmental education and interpretation. The term ‘compatible use’ means a wildlife-dependent recreational use or any other use of a national wildlife refuge that, in the sound professional judgment of the refuge manager, will not materially interfere with or detract from the fulfillment of the mission of the National Wildlife Refuge System or the purposes of the refuge.

The purpose of this appendix is to summarize the detailed analysis of waterfowl hunting opportunities and anticipated impacts that the U.S. Fish and Wildlife Service (Service) completed as part of the development of the final Comprehensive Conservation Plan and Environmental Assessment (final CCP/EA) for Pierce, Franz Lake, and Steigerwald Lake National Wildlife Refuges (hereafter called Refuge or Gorge Refuges). Although not open to the public, the Service occasionally leads or authorizes tours and environmental education programs on the Gorge Refuges. In addition, certain public recreational uses of a dike trail along the Columbia River are allowed to occur at Steigerwald Lake Refuge. While this appendix is focused on evaluating opportunities to open the refuges to public hunting, the analysis took into consideration other existing and planned public uses of the Gorge Refuges. Where appropriate, these other uses are summarized below, with additional information available in the final CCP/EA and draft compatibility determinations.

## **Pierce Refuge**

### ***Refuge Establishment and Purposes***

Pierce Refuge is located in Skamania County, Washington, immediately west of the town of North Bonneville and two river miles east (upriver) of Franz Lake. The Refuge was established in 1990 when the Service received a donation of 319 acres from the landowner, Mrs. Lena Pierce, for “wildlife refuge, recreation or park purposes” (warranty deed). In donating the land to the Service, Mrs. Pierce requested that the Service administer the Refuge as an inviolate sanctuary and stipulated that hunting should not be allowed (U.S. Fish and Wildlife Service 1983). Following the death of Mrs. Pierce in 1988, the Service acquired the remaining 10 acres of private land within the approved Refuge acquisition boundary under the authority of the Fish and Wildlife Act of 1956.

### ***Determination***

Consistent with Refuge purposes and the wishes of the donor, the Service does not propose to open Pierce Refuge to public hunting.

## **Franz Lake Refuge**

### ***Refuge Establishment and Purposes***

Franz Lake Refuge is located in Skamania County, Washington, approximately ten river miles upstream from Steigerwald Lake Refuge. The town of Skamania is about one mile east of the Refuge boundary. The approved Refuge acquisition boundary encompasses approximately 695 acres, of which 552 acres (79 percent) has been acquired by the Service. The majority (82 percent) of the Refuge, including all of its palustrine and emergent wetland habitats, is located between State Route 14 and the Columbia River. The remainder of the Refuge, north of the highway, is primarily mixed deciduous and coniferous forest.

The Service established Franz Lake Refuge in 1990 under authority of the Fish and Wildlife Act of 1956. The purpose for establishing the Refuge is “to preserve biodiversity along the Columbia River by protecting diverse and now rare Columbia River floodplain wetland and riparian habitat and forested watershed buffer” (U.S. Fish and Wildlife Service 1990). Key resources targeted for protection and management include habitat for a variety of waterfowl, shorebirds, raptors, songbirds, anadromous fish, and furbearers. The Refuge provides important wintering habitat for tundra swans; as many as 1,000 have been observed on Franz Lake (U.S. Fish and Wildlife Service 1990). Other waterfowl, such as western Canada goose, mallard, northern pintail, gadwall, green-winged teal, northern shoveler, canvasback, and American widgeon are common. Cavity-nesting ducks, including wood duck, bufflehead, and common merganser, have also been observed. The Refuge provides abundant habitat for wading birds such as great blue heron and rail and songbirds. Mature cottonwoods along the forested margins of the lakes provide nest, perch, and roost opportunities for raptors. A

bald eagle nest on the Columbia River in the vicinity of the Refuge has been active for several years.

### ***Public Access***

A gravel road provides the only vehicle access onto the Refuge from State Route 14. A section of the road is privately-owned. The Service has an easement agreement with the property owner to use the road for administrative purposes. Under this agreement, the Service cannot permit public use of the road across private property.

### ***Feasibility and Potential Impacts of Opening Refuge to Hunting***

Franz Lake Refuge was established to protect diverse and rare Columbia River floodplain wetland habitat. In addition to providing one of the few remaining wetlands connected to the Columbia River, it provides critical roosting and foraging habitat for wintering tundra swans which use the extensive wapato beds on the most biologically significant 80 acres of Franz Lake. Adjacent Arthur Lake consists of a seasonally small perennial stream through its 50 acres of poorer quality reed canarygrass wetlands; water elevations increase in late winter when the Columbia River rises due to precipitation and subsequent increased water releases from Bonneville Dam. A hunting program in either of these small areas would prevent the Service from adequately protecting trust resources and, therefore, from achieving the purpose for the establishment of this Refuge.

Under the existing easement, the public is prohibited from using the only road that enters the Refuge. Nonmotorized boat access onto the Refuge from the Columbia River may be possible at certain times of the year; however, access into Arthur Lake and Franz Lake would be difficult and unreliable. There is no existing boat dock or designated launch on the Refuge or nearby on the Columbia River. Provisions of the Management Plan for Columbia River Gorge National Scenic Area (U.S. Forest Service 1992) prohibit new structural developments or intensive recreation in the Franz Lake area. The Refuge is within the Special Management Area (SMA) with Open Space designation and River Bottomlands landscape setting. This combination of a SMA Open Space designation with a River Bottomlands landscape setting leads to the highest visual standard of “not visually evident.”

### ***Determination***

The Service does not propose to open Franz Lake Refuge to waterfowl hunting. Franz Lake is too small (maximum 80 acres) to provide a waterfowl hunting program that would not materially interfere with or detract from the fulfillment of Refuge purposes. Further, the existing road easement onto this Refuge is restricted to administrative and management purposes. Boat access onto the Refuge from the Columbia River during the hunting season would be unreliable. Given limited public access and restrictions on construction of boat launches and docks on the Columbia River shoreline at Franz Lake Refuge, implementation of a waterfowl hunting program with the current landbase is not currently feasible.

## **Steigerwald Lake Refuge**

### ***Refuge Establishment and Purposes***

Located adjacent to the town of Washougal, Washington, Steigerwald Lake Refuge was established to partially fulfill U.S. Army Corps of Engineers (Corps) obligations to mitigate for the impacts to fish and wildlife resulting from the construction of a second powerhouse at the Bonneville Dam on the Columbia River and relocation of the town of North Bonneville (U.S. Army Corps of Engineers 1985; U.S. Fish and Wildlife Service 1987). Completed in 1983, the construction project resulted in the loss of approximately 1,122 acres of fish and wildlife habitat on the Washington side of the Columbia River (U.S. Fish and Wildlife Service 1982). Among these losses were 42 acres of lakes, ponds and sloughs and 184 acres of pasture. The pastures were highly rated (Habitat Suitability Index value = 0.7) for Canada goose habitat (U.S. Fish and Wildlife Service 1982). Legislation (P.L. 98-396, Sec. 303a) authorized the Corps to acquire not more than one thousand acres in the Steigerwald Lake Wetlands Area “for the fish and wildlife mitigation purposes associated with this project” (i.e., the Bonneville Dam second powerhouse). The Corps acquired the 600-acre Stevenson tract in 1988 and subsequently transferred it to the Service for inclusion in a wildlife refuge. The Service accepted the property under authority of the Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j) and the Emergency Wetlands Resources Act of 1986 (P.L. 99-645; 100 Stat. 3582). However, the Service determined it would need to acquire an additional approximate 596 acres adjacent to or near the Corps acquired mitigation lands to form a viable national wildlife refuge (U.S. Fish and Wildlife Service 1987). Refuge acquisition boundaries were established to provide a buffer area needed to isolate wildlife from areas of intensive human activity, as well as to enhance the area for waterfowl and other wetland species that require the formation of wetland impoundments that can be flooded. Acquisitions within the approved boundary would ensure that private property would not be negatively affected by these Refuge management activities. In addition, once developed, the Refuge would be open for public use and recreation, according to Service regulations and policy.

In the 1990s, the Bonneville Power Administration purchased approximately 326 acres of private land within the Refuge’s approved acquisition boundary and transferred these properties to the Service “for the protection, mitigation, and enhancement of wildlife and wildlife habitat that has been adversely affected by the construction of Federal hydroelectric dams on the Columbia River or its tributaries” (Bonneville Power Administration 1996a, 1996b, 1999). The habitat units gained from the protection of these lands were credited to BPA’s mitigation obligation for the construction of Bonneville Dam. Habitat Units were projected to increase by 79 percent over the next 15 years with improvements to the properties for fish and wildlife.

### ***Refuge Inholdings***

To date, the Service has acquired approximately 1,049 acres of the 1,406 acres (75 percent) within the approved Refuge acquisition boundary (Figure 1). The largest

remaining parcel of private land, approximately 290 acres, is adjacent to the east end of the Refuge. This parcel represents approximately one-half of the lands the Service determined in 1987 that it needed to add to the Corps acquired mitigation lands to form a viable refuge (U.S. Fish and Wildlife Service 1987). Water elevations in the Refuge's wetlands are managed to ensure grazed pastures within the adjacent private land are not inundated. Given this constraint, the Refuge is currently unable to manage for optimum water levels. Acquisition of private inholdings would allow the Service to actively flood a larger portion of the historic Steigerwald lakebed without negatively affecting adjacent private property, restore wetland and riparian vegetation, provide additional winter forage for Canada geese, and to restore remnant native grassland vegetation. Opportunities for appropriate public uses of the Refuge, including waterfowl hunting, would likely also change if the Refuge is fully acquired.

### ***Current Public Refuge Uses: Columbia Dike Trail***

A 5.5-mile long flood control levee separates the historic Steigerwald Lake floodplain from the Columbia River. Constructed in 1965-1966 by the Corps, the dike marks the south boundary of Steigerwald Lake Refuge. The Port of Camas/Washougal (Port) owns a grant of easement for the dike with a perpetual right to maintain, repair, operate, and patrol the dike and its appurtenances for flood protection. There is a gravel surface road, measuring 12 to 15 feet wide, on top of the dike and extending its full length. The Port controls vehicle access onto this road. A 3.6-mile long section of road (between Steamboat Landing and the east boundary of the Refuge) is commonly referred to as the Columbia River Dike Trail (Dike Trail; see Figure 1). Approximately 2.5 miles of the Dike Trail are on the Refuge.

Public recreational uses of the Dike Trail that had been occurring prior to Refuge establishment continue on the section of trail that crosses Service-owned lands. Current estimates of public use indicate that during peak use as many as 30 people use the trail at one time (Dugger 2003). On average, about 10 people (based on 75 surveys; range one to 30 people) can be observed using the trail at one time. Most of this use consists of hikers, bicyclists, and joggers. Dogs are often observed with these users, with about 43 percent of the dogs observed off-leash. Horseback riding also occurs on the Dike Trail, but this use is limited by the size of the parking area for horse trailers on Port property adjacent to the Refuge. When the parking area is full, three to ten horses can be expected to be using the Dike Trail. This amount of use rarely occurs; Dugger (2003) not once observed a horse on the Dike Trail in 75 surveys.

Impacts to wildlife habitat and wildlife disturbance resulting from these existing uses of the Dike Trail are minimal and are considered part of the baseline conditions for this analysis. The dike road is designed for intensive use by heavy equipment, and levee side slopes are kept free of shrubs and tall vegetation. Public recreational uses of the Dike Trail result in minimal additional impacts to vegetation, soils, and local hydrology. Wildlife may be disturbed by the presence and activities of trail users. The magnitude of the response depends in part on the distance, the movement pattern of the disturbance, and the animal's access to cover (Gabrielsen and Smith 1995). The dike's location at the

edge of the Refuge protects the "heart" of the Refuge. Public uses are limited to the dike surface which is set back from the fields along the Refuge's south boundary. Primary foraging areas for Canada geese are located 400 feet or more from the Dike Trail, providing a buffer from recurring human disturbance. Further, riparian forest and old-field vegetation buffer the goose foraging areas and provide visual and physical barriers from recreationists.

***Planned Refuge Public Uses: Gateway Center and Interpretive Trail***

Steigerwald Lake Refuge is situated at the west entrance to the nationally recognized Columbia River Gorge National Scenic Area. Washington State Route 14, a State Scenic Byway, parallels the Refuge, providing outstanding views of the Refuge and Scenic Area. To encourage scenic appreciation opportunities on this travel corridor, the Scenic Area Management Plan (U.S. Forest Service 1992) proposed a public facility at Steigerwald Lake Refuge, combining the functions of a Refuge office and interpretive and education facility with those of a "gateway" facility. The location for the Gateway Center proposed in the management plan was on the northern edge of the Refuge, just south of the Burlington Northern Railroad's crossing under State Route 14. The management plan also recommended that a trail be developed from this facility to the Columbia River Dike, using an existing gravel road. At the river, the trail would link to the Columbia River Dike Trail which would provide visitors with access to Cottonwood Beach at the Refuge's west boundary, and, in the future, with access to public recreation opportunities planned for Forest Service lands at the Refuge's east boundary.

The area proposed as the location for the Gateway Center was later determined by the Service to be unacceptable due to the loss of wildlife and habitat from the development and use of the facility and interpretive trail. At the Service's request, the Scenic Area Management Plan was amended in 1999 to move the proposed site west to a location adjacent to Gibbons Creek (Figure 1). The concept of an interpretive trail linking the Gateway Center to the Dike Trail was retained, routing the trail along the existing elevated channel of Gibbons Creek (Figure 1). In 1999, the Service approved construction of an interpretive kiosk and Gateway Center at the new location (U.S. Fish and Wildlife Service 1999). Construction ready plans for the facilities were completed in 2001. Subject to availability of appropriated funding, the Service will construct these facilities.

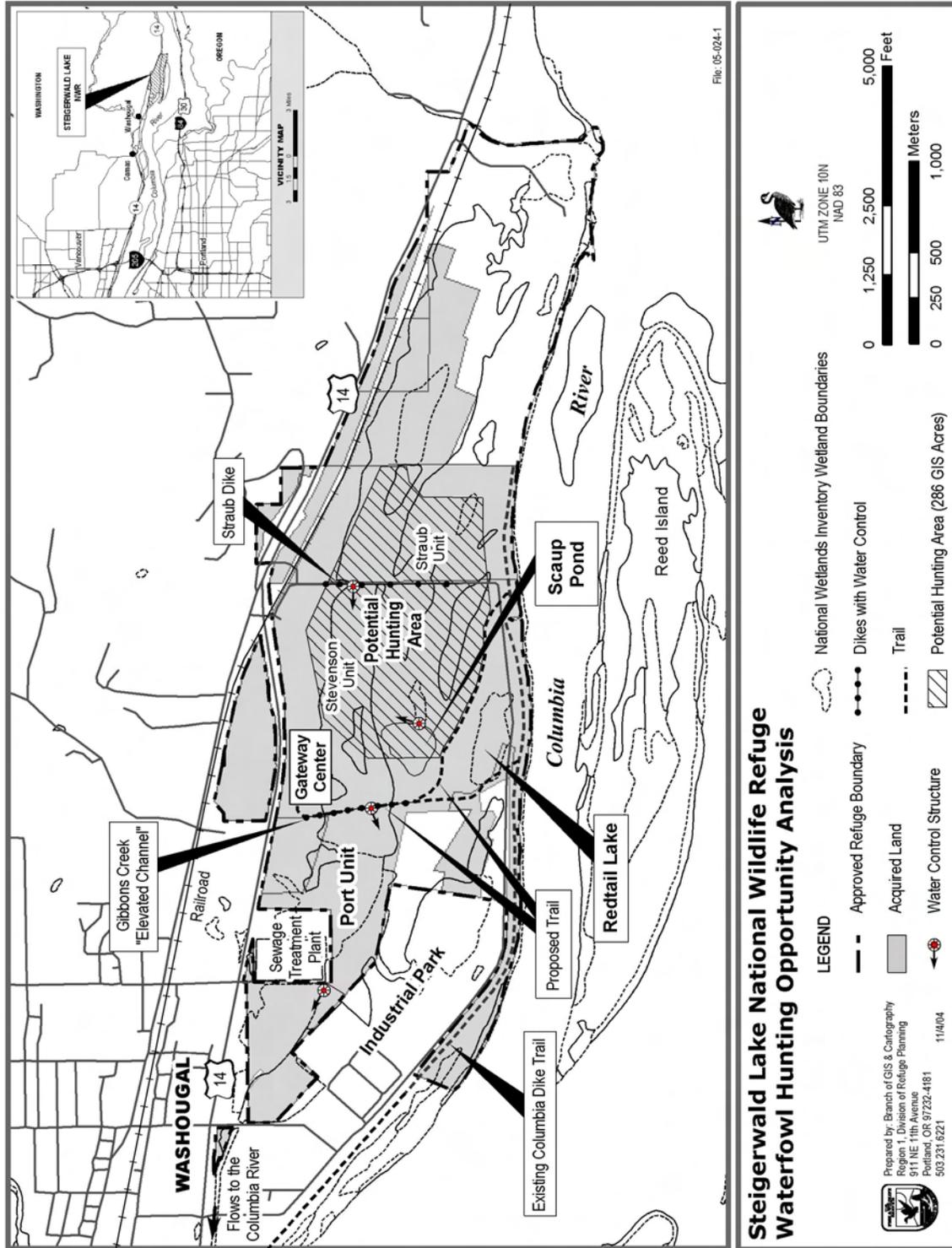
The Service analyzed the anticipated impacts resulting from construction and operation of the proposed facilities on fish and wildlife (U.S. Fish and Wildlife Service 1999). Disturbance to wildlife will be reduced by 1) routing the trail below the elevated Gibbons Creek channel, 2) imposing a seasonal closure (October 1 through April 30) of the east fork trail, 3) restricting use to walking only, prohibiting dogs and other domestic animals on the trail, 4) restricting all users to the trail, and 5) by conducting public interpretation and education. With these stipulations in place, wildlife observation and photography, and environmental education and interpretation at the Gateway Center and on the interpretive trail and Dike Trail have been found to be compatible uses of the Refuge.

### ***Waterfowl Hunting Opportunity Study Area***

For purposes of this analysis, safety buffers 300 yards in width were proposed around existing and planned public-use areas and 250 yards in width along the railroad corridor and along the private land boundary. To ensure public safety, these buffers are proposed based upon the level or frequency of non-hunting uses in the buffer area and the range of shot commonly used for hunting ducks and Canada geese. At nearby Ridgefield National Wildlife Refuge, hunters commonly use size four or larger shot. The maximum range of size four lead shot is 286 yards (Davis 1981).

The area considered safe for waterfowl hunting is approximately 286 acres in size and is located at the center of the Refuge (Figure 1). The Straub Dike bisects this area in a north-south direction. Habitat types include approximately 108 acres of open-water/wetlands and 178 acres of grasslands. Grasslands include “managed fields” (141 acres) and "old fields" (37 acres). Vegetation in managed fields is maintained in a palatable condition for Canada geese through mowing and grazing. Old fields are former pastures no longer regularly mowed or grazed but occasionally treated for weeds. The wetlands consist of seasonal and semi-permanent wetlands (16 acres) and wet meadow (83 acres). The primary water supply for wetlands is rainfall. The predominant species of plant in the wet meadows is invasive reed canarygrass.

Fifteen species of waterfowl regularly utilize the Refuge including Canada geese, mallard, shoveler, green-winged teal, and wood ducks. Canada goose utilization of Steigerwald Lake consists predominantly of cackling Canada geese and western Canada geese with an average population of 2,000 birds, though this number varies significantly throughout the season. Cackling Canada geese are the most abundant subspecies at Steigerwald Lake Refuge, generally present from October through April. They prefer large open fields and feed in large flocks thus leading to depredation complaints in the lower Columbia River region.



### ***Potential Disturbance from Waterfowl Hunting at Steigerwald Lake Refuge***

Within the waterfowl hunting opportunity study area, a limited access, limited duration hunting program on current Refuge lands was evaluated. This included 108 acres of wetland suitable for duck hunting and 141 acres for goose hunting. It should be noted, however, that about 75 percent of these wetlands typically lack sufficient surface water to attract waterfowl during the first two months of the waterfowl hunting season. Thus, approximately 25 acres of wetland may be available and suitable for waterfowl hunting at the start of the season.

Waterfowl have varied responses to disturbance depending upon many factors (duck species or goose subspecies, season, and type and intensity of disturbance). Hunting is a type of disturbance that can alter the distribution, abundance, and diversity of waterfowl on a local basis (Knight and Cole 1995). The impacts of waterfowl hunting on national wildlife refuges are commonly reduced by providing alternate foraging and roosting sites (sanctuaries) on other refuge wetlands. Sanctuaries provide areas that enhance the use of adjacent areas by holding more birds closer to a hunting area (Havera et al. 1992; Bias et al. 1997). Sanctuary size and shape must ensure birds are free from the effects of external disturbance. The most desirable size for refuges along migration routes of waterfowl is dependent upon many factors: shape of the body of water, whether or not shooting is conducted on part of the area, degree of protection on surrounding lands, and distance from other refuges (Bellrose 1954). At Steigerwald Lake Refuge, impacts to waterfowl caused from hunting would not be easily mitigated for the following reasons.

Steigerwald Lake Refuge provides important wetland habitat in a region that has experienced extensive habitat loss. Over one-half of the historic riverine wetlands in the lower Columbia River below Bonneville Dam have been lost or substantially degraded as a result of diking, draining, filling, dredging, and flow regulation (Christy and Putera 1993). Steigerwald Lake Refuge was established as partial mitigation for wildlife habitat adversely affected by the construction of Federal hydroelectric dams on the Columbia River or its tributaries in the state of Washington. Urban development has resulted in additional impacts to fish and wildlife habitat. The most notable habitat changes have occurred in the vicinity of the Portland/Vancouver area (Tetra Tech 1996). Between 1948 and 1991, urban development along the Columbia River between Vancouver and Bonneville Dam removed approximately 3,678 acres of wetlands/marsh habitat and 2,835 acres of agricultural land. Today, Steigerwald Lake Refuge is among the most significant protected wetlands remaining in the area.

Most of the Refuge's wetlands suitable for ducks occur within the main lakebed on the Stevenson and Straub Units (Figure 1). The suitable hunt area would encompass approximately 50 percent of the highest quality wetland habitat. These wetlands provide the best seasonal emergent wetlands for waterfowl foraging. Disturbance from hunting would re-distribute ducks into the least productive refuge wetland habitats, adjacent private and public lands or riverine habitats.

### ***Determination***

The Service does not propose to open Steigerwald Lake Refuge to waterfowl hunting at this time. Approximately 50 percent of the Refuge's very limited high quality wetland habitat, as well as the primary use areas for Canada geese, would have to be used to provide a limited hunting program that is sufficiently buffered from other public uses. Waterfowl use of the Refuge would be measurably reduced on hunt days due to the small size and limited amount of available sanctuary on the Refuge. Because the purpose for the Refuge is to mitigate for losses of lakes, ponds, sloughs, and pastures along this stretch of the Columbia River, all of which provide important waterfowl habitat, opening the Refuge to hunting within the current landbase would not achieve Refuge purposes, goals, and objectives and would materially interfere with or detract from the fulfillment of Refuge purposes.

The largest remaining parcel of private land, approximately 290 acres, within the approved acquisition boundary is adjacent to the east end of the Refuge (Figure 1). This parcel represents approximately one-half of the lands the Service determined in 1987 that it needed to add to the Corps acquired mitigation lands to form a viable refuge (U.S. Fish and Wildlife Service 1987). Water elevations in the Refuge's best foraging habitat for ducks are currently managed to ensure that cattle-grazed pastures within the adjacent private land are not inundated. If a waterfowl hunt program were to be established, it would be necessary to maintain a spacing of at least 300 yards between blinds, private interests, and other public uses to avoid hunting-related safety incidents. Given these constraints, the Service is currently unable to manage for water levels which would provide sufficient habitat area for both a hunt program and sufficient waterfowl sanctuary that would enable the Service to meet Refuge purposes.

To further evaluate the possibility of providing a hunt program on the Refuge, the Service will meet with the adjacent landowners to discuss joint habitat management options (see CCP Objective 5.5). Landowner discussions may include hunting or water flowage easements, land management agreements, acquisition, and inclusion into the Washington Department of Fish and Wildlife's private lands hunter access program. This would provide the Service with the ability to actively flood a larger portion of the historic Steigerwald lakebed and restore additional wetland and riparian vegetation. In addition to habitat improvements, opportunities for appropriate public uses of the Refuge, including waterfowl hunting, could also be possible. These actions may allow the Service to provide both a hunt program and enough waterfowl sanctuary to meet Refuge purposes.

The Land Protection Plan for Steigerwald Lake Refuge (CCP Appendix L) describes conceptual management of Refuge and private lands owned within the Steigerwald Lake Refuge acquisition boundary should the Service acquire ownership of or management interests in inholdings within the next 15 years.

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