APPENDIX H: WILDERNESS REVIEW

H.1 INTRODUCTION

H.1.1. POLICY AND DIRECTION

U.S. Fish and Wildlife Service policy (Sec 602, also Sec 610 of Refuge Manual) requires wilderness reviews to be completed as part of the Comprehensive Conservation Planning process. When a Refuge is in the process of acquisition planning, (adding to an existing refuge), a preliminary inventory of wilderness resources of the proposed unit(s) is also required to be completed.

A wilderness review is the process we use to determine whether or not we should recommend NWRS lands and waters to Congress for wilderness designation. The wilderness review process consists of three phases: inventory, study, and recommendation. The inventory is a broad look at the Refuge and acquisition lands to identify lands and waters that meet the minimum criteria for wilderness. All areas meeting the criteria are classified as wilderness study areas (WSAs). If WSAs are identified, the review moves on to the study phase.

During the study phase, WSAs are further analyzed for all values (ecological, recreational, cultural), resources (wildlife, water, vegetation, minerals, soils), and uses (management and public) within the Wilderness Study Area. The findings of the study determine whether or not the WSAs merit recommendation from the Service to the Secretary for inclusion in the Wilderness System.

If it is determined during the inventory that no areas qualify as WSAs or if we conclude from the study that we should not recommend any areas as wilderness, we prepare a brief report that documents the unsuitability of the lands and waters for wilderness study or recommendation. The report is submitted to the Director of the Fish and Wildlife Service.

B. Previous Wilderness Review at Turnbull

In 1973, a wilderness study review was conducted for the Turnbull NWR, which at that time measured 17, 171 acres (including leased areas). The study was completed with substantial public involvement (the mailing list numbered in the hundreds with officials and individuals represented in most of the fifty states) and a public hearing were conducted to review the results of the study. The study recommended that no portion of the Refuge be then recommended for wilderness designation.

H.2 WILDERNESS INVENTORY

H.2.1 CRITERIA FOR LANDS TO BE IDENTIFIED AS FOR POTENTIAL INCLUSION IN THE NATIONAL WILDERNESS PRESERVATION SYSTEM

The Wilderness Act of 1964 (Public Law 88-577; Section 2(c)) provides the following description of wilderness:

> "*A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval*

character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions..."

Criteria for identifying areas as wilderness are described further on in Section 2(c) of the Act, and are elaborated upon in draft Service wilderness management policy. As quoted from the draft Service policy, the area must:

a. Be affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable.
b. Have outstanding opportunities for solitude or a primitive and unconfined type of recreation.
c. Have at least 5,000 contiguous acres (2,000 ha) or be sufficient in size as to make practicable its preservation and use in an unimpaired condition, or we could restore the wilderness character through appropriate management, at the time of review.
d. Not substantially exhibit the effects of logging, farming, grazing, or other extensive development or alteration of the landscape, or we could restore the wilderness character through appropriate management, at the time of review.
e. Be a roadless island.

H.2.2 Lands Considered Under This Wilderness Review

All Refuge-owned lands within the Turnbull NWR current approved boundary were considered during the inventory of wilderness areas. In addition, we also considered all lands within the Study Area for Refuge expansion. This is consistent with current policy.

H2.3 Status, Condition, and Use of Lands Considered

Habitats and Biological Resources

Chapter 3 of the CCP provides a detailed description of the key habitats and biota found on the Refuge. In general, there are four major habitat types: coniferous forest, aspen/riparian forest, grassland steppe, and wetlands. The juxtoposition of these four types in close proximity creates conditions for exceptional biodiversity on the Refuge.

Although detailed surveys of habitats and biota have not been completed for lands located within the Study Area, an analysis of aerial photos, U.S. Geological Survey maps, and National Wetland Inventory data provide compelling evidence that the habitats and their condition are similar to those found on the Refuge. We believe that many of the same species found at the Refuge inhabit the Study Area.

Land Management Practices

History: The Channeled Scablands ecosystem was inhabited by the Spokan people. The area is thought to have had largely transient, seasonal use for hunting and plant processing (see Cultural Resources section in Chapter 3 for more detail). European-American settlement began in the 1870s; and approximately 60 homesteads were established on the area that the Refuge now occupies. The early settlement years were a period of dramatic modifications in the Channeled Scablands ecosystem, including the area now designated as Refuge. Early settlers exploited the forests, logging the majority of the native large ponderosa pine. Upland soils were rocky, thin, and generally unsuitable for agriculture, so early settlers determined to utilize the bottomlands for farming. To facilitate these efforts, an extensive ditch drainage network was dug throughout the area, and the majority of the area's lakes and

wetlands were drained by the 1930s. Early settlers tried to grow hay and grain in the bottomland soils, but met with recurring problems. The drained bottomlands proved less hospitable for agriculture than settlers had hoped, and they generally abandoned cropping in favor of hay production and grazing on the former wetlands. Grazing also occurred on the adjacent uplands.

Other changes accompanied these settlement-induced modifications. Fire, a key natural disturbance, was for the most part suppressed. Exotic species were introduced both intentionally and accidentally.

It was not until 1937 that the Refuge was established as a wildlife Refuge and much of the current Refuge remained in private land ownership for many subsequent years until monies were available to acquire the land.

Current and historical practices in Study Area: The stage for a more industrial, extractive type of human development was set over a hundred years ago, and extractive management still drives most private land use within the study area. Though the Study Area possesses a rural, natural feel and appearance compared to an urbanized area, it is rife with evidence of human-induced changes to the natural ecosystem and landscape. These changes are a direct result of land management practices and settlement. Where forested stands exist, they show the effects of long-ago logging primarily by the size and spacing of the regenerated forest. Few large old trees are left. In some parts of the Study Area, logging of second growth timber has taken place as well.

The grassland/steppe areas are managed primarily as cattle ranches. Livestock grazing on the local steppe vegetation spurs a number of vegetative and soil changes that are evident within the Study Area. Undisturbed steppe areas are characterized by a cryptogramic soil crust comprised of numerous moss and lichen species. These small inconspicuous crust-associated species are thought to play a critical role in nutrient cycling, germination, and survival of native plant species. Unfortunately this crust is very fragile and susceptible to loss through trampling, frequent fire, and excessive accumulation of litter. Grazing has caused soil disturbance, degradation of these crusts and initiated conditions ripe for the introduction and establishment of non-native grasses and forbs. In addition, fences dissect portions of the study area.

Former wetlands have not been restored, and for the most part, spring snowmelt and precipitation runs off through the regional drainage system, rather than remaining in the wetland basins. Of the 8,028 acres of wetlands within the Study Area, 60 percent are drained annually. The drained wetlands continue to serve as summer foraging areas for cattle.

Historical practices on the Refuge: After Refuge establishment in 1937 by Executive Order, the primary focus of habitat management was waterfowl. Early managers focused on restoring wetlands that had been drained and grew grain crops for migratory waterfowl. In later years, management emphasis moved from restoration to enhancement, the goal always being to produce or maintain as many waterfowl as possible. Enhancement involved creating additional semi-permanent wetland habitat for breeding diving ducks, especially redheads. Spoil removed when deepening the marshes was used to create numerous nesting islands for upland nesting ducks. Habitat manipulation for redheads involved deepening seasonal and temporary marshes and increasing the interspersion of open water to emergent vegetation with heavy equipment. Although the Refuge wetlands now present a largely natural appearance, the largest are in fact highly managed with the use of water control structures. In addition, the domination of reed canarygrass in the meadows is not natural, but few recognize this type of disturbance.

The uplands were also a focus of management, but here the management emphasis was more focused on direct human benefit. Until fairly recently, the Refuge itself was managed for a variety of extractive

uses, including grazing, haying, trapping, and timber extraction, continuing the pattern of extraction and development initiated by the early settlers. Some of these practices were directed at improving wildlife habitat but others were undertaken primarily for maintaining goodwill with the local community and provision of economic benefits.

After the Refuge was established in 1937, grazing was stopped for a five-year rest period. In 1943, grazing was again permitted, but it was controlled. Subsequently, grazing was retired from the public use portion of the Refuge, including both the Stubblefield Lake grazing unit and the auto tour route area, adjacent to the headquarters area. Available records indicate that the amount of forage removed ranged from 611 to 4,098 AUMs each season. In 1993, grazing as an economic use was deemed incompatible with the purposes of the Refuge and discontinued as a program on the Refuge. Consequent to developing a habitat management plan, prescription grazing as a specific management tool was determined compatible.The effects of overgrazing prior to Refuge establishment is still reflected by the presence of cheatgrass which invaded the overgrazed uplands.

Haying by local farmers and ranchers was continued after the Refuge was established. Over 300 tons of hay were removed annually from 8 units, totalling 250 acres throughout the Refuge. Most hay was cut on the wet canary grass meadows, with some harvest of alfalfa in conjunction with the food plot rotations. All operations were conducted under terms of a Refuge permit. Haying was gradually discontinued in later years and most of the older hay units were turned over to cattle for grazing. By 1972, less than 50 tons of hay were harvested from one 30-acre wet meadow, and two alfalfa plots totalling 40 acres.

After time, the Public Use Area was defined. This 2,200-acre area serves as the primary locus for visitor access to the Refuge. The rest of the Refuge (with the exception of the section of the Columbia Plateau Trail that traverses the Refuge) is officially closed to visitor use, although occasional supervised tours are allowed. The Refuge has maintained the greater portion of its lands closed in order to protect wildlife from disturbance and to protect habitats from recreation-induced modification.

Existing Developments

Roads / Railways: Map 2 (see Chapter 1) shows the distribution of roads and railway beds on the Refuge and within the Study Area. One railbed (recently converted into the cross-state Columbia Plateau Trail) crosses the Refuge and the Cheney-Plaza County Highway blacktopped highway bisects the Refuge from north to south. Two more railroads and a 4-lane "expressway" are nearby. The blacktopped Mullinix Road and Cheney-Spangle Highway form portions of the west and east Refuge boundary. The Refuge currently contains approximately 56 miles of dirt roads, 7 miles of gravel roads, and 5.8 miles of the black-topped Cheney-Plaza County Highway within its interior. This roading level translates into an average density of 1.9 miles / mile^2 dirt or gravel roads over the 20,726 acres within the approved boundary.

Eighty-five percent (85 %) of the current Refuge is within one mile of a main, publicly accessible blacktopped road. Only about 200 acres are more than 1.5 miles from a main road. The largest unroaded area within the Refuge measures 2061 acres, next largest is 1,498 acres and next largest is 1325 acres.

Roads criss-cross the Study Area at varying densities. Road densities are highest in the northeast section of the Study Area, where the lots are smallest and a higher density of houses is found.

Drainage Network, Dikes, and Water Control Structures: As part of the Channeled Scablands ecosystem, Turnbull NWR occupies a portion of the landscape rich in natural wetlands, lakes and

potholes. As previously discussed, these features were not uniformly valued by early settlers. They attempted to drain the lakes and marshes in order to provide some land suitable for agricultural development, the dry, rocky uplands proving too difficult to farm. Early settlers formed a drainage district, constructing numerous ditches which connected the previously separate lakes and wetlands, and between 1910-1912, all of the lakes on the area now encompassed by the Refuge (except Stubblefield Lake) were drained. Most of the large lakes and wetlands located within the Study Area were also drained at this time.

In 1937, the Turnbull National Wildlife Refuge was established and restoration of the natural wetland habitats was begun. This was accomplished by building dikes and water control structures at lake outlets. There are now 17 low dikes varying from 40-800 feet in width across the Refuge. There are also 22 water control structures used to manage water depth and distribution amongst the now connected wetlands and lakes. There are few known water control structures within the Study Area. The wetlands there generally continue to be drained annually through the ditch network.

Drains and ditches for four separate drainage networks traverse the network. The four main networks, or subwatersheds are Company, Philleo, Kaegle, and Phillips. Map 7 (see Chapter 3) shows the location of ditches and the outlines of the four main drainage "watersheds" or networks that extend from the surrounding area into the Refuge.

Some of the drainage ditches along with ditch plugs and low dikes installed for restoration have grown over through the years, blending well into the natural landscape. Others have not. Five lakes in the Pine Creek Drainage are entirely man-made. Old C.C.C. water control structures and dams are quite obvious since most are along the main routes of travel.

Fire trails, fire breaks*:* The interior road network serves as the backbone of fire breaks, as well as providing quick and efficient access for fire suppression activities. At one time, the Refuge maintained a peripheral fire break (surrounding the Refuge), but this has not been maintained in fifteen years. The road network within the Study Area also serves as the main fire break there.

Buildings, other developments: On the Refuge, existing facilities have been developed over a long period beginning in the late 1930's. The Refuge headquarters covers approximately 30 acres adjacent to Pine Creek. Buildings at headquarters include two residences, office, shop-service building, two equipment and supply storage pole barns, two vehicle storage buildings, comfort station, environmental education classroom, and well house. Other public use facilities, all in the area adjacent to headquarters, include a five-mile, unpaved public auto trail, a wheelchair accessible boardwalk, and a small picnic area. In the 1970s, a laboratory owned and maintained by Eastern Washington University was constructed on Refuge lands. Other buildings on the Refuge include those a residence on the former Helms tract (property purchased by the Refuge in 1987) and a house, garage, barn and equipment shed located on the former Goodwin tract.

Within the Study Area, houses are scattered unevenly about. The northeast portion of the Study Area has the highest density of homes, barns, wells, and other structures.

Current and Future Management of Refuge Lands and Expansion Area under Preferred Alternative

On the Refuge, habitat management was reviewed in depth between 1994-1999, culminating in the publication of two plans, a Habitat Management Plan (HMP) and a Fire Management Plan (FMP). The CCP incorporates these plans (as written) for the Refuge and would extend similar management

philosophies, objectives, and practices to any future acquired lands. Under the vision, goals and objectives articulated in the 1999 Habitat Management Plan and the 2000 Fire Management Plan, numerous active management practices will be undertaken over the next fifteen years. These management practices include, but are not limited to:

- Continued use of water control structures at 22 Refuge lakes to regulate water depth and acreage for managing wetland habitats for waterfowl, wading birds, and other wetland-dependent fauna
- Removal of 427 artificial islands and berms that do not serve as secure nesting islands. This work will be accomplished with heavy equipment at the rate of three small wetlands or 1 large wetland per year.
- Backfill and recontouring of unnecessary drainage ditches
- Potential compaction of wetland basin at Stubblefield Lake to remedy water retention problems.
- Experimental treatments at four large wetland basins. to eliminate reed canary grass, including deep flooding, prescribed fire, high intensity short duration grazing, herbicides, discing and seeding.
- Silvicultural treatments involving cutting of trees less than 8 inches DBH on at least 100 acres annually. In addition, single tree selection harvest will occur on 400 acres/year for removal of 60% of the trees between 8-24 inches. Mechanized harvesting is envisioned for much of the work, topography, access, and soil types proving suitable.
- Removal of the large wood to market and removal of small wood for market and/or to piles for burning.
- Complete removal of ponderosa pine from aspen stands
- Planting of native trees and shrubs in selected riparian areas.
- Prescribed burning, in forested areas with the intent of reducing fuel hazard, in aspen areas with the intent of regenerating decadent aspen, and in selected experimental plots in steppe habitats with the intent of increasing vigor of native perennial grasses and suppressing cheatgrass seed production.
- Noxious weed control, involving roadside mowing, manual pulling, discing and reseeding, release of biological control agents, and use of herbicides.

As apparent from the list above, the management activities to be undertaken will, as a group, involve a great deal of mechanized and in some cases, heavy equipment, over a substantial period of time into the future. In addition, chemical substances will be actively used for certain kinds of management (fire ignitions, some weed treatment) throughout the Refuge. Although no place on the Refuge is very far from a road, typical efficiencies that were assumed throughout the development of both the Habitat Management Plan and the Fire Management Plan included use of vehicles and maintenance of a network of management access roads.

H.3 CONCLUSIONS

H.3.1 AREAS MEETING THE "FORCES OF NATURE" CRITERION.

Which portions of the Refuge or the Study Area are "affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable"?

As described above, changes wrought by man are noticeable and pervasive throughout the Refuge and Study Area. The signs of these changes include the past changes in forest structure and ongoing management of the forest areas, the existence of a widespread road network, the existence of numerous dikes, ditches and water control structures, the regular presences of houses, barns, wells, and other structures, and weedy dominance of cheatgrass and reed canary grass in many of the grassland and marsh habitats. Even the areas of the Refuge most "natural" in appearance are closely managed for desired forest stocking levels, water distribution and to protect against unwanted forest fire.

In conclusion, there are no areas within the Refuge or Study Area that meet this criterion.

H.3.2 AREAS MEETING THE "OUTSTANDING OPPORTUNITIES FOR SOLITUDE" CRITERION

Which portions of the Refuge or the Study area "have outstanding opportunities for solitude or a primitive and unconfined type of recreation "?

As discussed above, most of the Refuge and the Study area is in close proximity to a main road, and permitted public use on the Refuge is confined to the 2,200 acre Public Use area and the Columbia Plateau Trail. The topography, being generally flat, permits long sight distances in unforested areas of the Refuge and the sounds of trains from the nearby railbeds, airplanes, and auto traffic from the three county roads flanking and crossing the Refuge permeate many parts of the Refuge. In addition, with the proximity of Spokane International Airport, Geyer Field, and Fairchild Air Force Base, air traffic over the Refuge and Study Area is extensive. Rarely passes an hour without sight or sound of commercial or military overflights. Cattle can also be heard near the perimeters of the Refuge.

While solitude could be found on certain days and in certain places within the Refuge, it would be a stretch to classify the solitude as "outstanding" or the recreational experience as "primitive and unconfined." Too many human established boundaries and noises limit the potential for an "primitive and unconfined" recreational experience.

There are no areas within the existing boundary of the Refuge nor within the Study Area that can be said to meet the criterion. The only way to change this would be a) to eliminate public county roads; and/or b) to dramatically expand the size of the area permitted for public access. Option (a) is infeasible and impractical at this time and option (b) would have potential to undermine the Refuge's ability to meet its purpose.

H.3.4 AREAS MEETING THE 5000-ACRE SIZE OR "SUFFICIENT" SIZE CRITERION

Which portions of the Refuge or the Study Area "have at least 5,000 contiguous acres (2,000 ha) or be sufficient in size as to make practicable its preservation and use in an unimpaired condition, or we could restore the wilderness character through appropriate management, at the time of review" ?

Refuge owned lands total 15,656 acres at this time. Under the preferred alternative, the Refuge will expand its boundary and the new approved boundary will encompass 45,615 acres. However, until the lands within the expanded area are acquired from willing sellers, they will remain under private ownership and control. The largest area free from roads on the current Refuge totals 2,061 acres. The largest areas free from roads within the Study Area totals 2650 acres (northwest corner) and another patch in the southwest corner measures 2169 (SW corner) acres. Other roadless patches are smaller.

There are no areas on the Refuge measuring at least 5000 contiguous acres that are not crossed by roads. It is possible to eradicate many of these roads, since they are Refuge owned, native surface, and maintained for management access only. However, doing so would compromise the ability of the Refuge to meet its objectives stated under the Habitat Management Plan and Fire Management Plan. The roads are a critical part of the fire break system. Wildfire containment is an important objective of the Fire Management Plan. Prescribed fire is a critical tool to be used in restoration of the forest landscape on the Refuge and is consistent with national policy encouraging reintroduction of fire in highly fire-dependent ecosystems. Without the native surface road network, the ability of the Refuge to safely and successfully utilize prescribed fire and to fight wildfire would be jeopardized.

Within the Study Area, the potential roadless areas are larger, but none meet the 5000-acre size criterion. Jurisdiction over road management within the Study Area is currently a mix of county and private. These jurisdictional issues would make the elimination of roads within the Study Area more problematic. In addition, all lands acquired in the Study Area would require a certain amount of restoration work, which could extend over many years. This restoration work is similar to the kinds of restoration that will occur on the Refuge over the next fifteen years - i.e. forest thinning, wetlands restoration, fire treatments, etc.

Whether scattered 2000 acre parcels are "sufficient in size" to preserve or restore a wilderness character within this landscape is a judgement call. At this time, we do not believe that they would represent high quality additions to the wilderness system, based on the configuration of these parcels, the surrounding land uses and the restoration needs that will be ongoing over at least fifteen years.

Finally, acquisition of parcels within the Study Area will occur in a fashion that is not completely under Service control. Given this, it is premature at this time to endorse wilderness designation on any part of the Study Area.

H.3.4 AREAS MEETING THE "WILDERNESS CHARACTER" CRITERION

Which portions of the Refuge or the Study Area do "not substantially exhibit the effects of logging, farming, grazing, or other extensive development or alteration of the landscape, or we could restore the wilderness character through appropriate management, at the time of review"?

As discussed above, most of the areas within the Study Area clearly exhibit the effects of logging, farming, grazing, and settlement. These practices have been ongoing since settlement began and continue today.

On the Refuge, where grazing and farming have been phased out, and most early homesteads removed or lost to time, the signs of human development are not necessarily substantial to the untrained eye. Restoration has been a key goal of Refuge management practice since establishment and will continue to be an integral component of Refuge management. However, restoration under the Habitat Management and Fire Management Plans is not geared towards "wilderness character" *per se*, but rather toward achieving the purposes of the Refuge. As discussed in Chapter 1 of the CCP, the purposes emphasize refugia and breeding grounds for migratory birds, incidental fish and wildlife recreation, protection and management of fish and wildlife and other natural resources, and conservation of endangered and threatened species.

A key question becomes, then, can the Refuge effectively achieve these purposes without the use of permanent structures, mechanized tools and motorized access? Ironically, restoration often involves the very tools (water management, tree cutting) that created an altered landscape in the first place. A

reasoned answer is that uplands habitat and fire management could probably be achieved, but it would be severely compromised in efficiency and cost without the ability to use mechanized tools and motorized access. Moreover, risks of uncontrolled fire would be higher. In this area, where the wildland/urban interface is quite evident, to risk wildfire would be imprudent, to say the least.

The network of wetland habitats is particularly dependent on maintenance of water control structures and the associated drainage network. Loss of the ability to use permanent artificial structures would essentially destroy the wetlands complex, and these habitats are critical to migratory birds. Water control structures could be removed and replaced with permanent dikes or plugs but the ability to control flooding or move water would be lost. Moreover, the Refuge could not singlehandedly eradicate the drainage network that criss-crosses the Refuge, because upstream property owners will continue to drain their wetlands to keep the bottomlands clear for summer cattle grazing. Were the Refuge to fill all of the drainage ditches and replace control structures along the networks with permanent plugs, the runoff from property owners upstream would literally have no place to go and would wreak havoc on the landscape, spilling over onto uplands and causing untold erosion.

Given this, achieving the purposes of the Refuge is generally incompatible with restoring it to wilderness character.

H.3.5 AREAS MEETING THE "ROADLESS ISLAND" CRITERION.

Which portions of the Refuge or the Study Area are "roadless islands"?

A variety of natural islands, man-made islands, ephemeral islands and islands exist in Refuge impoundments. Only one, a rocky island in Kepple Lake, can be considered a bona-fide natural and permanent island of any significance. It is less than a half acre in size. All other "natural" islands are little more than small rocks jutting above the water or small patches of emergent vegetation which exist as islands only during a particular phase of manipulated water levels. Most of the other "islands" on the Refuge are of artificial origin and are slated for removal under the objectives and strategies outlined in the Habitat Management Plan.

While the rocky island in Kepple Lake is undeveloped and roadless, it is not of sufficient size or significance to merit wilderness classification on its own.

There are no known islands in the Study Area.

H.3.6 SUMMARY

There are no locations on the Refuge or in the Study Area that meet all of the above criteria for wilderness designation, or even most of the criteria. Some areas could perhaps be judged to passably meet the "sufficient size" or "wilderness character" criteria, but no areas stand out as exceptionally suited to wilderness designation.

Moreover, given the area's history of landscape modification, restoration needs, and the Refuge's continuing links to the regional drainage network, restoration of the area's "wilderness character" is not clearly compatible with achievement of the Refuge's purposes.

It is therefore concluded that there are no areas on Turnbull National Wildlife Refuge or within the Study Area are that can be recommended as suitable for further consideration as wilderness.