COLUMBIA BASIN WILDLIFE AREAS MANAGEMENT PLAN

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Oregon Department of Fish and Wildlife
3406 Cherry Avenue NE
Salem, Oregon 97303

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Executive Summary

Purpose of the Plan

This plan will guide management of Columbia Basin Wildlife Areas (CBWAs) for the next 10 years. Purposes of this plan are to:

- Provide clear direction for management of CBWAs;
- Provide long-term continuity in wildlife area management;
- Communicate the department's management priorities for CBWAs to its neighbors, visitors, and the public;
- Ensure management programs on CBWAs are consistent with the original mandate and purpose of the area when first established;
- Ensure management of CBWAs is consistent with Federal, State, and local natural resource plans;
- Ensure management activities address conservation priorities and recommendations described in the 2006 Oregon Conservation Strategy, and;
- Provide a basis for budget requests to support CBWAs needs for staffing, operations, maintenance, and capital improvements.

Historical Background

The Columbia Basin Wildlife Areas are a composition of four Oregon Department of Fish and Wildlife (department) managed wildlife areas located along the Columbia River, in the Columbia Basin. The four wildlife areas (Power City, Irrigon, Coyote Springs and Willow Creek) are within the Columbia Plateau ecoregion as described in the 2006 Oregon Conservation Strategy (ODFW, 2006). Management agreements for these areas were initially established between 1971 and 1977 between the department and Federal agencies which own the lands. The CBWAs were signed into managment agreement as follows, referenced from east to west: 1) Power City with Bureau of Land Management (BLM) in 1973; 2) Irrigon with US Army Corps of Engineers (USACE) in 1971; 3) Coyote Springs with Bureau of Reclamation (BOR) in 1975; and 4) Willow Creek with USACE in 1971. The 979 acre Irrigon Wildlife Area is a combination of two parcels of land that were separately aquired in 1971 and 1977. The parcels are managed as one contiguous tract of land under one management agreement.

Since their inception, the CBWAs, which total approximately 1,885 acres, have been managed by the John Day Watershed District's Wildlife Habitat Program. The CBWAs provide an important landbase for the conservation and recreation of fish and wildlife within a highly privatized and altered landscape. The CBWAs have played and continue to play an important role for the Fall and Spring migrations of waterfowl in addition to resident upland game bird production. Recreation provided by the CBWAs (i.e. hunting, fishing, viewing, etc.) help to support and sustain local economies. Management of these areas will continue to be habitat-based, emphasizing management activities which provide for multiple species while maximizing hunting, fishing, trapping and other fish and wildlife-related recreational pursuits, where possible.

Planning Approach

This management plan is the first of its kind developed for the CBWAs. The goals, objectives and stategies (implementation actions) described in this 2008 plan are focused on maintaining and enhancing key habitats and providing significant wildlife oriented public use.

The habitat goals, objectives and associated strategies were derived in an attempt to balance key habitat enhancement and maintenance with maximizing public use opportunities associated with those habitats. The description of wetland habitat types within the goals and objectives follows the classification scheme of Cowardin et al. (1979).

This plan describes current issues and provides actions to address them. These actions will be implemented during the life of this plan, but are subject to availability of funding and personnel. This management plan will be reviewed in 2013 to gauge the progress of implementation and make necessary revisions, and it will be revised in its entirety in 2018.

Columbia Basin Wildlife Areas Vision

The vision for Columbia Basin Wildlife Areas is as follows:

Habitat management, utilizing sound stewardship practices, is implemented to support waterfowl, upland game birds, and a diverse array of other fish and wildlife species in the Columbia Basin while providing hunting, trapping, angling, and other wildlife oriented public uses for present and future generations.

Wildlife Area Goals

The goals for the Columbia Basin Wildlife Areas are:

Goal 1: To protect, enhance and manage wetland habitats to benefit native fish and wildlife and desired game species.

Goal 2: To protect, enhance and manage upland habitats to benefit native wildlife and desired game species.

Goal 3: To provide a variety of wildlife oriented recreational and educational opportunities to the public.

Specific objectives and strategies to implement each goal, a well as detailed rationale, are provided in this plan on pages 37-46.

Implementation Approach

Current management direction is to protect, enhance, and manage fish and wildlife habitats and associated species while providing hunting, trapping, angling, and other public use opportunities on the CBWAs. Recreational opportunities on the CBWAs will vary through time, and when balanced with habitat management actions, may not be maximized in all cases.

Wetland habitats on CBWAs occur in both managed and unmanaged units. Managed wetland units are usually bordered by dikes with water control structures. The majority of CBWAs wetlands are natural depressions and swales that are permanent or seasonally flooded. Wildlife use of CBWAs wetlands, primarily by wintering waterfowl depends on both natural and altered habitats.

Upland habitats on CBWAs are also both managed and unmanaged. Managed upland habitats consist of developed agricultural lands, utilized primarily for cereal grain production and upland game bird use. Other upland habitat priorities are to manage historic, remnant sagebrush-steppe habitats.

Management activities such as water level management (drawdowns and flooding) and vegetation manipulations (controlled burning, disking, farming, mowing) are tools CBWAs staff uses to maintain and restore healthy habitats.

Introduction

Purpose of the Plan

This plan will guide management of the Columbia Basin Wildlife Areas (CBWAs) for the next ten years. The Oregon Department of Fish and Wildlife's (department) management planning process for Wildlife Areas (WAs) involves development of broad goals, and formulation of specific objectives and management strategies to achieve those goals. The purposes of this plan are to:

- Provide clear direction for management of the CBWAs;
- Provide long-term continuity in wildlife area management;
- Communicate the department's management priorities for the CBWAs to its neighbors, visitors, and the public;
- Ensure management programs on the CBWAs are consistent with the original mandate and purpose of the areas set when first established;
- Ensure management of the CBWAs is consistent with Federal, State, and local natural resource plans;
- Ensure management activities address conservation priorities and recommendations described in the 2006 Oregon Conservation Strategy, and;
- Provide a basis for budget requests to support the CBWAs needs for staffing, operations, maintenance, and capital improvements.

Oregon Department of Fish and Wildlife Mission and Authority

The mission of the department is to protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations. The department is the only state agency charged exclusively with protecting Oregon's fish and wildlife resources. The state Wildlife Policy (ORS 496.012) and Food Fish Management Policy (ORS 506.109) are the primary statutes that govern management of fish and wildlife resources.

Purpose and Need of Columbia Basin Wildlife Areas

The purpose of the CBWAs is to protect, enhance, and manage fish and wildlife habitats indicative of the region to support fish and wildlife population levels while providing hunting, trapping, angling, and other wildlife oriented recreational opportunities for present and future generations.

The four CBWAs (Power City, Irrigon, Coyote Springs and Willow Creek), referenced east to west, are placed under one management plan since all: 1) are situated within the same general geographic area in the Columbia Basin; 2) contain similar natural and augmented habitat types typical of the region's landscape; 3) undergo similar management regimes (principles and practices); 4) are managed by the Wildlife Habitat Program in the John Day Watershed Distirict; and, 5) are all under management and/or lease agreements with federal agencies (Bureau of Land Management [Power City], Bureau of Reclamation [Coyote Springs], U.S. Army Corps of Engineers [Irrigon and Willow Creek]). The CBWAs comprise approximately 1,885 acres of public lands, which are surrounded largely by agricultural and private rural residential lands.

The CBWAs are located in the John Day Watershed District of the department's Northeast Region. Project coordination is provided by the Wildlife Division at the department's headquarters to integrate wildlife area management activities with large scale landscape planning including intergovernmental agreements, flyway plans and individual species plans.

This management plan is the guiding document that will ensure natural resources on the CBWAs will be managed in such a manner as to protect, enhance, and restore fish and wildlife habitats to support optimum population levels of many species for the enjoyment of present and future generations. To protect these natural resources, management programs and strategies utilized on the CBWAs will meet or exceed habitat protection policies and standards set by the department.

Columbia Basin Wildlife Areas Vision Statement

The vision for Columbia Basin Wildlife Areas is as follows:

Habitat management, utilizing sound stewardship practices, is implemented to support waterfowl, upland game birds, and a diverse array of other fish and wildlife species in the Columbia Basin while providing hunting, trapping, angling, and other wildlife oriented public uses for present and future generations.

Wildlife Area Goals and Objectives

Wildlife area goals are broad, open-ended statements of desired future conditions that convey a purpose but do not define measurable units. In contrast, objectives are more concise statements of what the department wants to achieve, how much the department wants to achieve, when and where to achieve it, and who will be responsible for the work. Objectives derive from goals and provide the basis for determining strategies, monitoring wildlife area accomplishments, and evaluating the success of strategies.

The goals and objectives for the Columbia Basin Wildlife Areas are:

Goal 1: To protect, enhance and manage wetland habitats to benefit native fish and wildlife and desired game species.

Objective 1.1: Protect and manage approximately 81 acres of palustrine permanently flooded wetland habitats.

Objective 1.2: Protect and manage approximately 101 acres of palustrine seasonally flooded wetland habitat.

Objective 1.3: Enhance and manage approximately 27 acres of palustrine intermittently flooded habitats.

Objective 1.4: Protect, enhance and manage approximately 12 acres of riverine wetland habitats.

Objective 1.5: Protect, enhance and manage approximately 14 acres of lacustrine seasonally flooded habitats.

Objective 1.6: Maintain and improve critical physical and functional infrastructure affecting wetland management activities.

Goal 2: To protect, enhance and manage upland habitats to benefit native wildlife and desired game species.

Objective 2.1: Protect, enhance and manage approximately 680 acres of grassland habitat.

Objective 2.2: Protect, enhance and manage approximately 548 acres of sagebrush steppe/shrubland habitat.

Objective 2.3: Protect, enhance and manage approximately 94 acres of agricultural upland habitat.

Objective 2.4: Protect, enhance and manage approximately 146 acres of deciduous tree habitat (riparian).

Objective 2.5: Maintain and improve wildlife area structures and equipment used to conduct habitat management and public use projects.

Goal 3: To provide a variety of wildlife oriented recreational and educational opportunities to the public.

Objective 3.1: Provide hunting, trapping and angling opportunities to the general public.

Objective 3.2: Provide wildlife viewing and education/interpretation opportunities compatible with Objective 3.1 and habitat management objectives.

Specific objectives and strategies to implement each goal, as well as detailed rationale, are provided in this plan on pages 37-46.

Wildlife Area Establishment

The CBWAs are a composition of four department managed wildlife areas located along the Columbia River, in the Columbia Basin. The four wildlife areas (Power City, Irrigon, Coyote Springs and Willow Creek) are within the Columbia Plateau ecoregion as described in the 2006 Oregon Conservation Strategy (ODFW, 2006). Management agreements for these areas were initially established between 1971 and 1977 between the department and Federal agencies which own the lands. The CBWAs were signed into managment agreement as follows, referenced from east to west: 1) Power City with Bureau of Land Management (BLM) in 1973; 2) Irrigon with US Army Corps of

Engineers (USACE) in 1971; 3) Coyote Springs with Bureau of Reclamation (BOR) in 1975; and 4) Willow Creek with USACE in 1971. The 979 acre Irrigon Wildlife Area is a combination of two parcels of land that were separately aquired in 1971 and 1977. The parcels are managed as one contiguous tract of land under one management agreement.

Since their inception, the CBWAs, which total approximately 1,885 acres, have been managed by the departments John Day Watershed District - Wildlife Habitat Program. These wildlife areas provide an important landbase for the conservation and recreation of fish and wildlife within a highly privatized and altered landscape. The CBWAs have played and continue to play an important role for the Fall and Spring migrations of waterfowl in addition to resident upland game bird production. Recreation provided by the CBWAs (i.e. hunting, fishing, viewing, etc.) helps to support and sustain local economies. Management of these areas will continue to be habitat-based, emphasizing management activities which provide for multiple species while maximizing hunting, fishing, trapping and other fish and wildlife-related recreational pursuits. (See **Appendix A** for detailed acquisition history).

Description and Environment

Physical Resources

Location

The four CBWAs are located on or near the Columbia River in Umatilla, Morrow, and Gilliam counties. The Power City Wildlife Area (approximately 100 acres) is situated between the cities of Hermiston and Power City. Located immediately adjacent to Highway 395, the Power City Wildlife Area is approximately 0.5 miles southeast of Wanaket Wildlife Area operated by Confederated Tribes of the Umatilla Indian Reservation (CTUIR). Although the wildlife area is within a fringe area of industrial and residential zones spreading from Hermiston, it is immediately surrounded by rural pasture and cropland. The wildlife area's only public parking area is accessible from Highway 395, by traveling east 0.25 miles on Bensel Road.

Irrigon Wildlife Area (approximately 979 acres) is located between the cities of Umatilla and Irrigon. The wildlife area is located between the Umatilla National Wildlife Refuge (approximately four miles west) and Wanaket Wildlife Area (CTUIR, approximately five miles east). Encapsulating approximately seven miles of riverine/riparian corridor, the wildlife area is bound on its eastern and northern extent by the Umatilla and Columbia Rivers respectfully. Due to the length of the river corridor, the approximate size of this Wildlife Area can vary significantly based on the pool level created by the John Day Lock and Dam. The wildlife area's southern boundary consists of Highway 730 and numerous small residential parcels. Access to the wildlife area may be attained through any of its nine access points stemming from Highway 730.

The Coyote Springs Wildlife Area is located approximately two miles east of the Boardman city limits and immediately adjacent to the Port of Morrow. Roughly 1.5 miles

south of the Columbia River, the wildlife area encompasses approximately 160 acres and is located between the Union Pacific rail line (north) and Interstate 84 (south). The east boundary is adjacent to agricultural cropland, an irrigation canal system, and Highway 730. Public access to the area is attained by traveling, from Columbia Ave., south on Rippie Road 0.5 miles where visitors travel east one mile on the wildlife area's only public access road to the designated public parking area.

Located south of Interstate 84, the Willow Creek Wildlife Area is approximately 15 miles west of Boardman and ten miles east of Arlington. Bounded on the north by Interstate 84, the wildlife area extends south from the confluence of Willow Creek and the Columbia River approximately 2.5 miles. The wildlife area consists of approximately 446 acres of land and 200 acres of water (Willow Creek Bay). The ratio of land to water mass is relative and subject to fluctuations of pool level created by the John Day Lock and Dam. The quantity of emergent vegetation within the bay is also linked to pool level. Public access is via one vehicular access route located 0.5 miles south of Interstate 84 (at exit 151) and travels west 4.5 miles through agricultural cropland ending at the wildlife area's only public parking area.

John Day Watershed Wildlife Habitat personnel responsible for management and oversight of the CBWAs are headquarted at Phillip W. Schneider WA in Dayville and the Pendleton District Office in Pendleton, Oregon. The CBWAs are located in the Intermountain West region of the North American Waterfowl Management Plan and the Columbia Plateau ecoregion as described in the OCS (ODFW, 2006).

Figure 1.1 and **Figure 1.2** show the locations and key features of the four Columbia Basin Wildlife Areas.

Climate

Due to the relative size of the Columbia Basin/Columbia Plateau, the climate of the region varies significantly depending on the specific geographic location. However, the CBWAs are within close proximity to one another and, therefore, share similar climate attributes. These Wildlife Areas typically exhibit cool/moist, rarely harsh winters and extremely hot/dry summers.

As reported by The National Weather Service, the CBWAs average daily temperature ranges from 27^0F in November to 88^0F in August. Temperature extremes in the area range from a low of -12^0F during the winter to a high of 108^0F during the summer. On average the areas undergo 2,910 growing degree days with an annual average precipitation of 11 inches (data from1971-2000). However, in recent years, the wildlife areas have routinely received approximately eight inches of precipitation annually. The vast majority of this precipitation is dispersed during the months of October to February. Winds within the areas often exceed 20 mph.

Topography and Soils

The CBWAs contain a variety of soils but range slightly in their topography and elevation. The soil types present on the areas are generally coarse textured, well

drained, and have poor to moderate fertility. Although Willow Creek Wildlife Area is within a canyon setting the rest of the wildlife areas are generally flat with modest draws and ridges yielding minimal variations in their native plant compositions.

The Power City Wildlife Area ranges in elevation from 430 to 460 ft. Three soil types are present on the Power City Wildlife Area. These are Adkins fine sandy loam (wet), Quincy loamy fine sand, and Wanser loamy fine sand. Both the Adkins and Quincy soil types are deep well drained soils formed in eolian sand. Although the wetness of Adkins is caused by irrigation and canal seepage, Quincy and Wanser soils located on the area stand in sharp contrast as available water capacities range from 3 to 6 inches. These soils show hazard potential of both alluvial and elluvial erosion. A combination of water tolerable plants may be found within the wet soils, however, native plant communities in drier soils include sedges, inland saltgrass (*Distichlis spicata*), alkali bluegrass (*Poa juncifolia*), sandberg bluegrass (*Poa secunda*), and Needle and Thread (*Hesperostipa comata*).

Figure 1.1 - Columbia Basin Wildlife Areas Features and Ownership

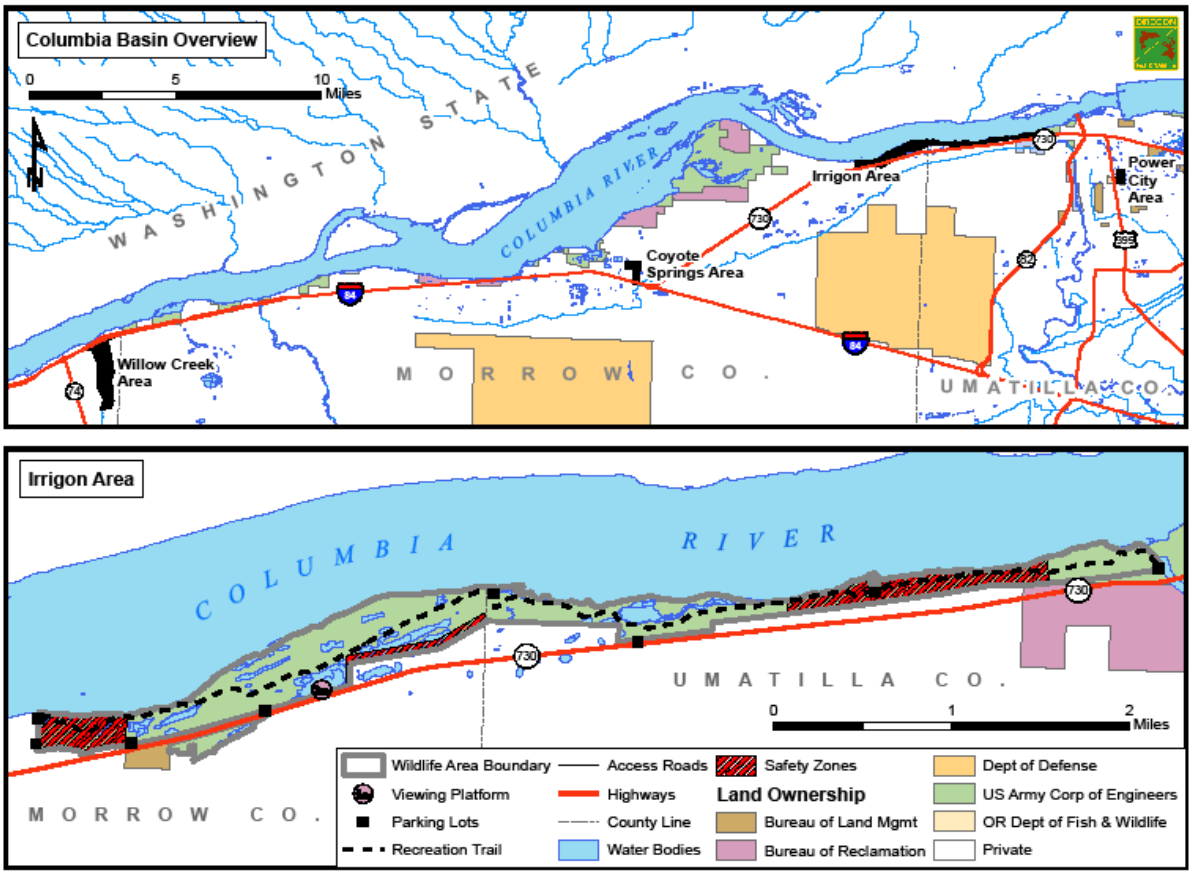
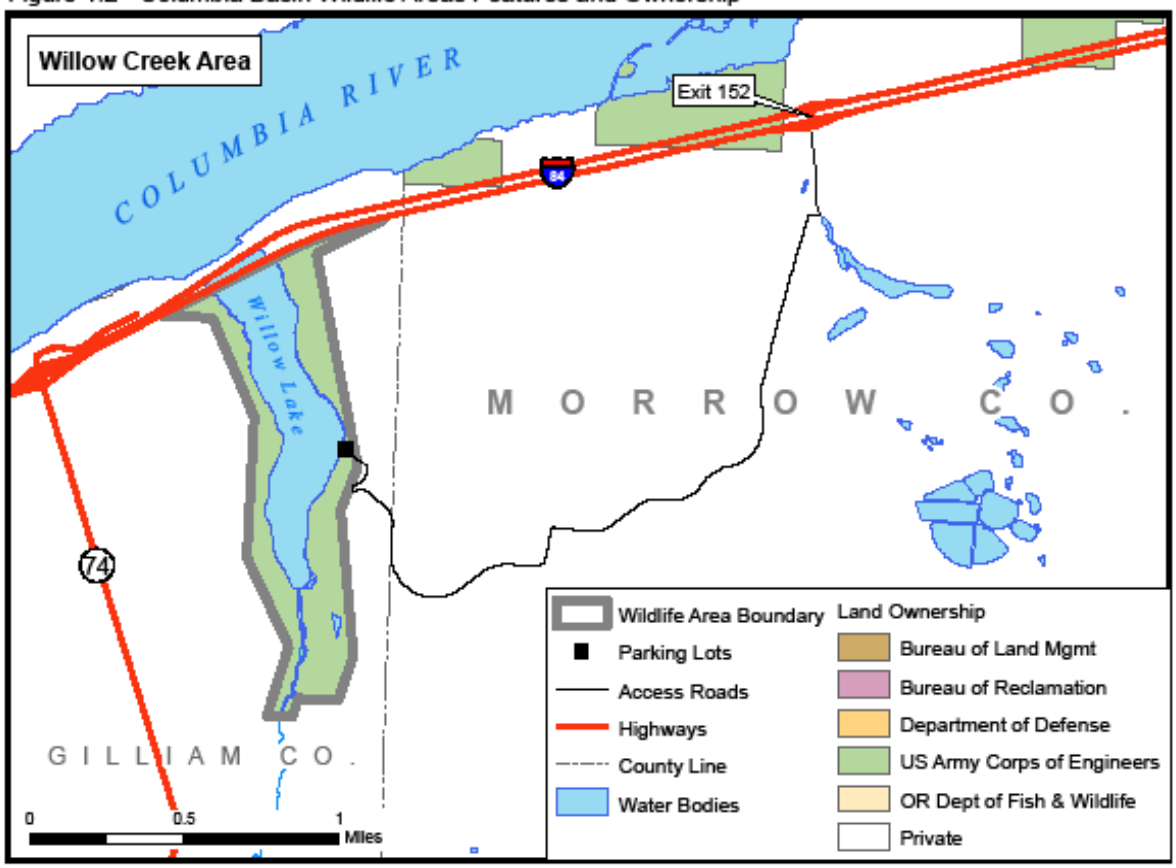
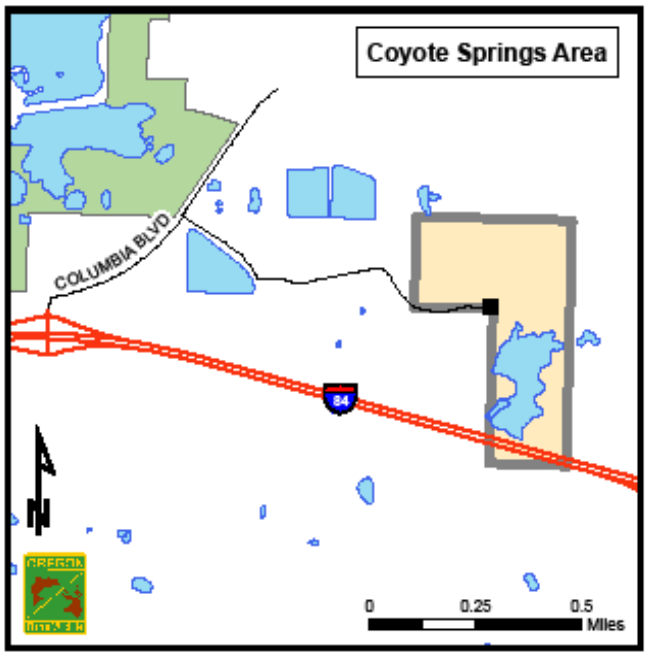
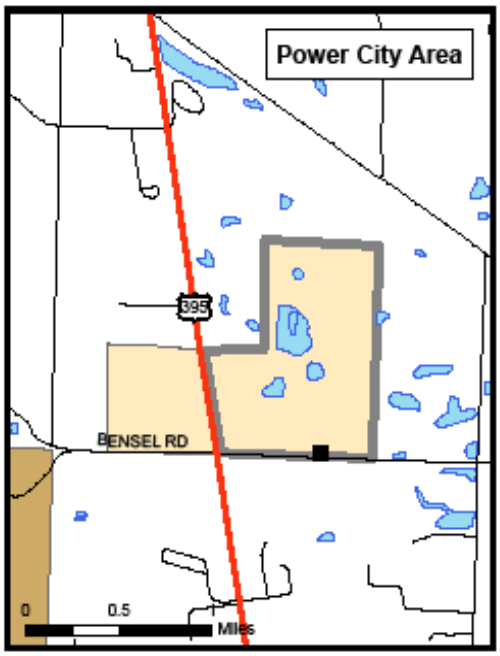


Figure 1.2 - Columbia Basin Wildlife Areas Features and Ownership







The Irrigon Wildlife Area ranges in elevation from approximately 260 to 310 feet. Ten soil types, or variants thereof, are present on the wildlife area. The vast majority of these can be characterized as high permeability, well drained soils with available water capacity ranging from 1.5-6 inches. Native plant communities vary with available water capacity but generally include antelope bitterbrush (*Purshia tridentata*), big sagebrush (*Artemisia tridentata*), rubber rabbitbrush (*Ericameria nauseosa*), Indian ricegrass (*Achnatherum hymenoides*), Needle and Thread and Sandberg bluegrass. A potential hazard of these soils is primarily eluvial erosion.

The Coyote Springs Wildlife Area ranges in elevation from approximately 320 to 360 feet. Quincy loamy fine sand is the only soil type present on the wildlife area. The native plant community is primarily composed of Needle and Thread, Indian ricegrass and antelope bitterbrush with Columbia milkvetch (*Astragalus succumbens*) and Carey balsamroot (*Balsamoriza careyana*) also common. Big sagebrush and rabbitbrush are also often sporadically found. This soil type is noted as being a deep, excessively drained soil formed in mixed sand. The soil typically has high permeability and runoff is slow. With this soil, concerns center on low available water capacity (4-5.5 inches) and elluvial erosion. Strong winds, low water capacity, and coarse soil texture make plant establishment and/or restoration efforts difficult in this soil. Due to its characteristics, recommended irrigation/watering applications should be light and frequent in this soil.

The Willow Creek Wildlife Area ranges in elevation from approximately 260 feet at water level (Willow Creek Bay) to 480 feet. Containing 11 different soil types, Willow Creek Wildlife Area encompasses a large portion of the canyon it resides within and provides a variety of soil and aspects for herbaceous biomass. The soil types present on the wildlife area are typically loam and are identified as being well drained. The Willow Creek Wildlife Area agricultural food/cover field is primarily located within Powder silt loam soil type. This soil is a derivative of loess and volcanic ash and has moderate permeability. Available water capacity for this particular soil type is 11-12.5 inches which is typically higher than other soils found on the Wildlife Area. However, prone to leach nutrients out of the root zone, fertilization of this soil is recommended in split applications.

As with the other CBWAs, the Willow Creek Wildlife Area varies with regards to native plant communities and individual soil type. However, most include: bluebunch wheatgrass (*Pseudoroegneria spicata*), Needle and Thread, Sandberg bluegrass, Indian ricegrass and big sagebrush. Basin wildrye (*Leymus cinereus*) is typically found in high densities in soil types within the canyon bottom. Although somewhat fertile, a hazard of these soils regardless of classification is erosion. Erosion stemming from runoff has been reported as moderate, however the hazard of wind erosion is high.

Habitat Types

The CBWAs contain a variety of wetland habitats types which fall within a multitude of classifications. Most of these wetland habitat types are a creation of an altered landscape and are the result of modern agricultural, irrigation and/or the John Day Lock and Dam Project. Although flow through these habitat types are still somewhat

indecipherable, it can be noted that the wetlands of the CBWAs provide a wealth of wildlife habitat within a reasonably arid region. Habitat is present and utilized by a host of migratory, wintering, and breeding birds. Wetland habitats are also utilized by a variety of shorebirds, reptiles and amphibians throughout the year. Management efforts on the CBWAs wetlands have consisted primarily of direct vegetation manipulation due to water level control limitations currently incurred.

In addition to wetland habitats, the CBWAs contain a mixture of upland habitats which include sagebrush steppe/shrubland, grassland, agriculture, and riparian areas. A host of mammals, birds, reptiles, and amphibians utilize these habitats. These habitats are important for some species which are known to be threatened or sensitive such as the long-billed curlew (*Numenius americanus*) and sage sparrow (*Amphispiza belli*). The majority of management efforts conducted on the upland areas has been to restore grasslands to increase native herbaceous cover for hiding and nesting. These efforts have been primarily in the form of Russian olive (*Elaeagnus angustifolia*) removal and control as well as seeding native bunchgrasses. However, great efforts have been made to ensure the preservation of sagebrush steppe/shrubland habitats, an OCS listed habitat. CBWAs habitat types are shown in **Figure 2.1**, **Figure 2.2** and **Figure 2.3**.

Figure 2.1 - Habitat Types within Irrigon Wildlife Area

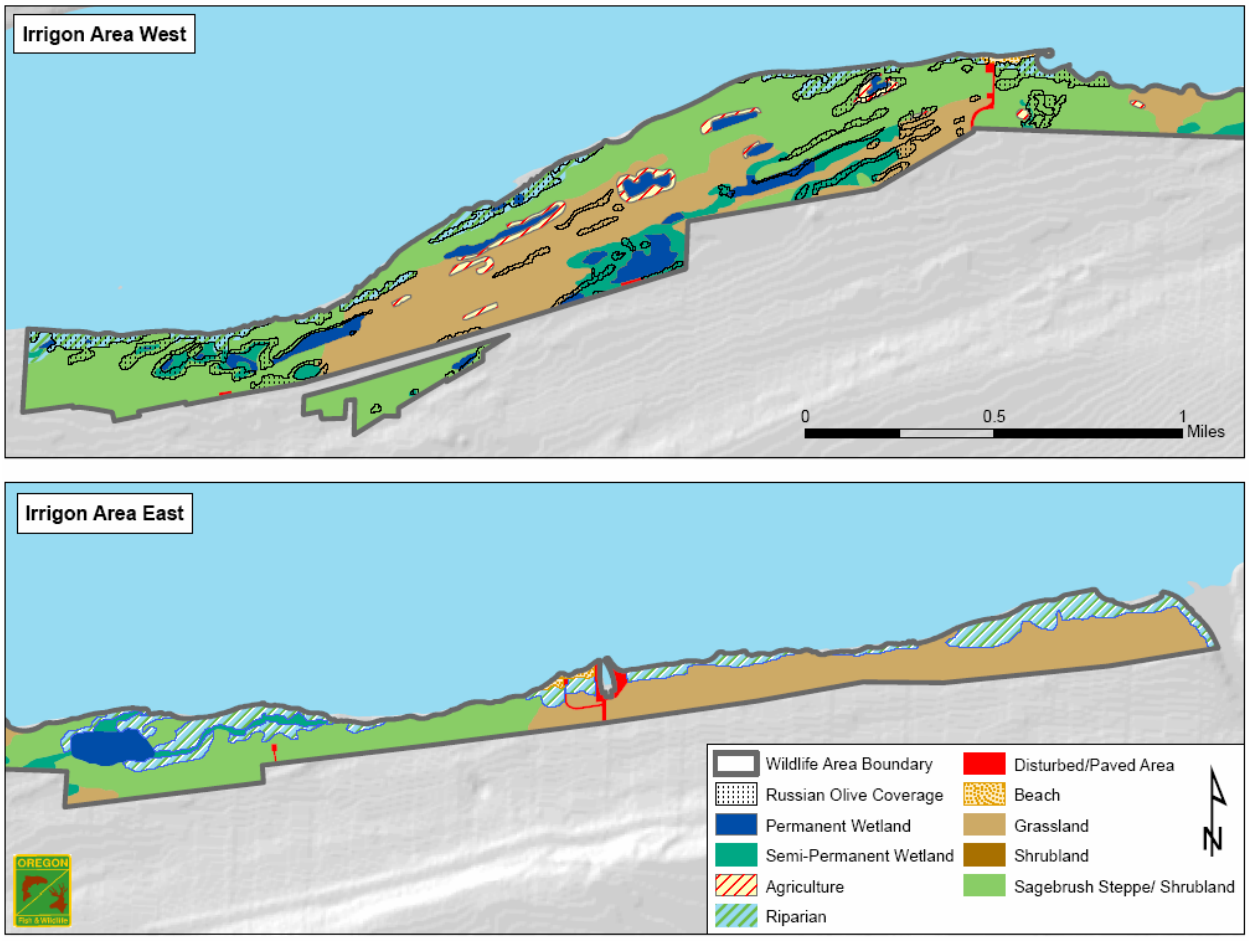


Figure 2.2 - Habitat Types Within Willow Creek Wildlife Area

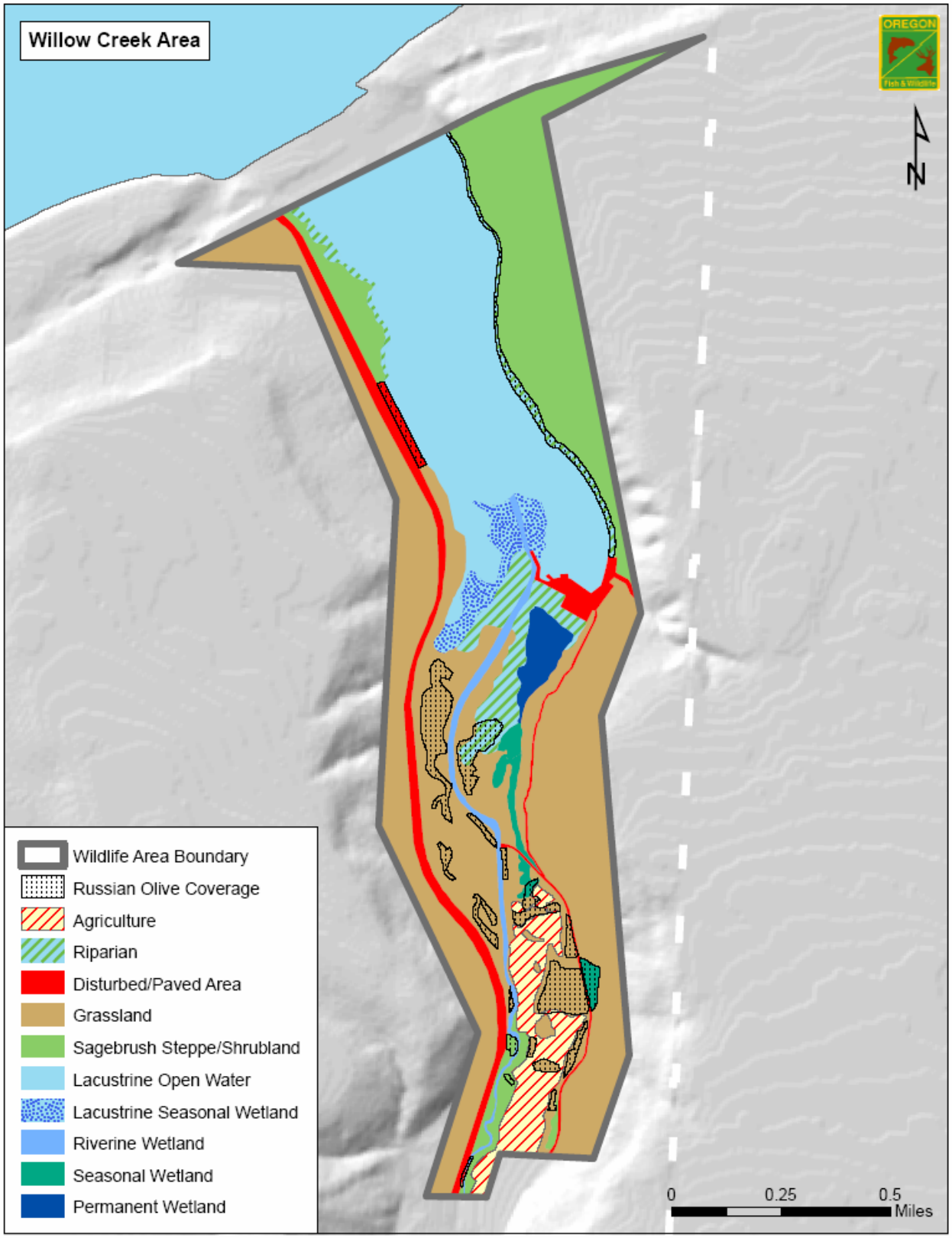
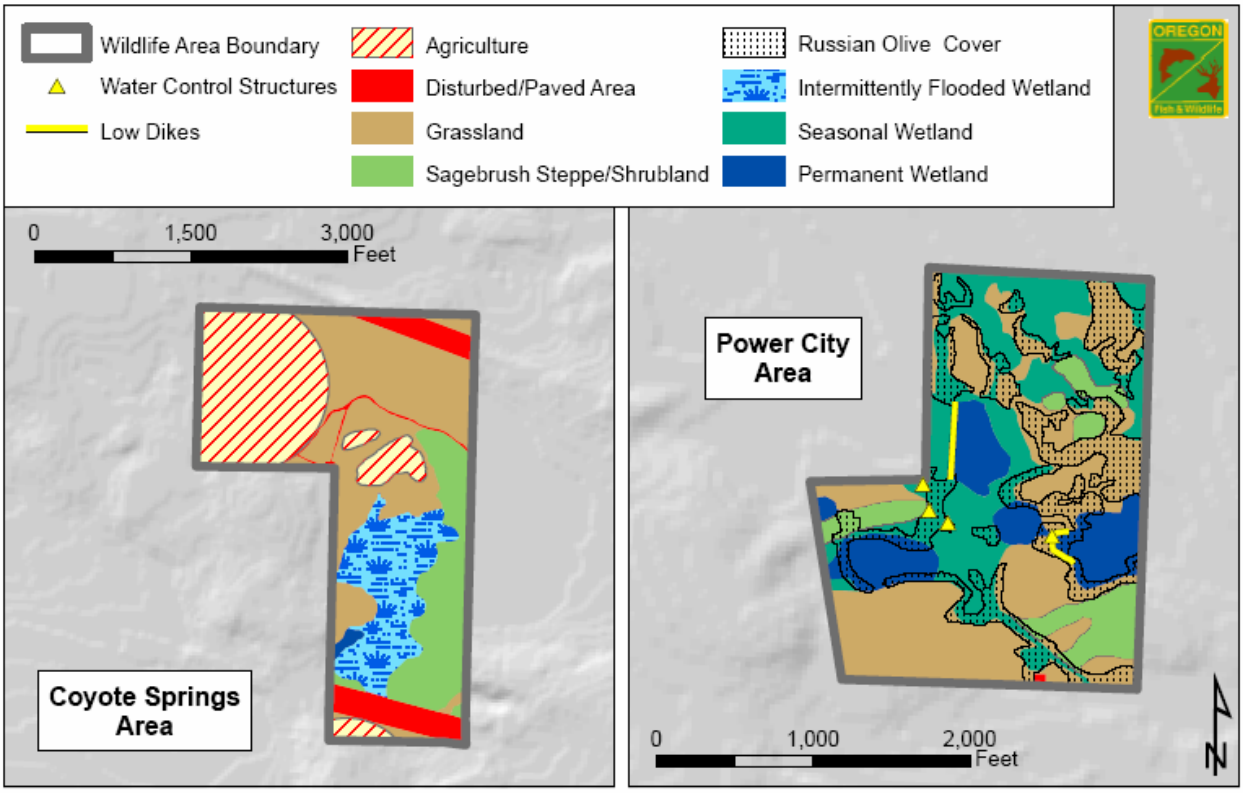


Figure 2.3 - Habitat Types within Coyote Springs and Power City Wildlife Areas



Wetland, riparian, grassland and shrubland habitats are considered Key Habitats within the Columbia Plateau ecoregion as defined in the department's OCS. The OCS recommends conservation actions such as wetland, riparian and grassland restoration, which are high priority activities ongoing at CBWAs. **Tables 1.1**-**1.4** show the approximate acreage of each habitat type occurring on CBWAs. Russian olive encroachment has been recorded and included within Table 1 to identify acres which are of particular management concern. Russian olive is a very adaptable species which readily exhibits high recruitment while out-competing and excluding native vegetation. Russian olive reduces plant species diversity, abundance, production, and site potential in comparision to native flora. Management activities funded by non-federal dollars have and will continue to focus on removal/control of this species to increase the recruitment and establishment of native vegetation.

Table 1.1. Habitats Types on Power City Wildlife Area

Habitat Type	Acres	Current Russian Olive Encroachment (Acres)
Upland		
Disturbed/Paved Area	0.1	0.1
Grassland	44.4	15.2
Sagebrush Steppe/Shrubland	9.8	0.9
Upland Total	*54.3*	*16.2*
Wetland		
Palustrine permanently flooded	15.4	3.3
Palustrine seasonally flooded	30.3	9
Wetland Total	*45.7*	*12.3*
Total	**100**	**28.5**

Table 1.2. Habitat Types on Irrigon Wildlife Area

Habitat Type	Acres	Current Russian Olive Encroachment (Acres)
Upland		
Agriculture	17	1.3
Beach	4.6	0.4
Disturbed/Paved Area	7.6	0.5
Grassland	318.6	10.3
Riparian	114	27.8
Sagebrush Steppe/ Shrubland	398	29.3
Upland Total	*859.8*	*69.6*
Wetland		
Palustrine permanently flooded	56.1	3
Palustrine seasonally flooded	63	11.4
Wetland Total	*119.1*	*14.4*
Total	978.9	84

Table 1.3. Habitat Types on Coyote Springs Wildlife Area

Type	Acres
Upland	
Agriculture	47.9
Disturbed/Paved Area	1.9
Grassland	54.9
Sagebrush Steppe/ Shrubland	27.2
Upland Total	*131.9*
Wetland	
Palustrine Intermittently flooded/saturated	26.8
Palustrine permanently flooded	1
Wetland Total	*27.8*
Total	**159.7**

Table 1.4. Habitat Types on Willow Creek Wildlife Area

Habitat Type **Upland**	**Acres**	**Current Russian Olive Encroachment (Acres)**
Agriculture	28.8	0.4
Disturbed/Paved Area	11.3	0.2
Grassland	261.7	25.7
Riparian	31.19	10.7
Sagebrush Steppe/ Shrubland	112.8	0.7
Upland Total	*445.8*	*37.7*
Wetland		
Lacustrine open water-Bay	157.8	
Lacustrine seasonally flooded	13.8	
Palustrine permanently flooded	8.6	
Palustrine seasonally flooded	8.1	2.4
Riverine	11.8	0.3
Wetland Total	*200.1*	*2.7*
Total	645.9	40.4

I. Wetlands

Description of wetland habitat types follows the Cowardin et al. (1979) classification scheme. The vast majority of the CBWAs' wetlands are classified as palustrine. Variation in hydrology, topography, and disturbance creates important differences in plant communities and seasonal differences in wetland availability for wildlife in each wetland type. Habitat descriptions provided below are based on hydrology modifiers as defined by Cowardin et al. (1979). While habitat associations are described as discrete, they represent a broad range from dry to wet and when considering all variables (such as topography), each may occur in close proximity to one another within a given geographical area.

IA. Palustrine wetlands

1. Permanent wetlands: Permanently flooded wetlands are inundated with water throughout the year. Supplied predominately by sub-surface flows, from irrigation systems and/or John Day Lock and Dam Pool, this habitat is characterized by open water areas ranging up to 6 feet in depth surrounded by emergent vegetation such as cattail and hardstem bulrush. This habitat type also contains a variety of submerged vegetation which includes such species as sago pondweed and waternymph. With exception given to portions of Power City, the vast majority of this habitat type lacks any form of water control. Management activities are therefore strictly limited to chemical treatment and vegetation removal (burn) to manage/control invasive emergent vegetation. This habitat type is extremely important to reptile, amphibian, and waterfowl (brood rearing) during mid/late summer drying periods.

2. Seasonally flooded: Within this habitat type, surface water is present for extended periods of time. Surface water present on these wetlands,

predominately sub-surface flow from irrigation systems and/or John Day Lock and Dam Pool, typically occurs from late fall to mid-summer but is absent by the middle of the growing season. As summer progresses, water levels recede leaving moist and/or dry soils which proliferate the growth and establishment of both cattail and hardstem bulrush. Other vegetation including a variety of sedges, rushes, and grasses are present but depend heavily on timing, rate, and recession of water as well as management activities such as mowing, burning, tillage, and/or chemical control. Use of this habitat type is high for various species of reptiles, amphibians, shorebirds, and waterfowl present on the wildlife areas. However, individual species use of this habitat type is dependant on individual preferences of overall forage and cover values which is directly linked to seasonal water regime and vegetation composition, diversity, and production.

3. Intermittently flooded: This habitat community is primarily created and maintained as a result of adjacent irrigation and land use practices. Adjacent irrigation supply (canal) provides excess water which is received in early spring and mid fall as well as intermittent emergency releases during the growing season. This source provides sheet water flow during times of inundation which recede to saturated/moist soils and subsequent extended dry periods for the remainder of the year. This hydrologic scenario yields an abundance of vegetative growth from various species which includes hardstem bulrush (*Scirpus acutus*), watercress (*Nasturtium officinale*), waternymph (*Nejas* spp.), sago pondweed (*Stuckenia pectinata*), western dock (*Rumex aquaticus*), cattail (*Typha latifolia L.*), Columbia coreopsis (*Coreopsis tinctoria var. atkinsoniana),* coyote willow (*Salix exigua*), black cottonwood (*Populus tricocarpa*), along with a variety of other grasses, sedges, rushes, and forbs. Vegetative production as well as overall wildlife use of this habitat type depends directly on timing, rate, and recession of water. Management activities focusing on vegetative control and disturbance such as mowing, tillage, and chemical control are practiced to provide, enhance, and protect overall plant species diversity and production. Although inhabited by many amphibian, reptilian, and shorebird species; this habitat is heavily utilized by dabbling ducks during spring and fall migrations for forage as well as brood rearing habitat in late spring and summer. Between periods of inundation, this habitat type is highly utilized for its forage and cover values by upland game birds.

<u>IB. Lacustrine wetlands</u>

1. Open Water: This habitat type compromises the entirety of Willow Creek Bay which is situated in a topographical depression as a result of the John Day Lock and Dams Pool. This open water habitat contains less than 30% emergent coverage, exceeds 7 feet in depth, and is largely composed of a bedrock shoreline. An unconsolidated and aquatic bottom yields a variety of submergent vegetation. This habitat type is heavily utilized in conjunction with adjacent wetlands as security habitat for wintering waterfowl and brood rearing Canada geese, nesting and foraging habitat for avocets and stilts, as well as foraging

habitat for other species such as otter (*Lutra canadensis*), mink (*Mustella vision*), and bald eagle. Due to the inherent nature of this habitat type, direct management activities pertaining to vegetation composition and/or functioning condition are limited.

2. Seasonally flooded: This habitat type is located at Willow Creek Wildlife Area and routinely incurs periods of inundation as a result of increases in the John Day Pool level. Declines in Pool level subsequently yield moist and/or saturated soils. Emergent vegetation such as cattail and reed canarygrass typically dominates this habitat type. Wildlife species use of this habitat typically (i.e. brood rearing, foraging, etc.) occurs in conjunction with adjacent open water habitat.

I.C. Riverine:

The habitat type is present only on the Willow Creek Wildlife Area. Willow Creek is an altered stream with high and low flows largely dependent on management of, and need for, stored water from the Willow Creek Dam located in Heppner. Willow Creek is characterized by a well-defined channel with submerged aquatic vegetation and an unconsolidated bottom. The portion of Willow Creek located on the wildlife area retains some sinuosity but is severely entrenched. This, coupled with a low, narrow floodplain within the entrenched stream channel, yields constraints in the stream's natural movements with subsequent effects on riparian and associated wetland habitats.

II. Uplands

1. Agriculture: Agricultural habitat on the CBWAs consists of food and cover plots managed and maintained by department personnel and sharecrop areas. Primary benefits of agricultural activities include: 1) additional and/or supplemental forage production to sustain resident and migratory wildlife and 2) an increase in cover (vertical and horizontal) and structure for hiding and/or nesting habitat. Agricultural food and cover plots have been established in or adjacent to habitats lacking these attributes. Waterfowl, upland game birds, passerines, raptors, as well as large and small mammals attain benefits from the managed agriculture lands on the CBWAs. Excluding sharecrop areas, agricultural habitats are currently lacking water and irrigation systems. Crop selection within agricultural habitats is managed in a manner consistent with individual site attributes and characteristics, wildlife and public use, field observations, and contribution to management goals, objectives, and strategies as outlined in this management plan.

2. Disturbed/Paved Area: Disturbed/paved areas are primarily composed of public parking areas, developments, and right-of-way easements. Developments and right-of-way easements largely pertain to water delivery systems (pump stations and lines), transmission lines (both electrical and natural gas), and transportation (highway/interstate). Two beaches are present at the Irrigon Wildlife Area. These beaches are managed as sandy, unvegetated areas

adjacent to the Columbia River and in close proximity to public access points. Although wildlife use is limited, shorebirds often use these areas throughout the year for resting and foraging. Public entry and use of these areas is regulated by wildlife area rules.

3. Grassland: Grassland habitats of the CBWAs vary from river terraces and rocky outcrops to canyon slopes within a semi-desert to desert region. In their native state, grasslands habitats of the CBWAs contained a variety of drought tolerant perennial bunchgrass communities that included species such as Indian ricegrass, needle and thread and in some areas bluebunch wheatgrass, Sandberg bluegrass and Idaho fescue (*Festuca idahoensis*). Forbs within these communities often included balsamroot (*Balsamorhiza sagittata*), mules' ear (*Wyenthia amplexicaulis*), evening primrose (*Oenothera pallida*), and many others. Grassland communities are largely derived from individual site variables such soil, slope, aspect, and water availability. Many of the grassland habitats within the CBWAs are in an altered state and rarely retain historic species composition and diversity. Reduced species composition and diversity is largely the result of changes within the fire regime, past land use practices such as grazing and related pasture seedings, as well as the introduction of invasive species such cereal rye (*Secale cereale L.*), cheatgrass (*Bromus tectorum*) and knapweed (*Acroptilon repens*). As a result of these influences, some habitats have undergone a transition in climax communities (i.e. sagebrush-steppe to grassland, perennial bunchgrass to annual communities).

4. Sagebrush Steppe/shrubland: Sagebrush steppe/shrubland habitat on the CBWAs largely consists of mixed perennial bunchgrass (needle and thread, Indian ricegrass, bluebunch wheatgrass, etc) and forb communities with a dominate overstory composed of basin big sagebrush (*Artemesia tridentata*) and/or bitterbrush. The shrub overstory is often intermixed with such species as winterfat (*Krascheninnikovia lanata*) and rabbitbrush. Large portions of this habitat type remain altered by fire and introduced invasive species such as cheatgrass and knapweed. Distinct from sagebrush steppe, but similarly managed, is shrubland habitat. This habitat type on the CBWAs largely consists of various shrub and sub-shrub species with a mixed composition understory. Shrub species in this habitat type include fourwing saltbrush (*Atriplex canescens*), wood's rose (*Rosa woodsii*), nootka rose (*Rosa nutkana*), western sandcherry (*Prunus pumila*), and blackberry (*Rubus armeniacus*). Wildlife use of these habitats varies and is linked directly to shrub density, cover, and composition. Also critical to wildlife use is species composition within the habitat types' understory. Management activities within these habitat types are oriented to enhance these attributes for the use of native and desired non-native wildlife.

Description of Wildlife Areas

The Power City Wildlife Area is owned by the BLM and has been managed, under cooperative agreement for "wildlife value" (provide for and protect fish and wildlife resources and their habitats) and public access, by the department since 1973. The

current cooperative agreement (COOP-OR035-94-002) signed in 1994 remains in effect. Composed of approximately 100 acres, the Power City Wildlife Area contains roughly an equal share of upland (grassland and sagebrush steppe/shrubland) and wetland (palustrine permanently and seasonally flooded) habitats. As indicated by 1976 records, Power City's wetlands are dependent on overflow and excess water from irrigation ditches which feed 4 ponds created by lowland dykes. To ensure public access of the area for wildlife oriented recreation, the area is open seven days a week in conjunction with its Wildlife Area rules (OAR 635-008-0130). At the Power City Wildlife Area, the use of rifles and handguns is prohibited at all times.

The Irrigon Wildlife Area is owned by the USACE and was originally purchased as part of the John Day Lock and Dam Project. Prior to its purchase by USACE, the land was privately owned and used for livestock grazing. Under lease agreement, the department has managed the Morrow County portion of the Wildlife Area since 1971 and later added/acquired management of the Umatilla County portion in 1977. The two parcels are currently managed as one contiguous tract of land under lease (DACW57-3-97-0007) which will be up for renewal in November, 2021. The area is managed to protect and enhance fish and wildlife resources and their habitats, while providing public use of those resources. Irrigon Wildlife Area is composed of rolling hills of sagebrush steppe/shrubland and grassland intermixed with riparian areas and wetlands (palustrine permanently flooded and seasonal wetlands). The Irrigon Wildlife Area currently contains nine access points (all designated safety zones) and three sizable safety zones spread across the wildlife area (South Shore, County Line, and Irrigon City Limits). The area distinguishes itself from the rest of the CBWAs because it contains approximately seven miles of riverfront (Columbia and Umatilla) and walking trail/riding (Lewis and Clark Trail and Columbia River Heritage Trail) as well as two public beaches. As the Columbia River is a navigable waterway, access management of the area for the public is limited to lands residing above the ordinary high water. However, management for wildlife habitat resources extends to water's edge. As the John Day Pool level fluctuates the acreage of managed wildlife habitat can change considerably. The riparian habitat along the Columbia River shoreline is characterized by areas of broken riparian habitat (cottonwoods, etc) and areas of no riparian vegetation at all. Shoreline areas which are not within the riparian habitat classification are typically sagebrush steppe/shrubland and/or grassland which end abruptly on an unstable sandy shoreline. This transitional area provides sandy un-vegetated areas on the wildlife area which provide critical transitional zones for waterfowl movement in and around the Columbia Basin. Open seven days a week, the wildlife area provides for a host of wildlife oriented recreational opportunities (OAR 635-008-0105).

The Coyote Springs Wildlife Area is owned by the BOR and was originally obtained as part of the Umatilla Project and designed to receive excess water from the West Extension Irrigation District. The Coyote Springs Wildlife Area has been managed by the department for fish and wildlife purposes since 1975. The current 25 year contract agreement (8-07-10-L0883) is up for renewal in 2012. Coyote Springs offers a number of habitats in close proximity to highly developed agricultural and industrial lands. Composed of approximately 160 acres, primary habitat types include grasslands,

sagebrush steppe/shrublands, palustrine intermittently flooded wetlands, and agricultural land. Currently, the Port of Morrow (POM) and its sub-leasee farm operation, are under a sharecrop agreement with department to conduct agricultural activities (ie plant/harvest Ag. crops) and operate an agricultural circle on approximately 36 acres of the wildlife area. As stipulated in the agreement, payment for these activities is retention of approximately a ten foot band of food/cover crops (grain/corn) around the perimeter of 6 agricultural circles. Freshwater and effluent water from the Port's Industrial park and associated processing plants supplies the agricultural circles with irrigation water. The POM is responsible for maintaining and monitoring the effluent irrigation as per Oregon Department of Environmental Quality (ODEQ) standards. Coyote Springs offers a variety of upland and waterfowl habitat and is currently linked into the POM Regulated Hunt Area (RHA). Public access of the area is open seven days a week (OAR 635-008-0070). However, Coyote Springs Wildlife Area differs from other Columbia Basin Wildlife Areas in that the hunting of big game is prohibited due to its close proximity to adjacent industrial, transpotation and agricultural activities.

Willow Creek Wildlife Area is owned by the USACE and was originally acquired as part of the John Day Lock and Dam Project. Prior to its acquisition by USACE, the land was privately owned and used primarily as agricultural cropland and rangeland for livestock. Currently, the department is under a 25 year lease agreement (DACW57-3-96-0043) with USACE which is due for renewal in July, 2021. The wildlife area is managed to protect and enhance fish and wildlife resources and their habitats, while providing public use of those resources. The area encompasses canyon side-hills, valley bottom, Willow Creek, and Willow Creek Bay at the confluence of the Columbia River. This diversity of terrain lends itself to a variety of habitats within sagebrush steppe/shrubland, grassland, riparian, and agriculture classifications. A diverse composition of palustrine, lacustrine and riverine wetlands also add to the inherent wildlife and recreational value of the area. The Wildlife Area contains one public access road, a boat launch and a parking area. Open seven days a week, the wildlife area provides for a host of wildlife and recreational opportunities (OAR 635-008-0185).

Biological Resources

The CBWAs contain a diverse array of wildlife and plant species. Numerically birds comprise the largest class of species occurring on the wildlife areas. There are 129 species of birds known to utilize the wildlife areas at some point during the year. Comprehensive inventory data is lacking, but from previously conducted surveys and incidental observations, the CBWAs are inhabited by 15 species of fish, 15 species of amphibians and reptiles, 32 species of mammal, and 83 plant species. Further research and surveys are required to establish information regarding the presence and abundance of invertebrate species as little is currently known.

See **Appendix C** for a list of wildlife species.

Birds

Birds are the most prevalent group of species present on the CBWAs. Waterfowl and other water birds compose a large portion of birds inventoried. Although primarily

managed as an important waterfowl wintering and staging area (spring and fall migration), recent wetland enhancement and management activities, have resulted in increases in breeding pairs and broods observed. Species of breeding waterfowl currently observed on CBWAs include Canada geese (*Branta canadensis*), mallard (*Anas platyrynchos*), northern pintail (*Anas acuta*), northern shoveler (*Anas clypeata*), cinnamon teal (*Anas cyanoptera*), green-winged teal (*Anas crecca*), redhead (*Aythya americana*), lesser scaup (*Aythya affinis*), gadwall (*Anas streptera*), and wood duck (*Aix sponsa*). Waterfowl production from the CBWAs comprises a large portion of local early season harvest by hunters. Shorebirds such as long-billed curlew (*Numenius americanus*), killdeer *(Chardrius vociferous)*, American avocet (*Recurvirostra americana*) and black-necked stilts (*Himatopus mexicanus*) are also present on the area from spring to fall on river shorelines and shallow or receding wetlands.

The CBWAs contain a variety of upland game birds (California quail (*Callipepla californica*), mourning dove (*Zenaida macroura*), and ring-necked pheasant (*Phasianus colchicus*)) and raptors (osprey (*Pandion haliaetus*), kestrel (*Falco sparverius*), falcon (*Falco mexicanus*), hawks, owls, and eagles as well as resident and neo-tropical migrant passerines. These species inhabit all of the CBWA habitats but are primarily found in upland grassland, sagebrush steppe, and riparian habitats. The CBWAs contains varying degrees of forage, cover and structure values within habitat types and yields a variety of niche habitats for species.

Mammals

At least 32 species of mammals inhabit the CBWA, ranging from large ungulates to small rodents. Due to the diversity of habitats present the on the CBWA, mammal species diversity and abundance is enhanced in comparison to monotypic habitats found elsewhere in the Columbia Basin. Species of meso-predators such as raccoon (*Procyon lotor*), coyote (*Canis latrans*), striped skunk (*Mephitus mephitus*), and badger (*Taxidea taxus*) are common and abundant. Small rodentia on the CBWA are lacking sufficient comprehensive surveys to discern distribution, abundance, and presence but inventory records and incidental observations indicate species such as deer mice, pocket mice, northern pocket gopher (*Thomomys talpoides*), montane voles, long-tailed vole, and sagebrush vole are present. Large ungulates (mule deer (*Odocoileus hemionus*)), blacktailed jackrabbit, mountain cottontail (*Sylvilagus nuttallii*), beaver (*Castor canadensis*), and muskrat (*Ondatra zibethicus*) are present at all of the CBWAs and the wildlife areas compromise native habitat blocks and corridors in an otherwise altered landscape. Bat species are relatively unknown on the CBWAs due to a lack of adequate surveys to determine their presence. However, spring and summer invertebrate populations and suitable roosting habitats within upland riparian areas are readily available. It is likely that both of the common shrew species (vagrant and merriam's shrew) occur on the CBWAs.

Amphibians and Reptiles

Thirteen species of amphibians and reptiles are known to occur in CBWA habitats ranging from arid desert expanses to freshwater aquatic areas. Ten of the 13 occur commonly and/or occasionally. Habitat is present for the tree frog (*Hyla regilla*),

northern leopard frog (*Rana pipiens*), Oregon spotted frog (*Rana pretiosa*), northern sagebrush lizard (*Sceloporus graciosus graciosus*) and short-horned lizard (*Phrynosoma douglasii*) but occurrence is relatively unknown as survey data and records are lacking. Most amphibian and reptile species that typically inhabit arid habitats are confined to sagebrush steppe habitats and fringe areas within adjacent grasslands and wetlands. Seasonal and permanent wetland areas provide essential habitat attributes for aquatic dependant species throughout all life stages. Aquatic habitats provide invertebrate populations for foraging as well as emergent and submerged vegetation for hiding, escapement, and attachment of egg masses. Western painted turtles (*Chrysemys picta belli*), an OCS strategy species, are common on the CBWAs and populations are believed to be stable to increasing. The sandy soils of the CBWAs are ideal for egg laying and most aquatic areas contain some form of basking sites. Western painted turtles and amphibians have benefited from management activities focused on wetland enhancement. Deepening of ponds, tillage, burning, and chemical treatment of emergent vegetation has increased functionality and connectivity of the ecotone between the uplands and wetlands.

Bullfrogs (*Rana catesbeiana*), an introduced and invasive species, are widespread on CBWAs. They are found in nearly all of the wetland areas and reproduce prolifically. Because of their large size and gape and predatory foraging strategies, bullfrogs are a threat to many native amphibians including spotted frogs and painted turtles.

At least six species of snake have been observed on the CBWAs. These include both common and western terrestrial garter snakes (*Thamnophis sirtalis* and *T. elegans*), gopher snake (*Pituophis catenifer*), western rattlesnake (*Crotalus oreganus*), racer (*Coluber constrictor*) and rubber boa (*Charina bottae*). These species are thought to be widespread in appropriate habitats but abundance is unclear.

Fish

The CBWAs contain or are immediately adjacent to suitable habitat for 14 species of fish. Nine cold-water species (salmon, steelhead, lamprey, trout and sculpin) are only found at Irrigon and/or Willow Creek as they are endemic to the Columbia and/or Umatilla Rivers. Management activities for these species are passive through vegetation maintenance and chemical control buffers in/around riparian habitats. Warm-water species such as bluegill, bass, bullhead, gambusia, and carp have been introduced into several ponds throughout the CBWAs. Although providing some recreational benefits, these species can represent a threat to native amphibians, reptiles, and their habitats.

Species of Conservation Concern

Numerous species of conservation concern on CBWAs either occur, have previously been observed/recorded, or have suitable habitat present within their distribution or range (**Table 2**). These 42 species are comprised of 12 birds, 8 mammals, 5 amphibians/reptiles, 6 plants, and 11 fish. Birds compromise the largest group of species of conservation concern and include such species as bald eagles and long-

billed curlews which are common on the CBWAs. Long-billed curlews utilize the CBWAs uplands for breeding/nesting and wetlands for foraging.

Mammals of conservation concern largely consist of bat species. Due to a lack of adequate survey data and records, presence and abundance of these species is vague. Species presence is likely due to a sufficient quantity of roosting sites within riparian areas and moderate invertebrate populations.

Although painted turtles are abundant, surveys are lacking to adequately determine presence and abundance of other amphibian populations such as the Oregon spotted frog and leopard frog. Wetland management activities serve to increase overall available habitat quality for these species by reducing emergent vegetation, however, the presence of predatory animals such as bullfrogs, are a threat to species recruitment.

Fish species of conservation concern, primarily salmonids are located within the Columbia and Umatilla Rivers adjacent to both Irrigon and Willow Creek wildlife areas. Management activities are passive through vegetation manipulation and chemical control buffers in/around riparian habitats.

Table 2. Federal- or State-listed Endangered, Threatened, Candidate and Species of Concern potentially present on Columbia Basin Wildlife Areas.

Location: **PC** = Power City W.A., **IR** = Irrigon W.A., **CS** = Coyote Springs W.A., **WC** = Willow Cr. W.A. (Red text indicates suitable habitat present within species distribution/range

Federal Status: **T** = Threatened, **E** = Endangered, **C** = Candidate, **SC** = Species of Concern

State Status: **T** = Threatened, **E** = Endangered, **C** = Critical/Candidate, **V** = Vulnerable

Occurrence: **C** = Common, **U** = Uncommon, **O** = Occasional, **R** = Rare, **X** = Status Unknown (Likely occurs/Few or no observations)

BIRDS Common Name	Species	Location				Federal Status	State Status	OCS
American white pelican	*Pelecanus erythrorhynchos*		IR		WC		V	
Grasshopper sparrow	*Ammodramus savannarum*	PC	IR	CS	WC		V	X
Lewis' woodpecker	*Melanerpes lewis*	PC	IR	CS	WC	SC	C	X
Loggerhead shrike	*Lanius ludovicianus*	PC	IR	CS	WC		V	X
Long-billed curlew	*Numenius americanus*	PC	IR	CS	WC		V	X
Sage sparrow	*Amphispiza belli*	PC	IR		WC		C	X
Swainson's hawk	*Bueto swainsoni*	PC	IR	CS	WC		V	X
Tricolored blackbird	*Agelaius tricolor*	PC	IR			SC		
Western burrowing owl	*Athene cunicucularia hypugea*	PC	IR		WC	SC	C	x
Willow flycatcher	*Empidonax trailli adastus*	PC	IR	CS	WC	SC	V	
Yellow-breasted chat	*Icteria virens*	PC	IR	CS	WC	SC	C	
MAMMAL Common Name	**Species**	**Location**				**Federal Status**	**State Status**	**OCS**
Long-eared Myotis	*Myotis evotis*	PC	IR	CS	WC	SC		
Long-legged Myotis	*Myotis volans*	PC	IR	CS	WC	SC	V	
Pale Western big-eared bat	*Corynorhinus townsendii pallescens*	PC	IR	CS	WC	SC	C	x
Pallid bat	*Antrozous pallidus*	PC	IR	CS	WC		V	x
Silver-haired bat	*Lasionycteris noctivagans*	PC	IR	CS	WC	SC		
Small-footed Myotis	*Myotis ciliolabrum*	PC	IR	CS	WC	SC		
Washington ground squirrel	*Spermopholis washingtoni*		IR		WC	C	E	x
Yuma Myotis	*Myotis yumanensis*	PC	IR	CS	WC	SC		

AMPHIB/REPT Common Name	Species	Location				Federal Status	State Status	OCS
Northern leopard frog	*Rana pipiens*	PC	IR	CS	WC		C	
Northern sagebrush lizard	*Sceloporus graciosus graciosus*	PC	IR	CS	WC	SC	V	x
Oregon spotted frog	*Rana pretiosa*	PC	IR	CS	WC		C	
Painted turtle	*Chrysemys picta*	PC	IR	CS	WC		C	x
Western toad	*Bufo boreas*	PC	IR	CS	WC		V	
PLANT Common Name	**Species**	**Location**				**Federal Status**	**State Status**	**OCS**
Disappearing monkeyflower	*Mimulus evanescens*	PC	IR	CS	WC	SC	C	
Dwarf Evening-primrose	*Camissonia pygmaea*	PC	IR			SC	C	
Laurence's Milk-vetch	*Astragalus collinus var. laurentii*	PC	IR	CS	WC	SC	T	x
Little mousetail	*Myosurus minimus*		IR		WC	SC		
Northern wormwood	*Artemisia camprestris var. wormskioldii*		IR		WC	C	E	x
Robinson's onion	*Allium robinsonii*	PC	IR	CS	WC	SC		
FISH Common Name	**Species**	**Location**				**Federal Status**	**State Status**	**OCS**
Chinook salmon-Snake River	*Oncorhynchus tshawytscha*		IR		WC	CH, T	T	x
Chinook salmon-Upper Col. River	*Oncorhynchus tshawytscha*		IR		WC	E	T	
Coho salmon	*Oncorhynchus kisutch*		IR		WC		C	x
Interior redband trout	*Oncorhynchus mykiss gibbsi*		IR		WC	SC	V	x
Margined sculpin	*Cottus marginatus*		IR			SC		x
Pacific lamprey	*Lampetra tridentate*		IR		WC	SC	T	x
Sockeye salmon-Snake River	*Oncorhynchus nerka*		IR		WC	CH, E	V	
Steelhead-Middle Columbia River	*Oncorhynchus mykiss spp.*		IR		WC	T	C	x
Steelhead-Snake River Basin	*Oncorhynchus mykiss spp.*		IR		WC	T	V	x
Steelhead-Upper Columbia River	*Oncorhynchus mykiss spp.*		IR		WC	E	V	
Western brook lamprey	*Lampetra richardsoni*		IR		WC		S	x

Non-Native Species

With few exceptions, non-native species found on CBWAs are considered a threat to the persistence of desirable and endemic flora/fauna. Cereal rye, perennial pepperweed (*Lepidium latifolium*), and knapweed are all examples of non-native species which stand to threaten the composition and diversity of native habitats and their overall value to fish and wildlife. A list of established noxious weeds on CBWAs which are being actively treated to preserve wildlife habitats are listed in **Table 3**. Although non-native plant species can directly and/or indirectly affect native vegetation, non-native fish and wildlife species predominately pose threats directly to fish and wildlife species, typically in the form of predation and competition. Non-native species on the CBWAs such as starling and house sparrows present direct threats to native passerines by utilizing limited cavities, while bullfrog and gambusia prey upon amphibian/reptile egg masses and/or their juveniles.

Table 3. Noxious weeds on the Umatilla and Morrow County Noxious Weed List and known to be present on Columbia Basin Wildlife Areas. (All species are subject to active control efforts on CBWA, *Invasive plants identified in 2006 Oregon Conservation Strategy)

Location: **PC** = Power City W.A., **IR** = Irrigon W.A., **CS** = Coyote Springs W.A., **WC** = Willow. Cr. W.A

Weed Class: A = "designates a weed of known economic importance which occurs, or may occur, in the state/county in small enough infestations to make eradication/containment possible. ; **B** = designates a weed of known economic importance which is regionally abundant, but may have limited distribution in some counties.

Common Name	Species	Location				Weed Class
*Purple Loosestrife	*Lythrum salicaria*		IR			**A**
Canada Thistle	*Cirsium arvense*		IR		WC	**B**
Cereal Rye	*Secale cereale L.*	PC	IR			**B**
*Diffuse Knapweed	*Centaurea diffusa*		IR		WC	**B**
Kochia	*Kochia scoparia*		IR		WC	**B**
*Perennial Pepperweed	*Lepidium Latifolium*		IR			**B**
Puncture Vine	*Tribulus terrestris*	PC	IR	CS	WC	**B**
Russian Knapweed	*Acroptilon repens*	PC	IR	CS	WC	**B**
Yellow Starthistle	*Centaurea solstitialis L.*			CS	WC	**B**

Monitoring

Since the inception of the CBWAs, monitoring of select wildlife species, habitats and public use has occurred. However, primarily due to limited budgets and lack of personnel, monitoring has been intermittently conducted. Thus, there is a need for more comprehensive monitoring (primarily wildlife species) on CBWAs to help guide habitat management actions that provide the greatest benefit to native and desired game species. Currently, project activities on CBWAs are based on sound biological and social science principals supported with monitoring data when available.

Despite the aforementioned budget and personnel limitations, over the last three years the CBWAs staff has conducted limited presence/absence surveys for wildlife species and limited public use surveys.

Biological

Although comprehensive presence/absence surveys are lacking in many respects, established transects/routes are surveyed by John Day Watershed District Wildlife and Wildlife Habitat personnel once in early (April) and late (May) spring. Timing of these surveys is intended to record presence and abundance of resident and migrant species on the areas. Surveys include avian, mammal, reptile/amphibian, and plant species. In addition, incidental encounters with waterfowl and upland broods while conducting other routine activities are recorded and are used as an indication of the success of wetland and upland habitat enhancement projects conducted on the areas.

Public Use

The CBWAs are open seven days a week with no entry permit requirements (mandatory or volunteer). Hunter harvest surveys are conducted over two weekends: the first weekend of the game bird season and a weekend during the peak of waterfowl migration which typically occurrs in early December. In addition, summer recreational use is recorded on an incidental basis while conducting routine operations on the wildlife areas. Data collected in this manner has proven to be inadequate to accurately reflect use by the public. Currently, management is exploring a mandatory self check-in system for all users of the wildlife areas. This would provide a wealth of information regarding the type and quantity of public use while not largely imposing on the already constrained budget and staff.

Cultural Resources

The CBWAs lie within a culturally rich area spanning from the Native American people to subsequent immigration and settlement of Euro-Americans. The CBWAs are located within lands ceded to the Federal Government by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR [Cayuse, Umatilla, and Walla Walla]). According to ethnographic and historic accounts of the general area and especially the mouth of the Umatilla River, Native Americans used the Columbia Basin for: fishing, hunting, trapping, berry and root gathering, horse grazing and breeding, trading, encampment, burials, and ceremonies (Dickson, 2005).

Euro-Americans first were noted in the area in 1805 as members of the Lewis and Clark expedition stopped and traded with Native Americans (Dickson, 2005). Fur trappers soon arrived in the area and Fort Nez Perces was constructed in 1818 by the West Company (later merging with the Hudson's Bay Company) to facilitate those endeavors. Following the fur trappers were the missionaries which arrived in the area in 1836. However, the most notable migration and settlement of Euro-Americans began around 1843 with the Oregon Trail. From 1844-1847, travelers on the Oregon Trail who did not need supplies began taking a cut off on the trail by following the Umatilla River down to its mouth before turning and following the Columbia River. By 1847 tensions between Native Americans and Euro-Americans had risen to a point where travelers soon avoided the Columbia River. The towns of Umatilla and Hermiston followed in the 1860-70s providing supplies and rest to immigrants and freighters traveling to/from mining industries farther inland (Dickson, 2005). Although both Umatilla and Hermiston

had benefited from irrigation, the towns of Irrigon and Boardman were created due to the irrigation made possible by the Reclamation Act of 1902.

The department is responsible for coordinating with the State Historic Preservation Office (SHPO) and USACE on an annual basis, when applying for federal grants for all wildlife areas and through the annual operating plans, to ensure that proposed area management activities comply with State and Federal cultural resource laws. A comprehensive cultural resource survey of Irrigon Wildlife Area was conducted in 2004-2005 to assist with compliance of Section 106 of the National Historic and Preservation Act. This survey has and continues to facilitate numerous habitat oriented projects and guide long term management of the area in relation to not only wildlife but preservation of cultural and historic resources as well. Currently, efforts are being made, with cooperation with the USACE to pursue a similar comprehensive survey for the Willow Creek Wildlife Area. Prior to new ground-disturbing activities within any of the wildlife areas, consultation is sought through the appropriate agencies to protect potential culturally significant sites.

Social Environment

Demographics

The Power City Wildlife Area is situated near the city of Hermiston. According to the Hermiston Chamber of Commerce, the city has a base population of approximately 15,412 in 2007. As reported by U.S. Census Bureau figures for the year 2000, Hermiston residents were identified ethnically as being 78% white, with the remainder largely consisting of individuals within the Hispanic/Latino classification. Contributing to Hermiston's ethnic diversity were Native American (1%), African American (1%), and Asian (1%). Median age within the city is 31 with a household income of $35,354. Median household income for Hermiston was below that of Umatilla County ($45,362) and 12% of individuals reported fell below the federal poverty level. Located adjacent to two interstate freeway systems, the economy of Hermiston is diverse and largely driven by agriculture, food processing, cold storage, warehousing and distribution (City of Hermiston).

The Irrigon Wildlife Area is situated between the two cities of Umatilla and Irrigon. U.S. Census Bureau figures for 2000 identify Umatilla as sustaining a base population of 4,978 while Irrigon's population was 1,702. Ethnically these two cities were similar, with populations of approximately 70% white and the remainder largely consisting of individuals within the Hispanic/Latino classification. Contributing to the ethnic diversity are Native Americans (1%) and African Americans (2%). Median age within Umatilla is 28 and 30 in Irrigon with household incomes of $33,844 and $35,799 respectfully. Median household income for these two cities was below that of both Umatilla ($45,362) and Morrow Counties ($37,521). Nineteen percent of individuals surveyed fell below poverty level in Umatilla while Irrigon was considerably lower at 14%.

The Coyote Springs Wildlife Area and Willow Creek Wildlife Area are situated near the city of Boardman which compromises a population base of approximately 2,855

individuals. As reported by the U.S. Census Bureau figures for the year 2000, Boardman residents were identified ethnically as being 56% white with the remainder largely consisting of individuals within the Hispanic/Latino classification. Contributing to Boardman's ethnic diversity were Native American (2%), African American (1%), and Asian (1%). Median age within the city was 25 with a household income of $32,100. Median household income for Boardman was below that of Morrow County ($37,521) and 20% of individuals reported fell below poverty level. The economy of Boardman is congruent and representative of Morrow County which is largely driven by agriculture, food processing, dairies, utilities, forest products, livestock and recreation (Morrow County, Boardman Chamber of Commerce website).

Land Use

The Power City Wildlife Area is located within Hermiston's fringe area of industrial and residential zones along Highway 395 (**Figure 3**). However, it is immediately surrounded by rural pasture and cropland. Within close proximity to the Power City WA is Wanaket Wildlife Area, managed by the CTUIR, which works in conjunction with Power City to preserve wildlife habitat and provide public access.

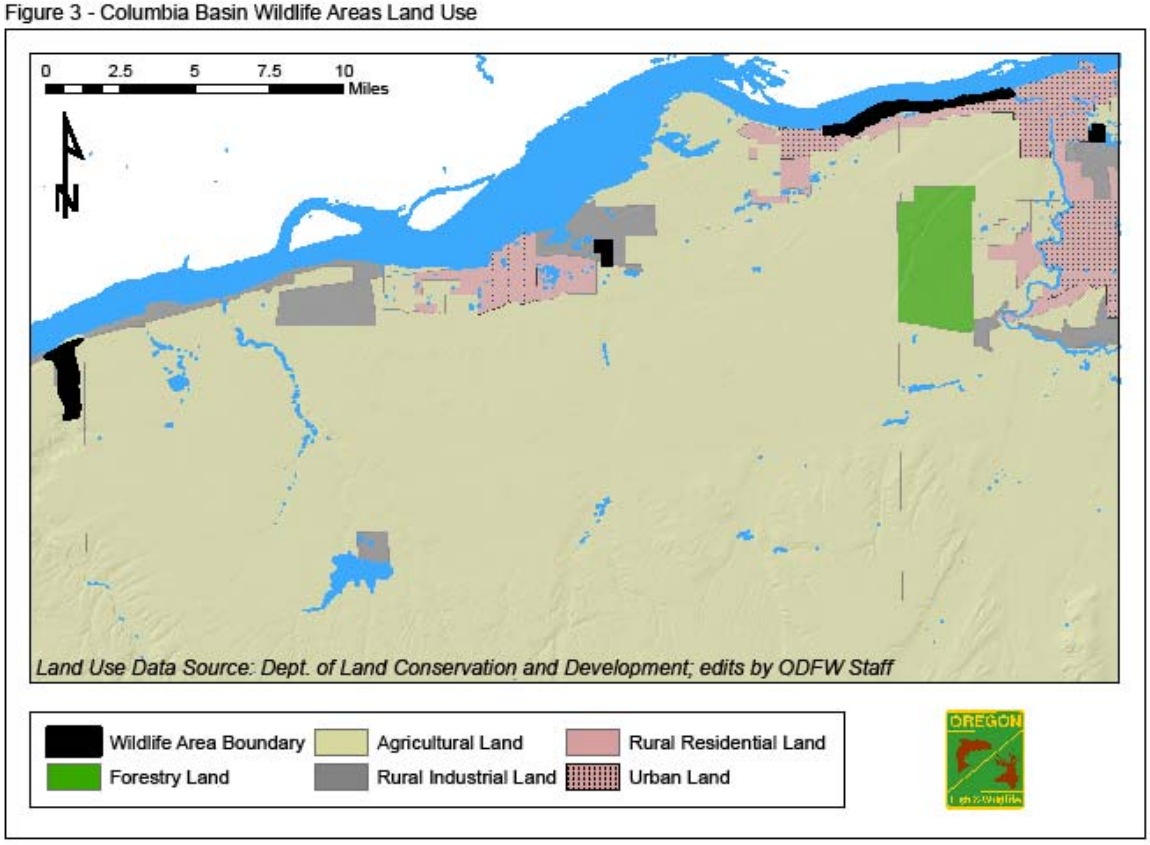
The Irrigon Wildlife Area is surrounded by a variety of land use types which include agricultural, rural and urban residential, and transportation. There has been a steady increase in residential areas adjacent to the wildlife areas southern boundary and the Highway 730 corridor from Umatilla to Irrigon. Conflict with wildlife use and/or management activities has risen, corresponding with the increase in residences and human densities occupying the adjacent areas. Compliance to wildlife area rules, trespass animals, fire hazards, etc are examples of common problems facing management of the area. Although an increase of residential area has occurred over the years, some irrigated agricultural cropland persists a short distance south of the wildlife area. These areas coupled with water released from the West Extension Irrigation District (WEID) system, eventually enter the wildlife area at various points, and influence the movements of migrating waterfowl in and around Umatilla and Irrigon. Within close proximity to the Irrigon Wildlife Area is the Umatilla National Wildlife Refuge, managed by the USFWS, which works in conjunction with Irrigon to preserve wildlife habitat and provide public access. The Umatilla Chemical Storage facility is also in close proximity to the Irrigon Wildlife Area. This facility contains large tracts of sagebrush steppe habitat and may work in conjunction with the Irrigon Wildlife Area to support some sage dependant species.

Coyote Springs Wildlife Area is surrounded by agricultural, industrial, and transportation land uses. Union Pacific rail lines are located at the wildlife areas northern extent while Interstate 84 is situated at the areas southern end. Highway 730 is also in close proximity with the Interstate-84/Highway 730 interchange approximately 0.5 miles east of the Wildlife Area. The Port of Morrow, located adjacent to the wildlife area, continues to provide economic development to the Boardman area at a steady rate. Lands owned by the Port, once predominately farmland, are being transformed into more economically viable uses within the Industrial complex. Although there are many industrial uses within the POM, recent developments have included cold storage,

warehousing, and bio-energy facilities. Adjacent to the wildlife area is the West Extension Irrigation District irrigation canal. This canal feeds a large portion of irrigated agricultural cropland within the geographic area which compromises the dominate land use type surrounding the wildlife area. Most if not all of the agricultural cropland has been developed into circle pivots and produce a variety of crops such as alfalfa, corn, wheat, mint, onions and potatoes. These land uses provide forage, cover and/structure for local wildlife at least a portion of the year. However, as modern farming practices become “cleaner and more efficient” the value of these lands for wildlife diminishes and highlights the importance of the wildlife area to sustain year-long habitat values.

The Willow Creek Wildlife Area is surrounded by agricultural, rangeland, and transportation land uses. Rangelands surround the wildlife area to its northeast and entire western boundary. Similar to Coyote Springs Wildlife Area, irrigated agricultural cropland is the predominant land use surrounding the wildlife area. At the areas northern boundary, Interstate 84 parallels Union Pacific rail lines as well as the Columbia River with associated barge traffic within the John Day Lock and Dam Pool. This network economically sustains not only a large portion of the Columbia Basin but links the area to the broader Pacific Northwest. The Interstate and rail traffic might present serious and commonly occurring risk to wildlife safety but, at present, incidences are infrequent adjacent to the wildlife area. Much of the avian and terrestrial wildlife utilize habitat at safe distances from the transportation corridor. A coal fire energy facility and a large dairy operation are in close proximity of Willow Creek. These two operations, in combination with wetlands within Three Mile Canyon and Six Mile Canyon, are used heavily by migrating waterfowl and influence their movements within the Columbia Basin. Also within the general vicinity of Willow Creek Wildlife Area is the 22,642 acre Boardman Grassland Conservation Area operated by the Nature Conservancy. Willow Creek Wildlife Area is within the cooperative Willow Creek Weed Management Area.

Figure 3 - Columbia Basin Wildlife Areas Land Use



Infrastructure

Developments/Facilities

The CBWAs are fairly limited in regards to developments and facilities. Public parking at Power City, Coyote Springs, and Willow Creek Wildlife Areas is limited to one location where informational displays are located. Willow Creek Wildlife Area is unique in respect to the other Columbia Basin Wildlife Areas as it contains a small boat launch area. Irrigon Wildlife Area, however, contains nine public off highway parking areas with informational displays along with two connected walking/riding trails (Lewis and Clark Trail and Columbia River Heritage Trail) in addition to one observation/picnic platform located at the Cottonwood Pond parking area. Currently no program-related facilities (i.e. equipment storage buildings) have been developed on any of the CBWAs. Storage facilities, such as equipment and supply buildings, are located at the John Day Watershed District office in Pendleton. Together the wildlife areas contain approximately 13 miles of boundary fence. Limted developments are listed in **Table 4**.

Table 4. Facilities and Developments on the Columbia Basin Wildlife Areas.

Development Type	Location/ Tract Name
Parking Areas (12)	Power City (1), Irrigon (9), Coyote Springs (1), Willow Creek (1) Wildlife Areas
Boat Launch (1)	Willow Creek Wildlife Area
Viewing Platform (1)	Irrigon Wildlife Area
Informational Displays (9)	Irrigon (8) and Willow Creek Wildlife Areas
Walking/Horse-back riding Trails (2)	Irrigon Wildlife Area
Picnic Area (1)	Irrigon Wildlife Area
Storage Buildings (4)	Pendleton District Office
Fences (13 miles)	Wildlife Area boundary fences

Water Resources

Past records and knowledge of water resources (flow, use, etc.) on CBWAs is limited. Power City Wildlife Area has at least two lowland earth dikes and three x-log water control structures erected in the early 1970s and late 1980s. As these structures are in place, efforts will be made to maintain and upgrade these structures for management of emergent vegetation within the wetland/pond areas.

At the Irrigon Wildlife Area, personnel have applied for water rights for storage and use of stored water for irrigation. The rights are being sought for selected ponds which lack any form of water control and are fed by subterranean flows to or from the Columbia River. By obtaining these rights, the department would attain the ability to manipulate water levels to control vegetation while irrigating established upland food/cover plots to help sustain wildlife populations in an otherwise limiting area.

No deeded water right exists for Coyote Springs Wildlife Area itself but the federally owned land is designated to receive excess water from the WEID system and POM effluent water. Release of water onto the wildlife area is often difficult or indeterminable due to emergencies within the system. However, the area receives at least two flooding events a year (spring and fall). The department is currently pursuing avenues to obtain a water right (storage) to capture this excess water for the benefit of wildlife while not diminishing the ability to receive emergency water as originally intended. Under the Sharecropping Lease Agreement between the Port of Morrow, Frederickson Farms and the department, effluent waste water is allowed to be used on the designated sharecrop area. The POM, operating under its own license for this activity, performs all monitoring and compliance activities related with the treatment and discharge of waste water to ensure federal Environmental Protection Agency (EPA) and groundwater standards are met.

The original landowners of the Willow Creek Wildlife Area had numerous water rights from both Willow Creek and the Columbia River for irrigation and stock watering. These rights were retained with the property upon USACE taking possession. Although these rights are still listed with WRD, they are listed as non-use as they have not been recorded as being used since acquisition of the property. Current efforts are underway by the department to work with WRD to discontinue these non-use rights and re-apply

for new rights for both storage and shallow groundwater irrigation use, based on the benefits to wildlife.

Easements/Access Agreements

The CBWAs contain an assortment of easements and access agreements (**Appendix D**). These agreements primarily pertain to irrigation delivery, power and natural gas transmission, rail and interstate transportation. All CBWA lands are owned by Federal entities (Power City-BLM, Irrigon and Willow Creek-USACE, Coyote Springs-BOR) and current easements and access agreements are held in trust with the appropriate federal agency.

Land Acquisition and Adjustment

All CBWAs are federally-owned but managed and operated by the department and as such, are subject to term management agreements which do not guarantee renewal or promise of title. Land acquisitions for any of the CBWAs may or may not be possible but more than likely would occur through a federal surplus property acquisition or land exchange. With the exception of Coyote Springs all the other wildlife areas have mandated uses which identify wildlife habitat and recreation as the primary uses and benefits of these lands.

Currently the department is working with USACE to acquire management of an additional 170 acres of land. This land spans from the town of Irrigon to about the Umatilla National Wildlife Refuge. Addition of this parcel would add another 2.5 miles of river access, two boat lauch areas, and a public restroom to the Irrigon Wildlife Area.

The department also encourages adjacent landowners to pursue conservation easements in their various forms to provide and/or protect remaining wildlife habitat or resources and minimize the potential negative impacts of future land developments. It is the policy of the department to only acquire land or interests in lands, including easements and leases, from willing sellers, consistent with statutory authority and the department's mission. Acquisitions and adjustments must be for conservation of fish and wildlife and their habitats and to provide fish- and wildlife-oriented public use for educational and recreational purposes. Land adjustments would allow for the sale, trade or exchange of land with willing landowners to enable the department to consolidate wildlife area boundaries.

There are three categories of lands that may be considered for acquisition. These include: 1) Significant or unique habitats, especially those beneficial to threatened or endangered or sensitive species; 2) Sites, or access to sites, that provide wildlife-related recreational opportunities; and, 3) Properties to facilitate the performance of the department's mandated duties (e.g., storage and warehouse, feeding barns, etc.).

Public Use

Public Access

The CBWAs are open to public access year-round for recreational purposes. Three safety zones (South Shore, County Line, and Irrigon City limits) confine a portion of

Irrigon Wildlife Area to non-consumptive recreational use. All CBWAs have a public access restriction of no entry from 10pm to 4am, except at designated public parking areas.

Hunting, Trapping and Angling

Providing hunting opportunities is one of the primary objectives of the CBWAs. During their peak in the 1980s, the Columbia Basin supported high numbers of wintering waterfowl and equally high numbers of hunters pursuing those resources. Lodging, food services, and retail industries of local economies gained significantly during this time. However, over the past decade changing crop rotations and modern/more efficient farming practices have resulted in significant declines in waterfowl numbers and hunters. Responses to recent habitat improvement projects such as controlling Russian olive infestations, robust emergent vegetation control and re-establishment of food and cover plots on CBWAs have resulted in increases in local waterfowl and upland game bird populations, and a subsequent increase in hunting use has been observed (**Table 5**).

Trapping on the CBWAs is somewhat self-limiting due to the constraints imposed by the areas relative small sizes. The Irrigon Wildlife Area is trapping by permit only and is utilized by few individuals each year. Although there is very little information regarding trapping on the other CBWAs, some historical use has been documented. Similar to Irrigon, a few individuals trap on Willow Creek Wildlife Area each year in the pursuit of muskrat, beaver and river otter.

Most angling takes place at Irrigon WA and Willow Creek WA but historically anglers fished the ponds at Power City WA for warmwater species. Most of the angling now occurs at the mouth of the Umatilla River and in Willow Creek Bay. The department maintains a boat launch for anglers at Willow Creek WA.

Table 5. Estimated Annual Hunting, Trapping and Angling Use Days on Columbia Basin Wildlife Areas.

Activity	Estimated Annual Use Days
Hunting	
Waterfowl	550
Upland Bird	200
Big Game	25
Unprotected Wildlife	25
Trapping	50
Angling	200
Total	**1,000**

Wildlife Viewing

Increases in wildlife viewing in recent years are most likely attributed to the popularity of bird watching by an increasing population of local residents (**Table 6**). Viewers and other wildlife-related recreationists use the same infrastructure (parking areas, Heritage Trail) that serves the hunting public. With typical hot dry summers in the Columbia Basin, Irrigon Wildlife Area receives the majority of public use for swimming and

picnicking along its seven miles of beach access. The primitively developed, connected Lewis and Clark Trail and Columbia River Heritage Trail span the length of the Irrigon Wildlife Area and are very popular with the local horse riding community.

Educational/Interpretive

Schools or other groups may visit the CBWAs on their own or arrange for guided tours by department personnel. Volunteers and youth groups have completed several projects on the areas such as bird nest boxes, litter cleanup and construction of a wildlife viewing platform. Informational talks and presentations have been given to many schools and special interest groups, when requested. All parking areas at CBWAs, except Power City WA, have interpretive sign boards.

Table 6. Estimated Annual Wildlife Viewing Use days on Columbia Basin Wildlife Areas.

Age Group	Number of Participants in 2007
Wildlife Viewing	300
Photography	50
Hiking	200
Horseback Riding	200
Beach Use (e.g. swimming, picnicking)	300
Other misc.(e.g. gather berries, asparagus)	50
Total	**1,100**

Objectives and Strategies

Objectives and Strategies

As previously stated, objectives are concise statements of what the department wants to achieve, how much the department wants to achieve, when and where to achieve it and who will be responsible for the work. Objectives derive from goals and provide the basis for determining strategies. Strategies describe the specific actions, tools, techniques or a combination of these elements used to meet an objective.

Goals, objectives and strategies in the plan were derived following an ecosystem based management philosophy. The primary action for benefiting wildlife is managing or preserving the range of habitat types that historically occurred (pre- and post-John Day Lock and Dam) in the Columbia Basin. These habitats were created and maintained by a variety of ecological processes, most importantly natural hydrology and the areas local climate. Historical habitat types are now not only supported by those processes but a host of modern land use practices on adjacent lands (i.e. modern irrigation structures/use on adjacent lands) and management activities on the wildlife areas. Management activities including water level management (pond deepening) and vegetation manipulations (farming, mowing, cutting, disking, controlled burning, and chemical control) are tools CBWA personnel use to maintain and create important healthy habitats. Due to the wide variety of habitat use and preference among the different wildlife species utilizing the CBWAs, benefits are varied. Not all species or guilds of species will see benefits at all times. In addition, recreational opportunities

based on public demand and habitat capabilities, balanced with resource needs, are quite variable and specific uses are not maximized in all cases.

The following objectives and strategies are based on the three goals described earlier. They identify the management activities and priorities of the 2008 Columbia Basin Wildlife Areas Management Plan:

Goal 1: To protect, enhance and manage wetland habitats to benefit native fish and wildlife and desired game species.

A substantial portion of the Pacific Flyway waterfowl population passes through the Columbia Basin of the Intermountain West to wintering areas in California, Central America and South America. Many of these same species along with others make return migrations to breeding areas in Alaska, Canada and arctic Russia. The abundance and diversity of resources in wetlands play an important role in replenishing or building energy reserves depleted or necessary during migration for a variety of species. In some cases energy is being stored in preparation for the oncoming physiological demands of breeding and nesting season. The Columbia Basin Wildlife Areas play an important role for: migrating waterfowl, shorebirds, raptors, and neotropical migrants.

Life history events of migration, molt, pair formation, and pre-breeding fat storage are undertaken by waterfowl and a diversity of habitat types can meet the needs of a wide variety of species. Active habitat management at the Columbia Basin Wildlife Areas is necessary and critical to maintain, preserve, and enhance/restore wetlands and their functionality on the landscape. Intermittent, seasonal, and permanent wetlands in conjunction with adjacent food/cover plots produce large amounts of natural and artificial foods in the form of cereal grains, seeds, foliage, tubers, and invertebrates that provide a diverse diet for a variety of waterfowl species. Constituting modest portion of early season sport harvest by waterfowl hunters, local breeding populations on the CBWAs contribute to the conservation and integrity of the Pacific Flyway. Active management of wetlands focuses on waterfowl but also benefits other species such as bitterns, avocets, stilts and painted turtles, among others.

Objective 1.1: Protect and manage approximately 81 acres of palustrine permanently flooded wetland habitats.

Rationale: Permanently flooded wetlands on the CBWAs are fed primarily through surface and sub-surface flows of water traveling to (irrigation seepage) or from the Columbia River. Water depths in these habitats are most often stable throughout the year with moderate production of submerged aquatic vegetation. This habitat is not only valuable to migrating and/or breeding waterfowl and shorebirds, but critical for painted turtles and a variety of amphibians as seasonal wetlands recede. Alternate habitat locations for displaced species will be a consideration prior to conducting activities to minimize any potential negative effects.

Strategy 1. Reduce robust emergent stands (cattails and hardstem bulrush), where necessary to meet 25-50% area of coverage at Power City (15 acres), Irrigon (56 acres) and Willow Creek (9 acres). Work will include burning, application of federally-approved herbicides, and when/where appropriate mowing and/or disking.

Strategy 2. Utilize integrated pest management to control invasive plant species (i.e. Russian olive) and noxious weeds within and adjacent to wetland areas. Work will entail monitoring, searching for, and treating infestations utilizing best management practices and techniques at Irrigon (56 acres) and Willow Creek (9 acres).

Objective 1.2: Protect and manage approximately 101 acres of palustrine seasonally flooded wetland habitats.

Rationale: Seasonally flooded wetlands on CBWAs are typically fed by overland flows of water as a result of irrigation discharge or seepage. Water levels in these habitats typically recede within the mid-late portion of the growing season and recover in late fall and winter. These habitats are important foraging and resting sites for fall and spring migratory waterfowl as well as early season breeding areas. These areas support a variety of amphibians, and shorebirds during periods of soil inundation and saturation. Alternate habitat locations for displaced species will be considered prior to conducting treatments and activities. Strategy 3 would be an exception to this rationale.

Strategy 1. Reduce robust emergent stands (cattails and hardstem bulrush), where necessary to meet 25-50% area of coverage within habitat type at Power City (30 acres), Irrigon (63 acres), Willow Creek (8 acres). Work will include vegetation and soil disturbance such as burning, application of approved herbicides, and when/where appropriate mowing and disking.

Strategy 2. Regulate water levels on 31 acres at Power City Wildlife Area to provide annual flooding and drying events. Water level management shall entail late winter and summer draw-down to emphasize activities of Strategy 1 and moist soil management techniques. Work is intended to maintain and/or enhance emergent and submergent vegetation growth and invertertebrate populations to benefit to amphibians, shorebirds and brood rearing waterfowl.

Strategy 3. Utilize integrated pest management to control invasive plant species (i.e. Russian olive) and noxious weeds within and adjacent to wetland areas. Work will entail monitoring, searching for, and treating infestations utilizing best management practices and techniques at Power City (30 acres), Irrigon (63 acres), and Willow Creek (8 acres).

Strategy 4. Enhance approximately 4 acres of seasonally flooded wetland habitat by use of excavation, impoundments and water control structures at the Coyote Springs Wildlife Area. Enhancement on the area will focus on extending

duration of inundation from excess water for the benefit of waterfowl brood rearing.

Objective 1.3: Enhance and manage approximately 27 acres of palustrine intermittently flooded habitats.

Rationale: Intermittently flooded wetland habitat occurs on the Coyote Springs Wildlife Area. Excess and emergency releases of water from an adjacent irrigation canal create periods of inundation in spring and fall as well as intermittently during the summer. Periods of inundation typically do not exceed 1-2 weeks in length. Recession of water levels are predominately rapid with small isolated areas (< 0.25 ac) retaining shallow volumes of water for an average of 3-5 weeks. Given intermittent flooding events, this habitat type yields high vegetative and invertebrate production. This habitat type is important to and highly utilized by fall and spring migrating waterfowl. During dry or slightly moist soil periods this wetland provides forage and cover for a variety of upland gamebirds and passerines.

Strategy 1. Reduce robust emergent stands (coyote willow, cattails, and hardstem bulrush), where necessary to meet 25-50% area of coverage within habitat type at Coyote Springs (27 acres). Work will include vegetation and soil disturbance such as burning, application of approved herbicides, and when/where appropriate mowing and disking.

Strategy 2. Utilize integrated pest management to control invasive plant species (ie reed canarygrass) and noxious weeds within and adjacent to wetland areas. Work will entail monitoring, searching for, and treating infestations utilizing best management practices and techniques at Coyote Springs (27 acres).

Objective 1.4: Protect, enhance and manage approximately 12 acres of riverine wetlands.

Rationale: Willow Creek comprises the only riverine habitat occurring on the CBWAs. Willow Creek is an altered waterway but vital for many endemic aquatic and terrestrial flora and fauna of the region. These include species such as wood duck, beaver, muskrat, river otter, small mouth bass, yellow warblers, etc. Riverine habitats are preserved, enhanced, and protected by management actions.

Strategy 1. Enhance functionality of 12 acres of riverine habitat at Willow Creek Wildlife Area. Work will entail planting native woody vegetation (tree and shrub) to reduce events of erosion and disturbance and serve to increase bank stabilization and overall species diversity.

Strategy 2. Enhance 12 acres of riverine habitat by introduction of woody debris to improve in-stream habitat. Debris will reduce the speed of flows, trapping sediments to build natural bank slopes and create in-stream habitat for the benefit of fish and wildlife species.

Strategy 3. Utilize integrated pest management to control invasive plant species (i.e. Russian olive) and noxious weeds within and adjacent to riverine areas. Work will entail monitoring, searching for, and treating infestations utilizing best management practices and techniques within the 12 acres of riverine habitat at Willow Creek.

Objective 1.5: Protect, enhance and manage approximately 14 acres of lacustrine seasonally flooded habitats.

Rationale: This seasonally flooded habitat occurs at Willow Creek Wildlife Area. This habitat is immediately adjacent to open water habitat and is a result of the John Day Lock and Dam Pool. Moist soil exposure and inundation depth, timing, and duration are directly linked to John Day Lock and Dam Pool operations. In conjunction with adjacent open water habitat, this habitat type is heavily utilized as security habitat for wintering waterfowl and brood rearing Canada Geese, nesting and foraging habitat for shorebirds such as avocets and stilts and foraging habitat for other species.

Strategy 1. Utilize integrated pest management to control invasive plant species (i.e. reed canarygrass, Russian olive) and noxious weeds within and adjacent to lacustrine seasonally flooded areas. Work will entail monitoring, searching for, and treating infestations utilizing best management practices and techniques within the 14 acres of lacustrine seasonally flooded habitat at Willow Creek.

Objective 1.6: Maintain and improve critical physical and functional infrastructure affecting wetland management activities.

Rationale: Wetland management actions are designed to directly manipulate and/or initiate vegetative responses and subsequent use by desired wildlife. Water level management is most often critical in these operations. Infrastructure maintenance (dikes, water control structures) and improvements (irrigation delivery systems) will provide wetland enhancement and functionality while directly aiding in attainment of management goals/objectives.

Strategy 1. Maintain two existing lowland dikes and repair 3 existing stop log systems at Power City Wildlife Area and repair two existing dikes and replace two water control structures at Coyote Springs Wildlife Area.

Strategy 2. Obtain water rights and necessary pumps/irrigation equipment for water manipulation on approximately 14 acres of permanently flooded wetlands at the Irrigon Wildlife Area. The department wants to attain the ability to manipulate water level to control vegetation while irrigating established upland food/cover plots to help sustain wildlife populations.

Goal 2: To protect, enhance and manage upland habitats to benefit native wildlife and desired game species.

The Columbia Basin contains an abundance of agriculture, primarily in the form of crop production. Although supporting some species, this shift on the landscape has led to a dramatic decline of native habitats and associated flora/fauna. With 84 percent of all lands in private ownership within the Columbia Plateau, the Oregon Conservation Strategy has identified upland grassland, sagebrush steppe, and riparian as strategy habitats. Containing all of these habitats, the CBWAs play an important role in the conservation of a number of species such as long-billed curlew, sage sparrow, grasshopper sparrow, pallid bat, Swainson's hawk, and many others. Active management of these upland habitats insures the conservation and integrity of those species which inhabit them.

Objective 2.1: Protect, enhance and manage approximately 680 acres of grassland habitat.

Rationale: Grassland habitats are the largest habitat type on the CBWAs and are a strategy habitat identified in the Oregon Conservation Strategy. Quality native grassland habitats on the wildlife areas vary in composition and diversity depending on individual site characteristics, but generally include a mixture of perennial bunchgrasses and forbs. Grass species include Indian ricegrass, needle and thread, basin wild rye, bluebunch wheatgrass, Sandberg's bluegrass and Idaho fescue. Deterioration of grasslands across the landscape by invasive species, land uses, and fire frequency and intensity have resulted in an overall decline in quality habitat for ground nesting birds, burrowing mammals, and raptors. Management activities focus on reduction of competition by invasive species while increasing recruitment and establishment of native perennials.

> **Strategy 1.** Utilize integrated pest management to control invasive plant species and noxious weeds within and adjacent to grassland habitats areas. Work will entail monitoring, searching for, and treating infestations utilizing best management practices and techniques within the 680 acres of grassland habitat at Power City (44 acres), Irrigon (319 acres), Coyote Springs (55 acres), and Willow Creek (262 acres).
>
> **Strategy 2.** Restore and enhance grassland habitat at Power City (15 acres) and Irrigon (100 acres). Work will include fall reseeding and/or inter-seeding of native grass and forb species which are adapted to individual sites as dictated by aspect, soil, drought tolerance, and overall wildlife value as nesting/hiding cover and/or forage value.

Objective 2.2: Protect, enhance and manage approximately 548 acres of sagebrush steppe/shrubland habitats.

Rationale: Sagebrush steppe/shrubland habitats comprise the second largest habitat type found on the CBWAs. Sagebrush steppe/shrubland is a strategy habitat identified in the OCS and plays an important role in the ecology of several shrub steppe

dependent species that are either sensitive and/or vulnerable. These include sage sparrow, loggerhead shrike, and northern sagebrush lizard. Additionally, other sage steppe species such as the sage thrasher have been forced to occupy small remaining shrub steppe habitat fragments within the Columbia Basin. The quality of sagebrush steppe/shrubland habitat on the CBWAs varies depending on plant species composition and diversity. Deterioration of this habitat is largely attributed to invasive species, land use practices, and increases in fire frequency and intensity. Management activities on the CBWAs focus on reduction of competition by invasive species while increasing shrub recruitment and establishment.

Strategy 1. Enhance and restore native shrub density, distribution, and composition within 40 acres of sagebrush steppe/shrubland habitat at Irrigon Wildlife Area. Work will entail removal of invasive species and inter-seeding of basin big sagebrush and bitterbrush.

Strategy 2. Enhance and restore 70 acres of sagebrush steppe/shrubland understory species composition and cover at the Irrigon Wildlife Area. Work will entail inter-seeding of native grass and forb species adapted to individual site's aspect, soil, and plant available water. Enhancement sites will be selected based on overall wildlife value as nesting/hiding cover and/or forage value for endemic wildlife.

Strategy 3. Coordinate, mitigate, and/or restrict management activities to protect species composition, diversity and cover (vertical and horizontal) values on 548 acres of sagebrush steppe/shrubland. Work will entail the coordination of activities through the planning and implementation process of internal (department) and external stakeholders to minimize disturbance within this habitat type.

Strategy 4. Utilize integrated pest management to control invasive plant species and noxious weeds within and adjacent to sagebrush steppe/shrubland habitats. Work will entail monitoring, searching for, and treating infestations utilizing best management practices and techniques on 548 acres of sagebrush steppe/shrubland habitat.

Objective 2.3: Protect, enhance and manage approximately 94 acres of agricultural upland habitats.

Rationale: Agricultural habitats work in conjunction with adjacent habitats to provide a sustained source of high energy forage and cover to migrating and breeding waterfowl, neotropical migrants, resident passerines, upland gamebirds, and mammals (ungulate and endemic small mammals) at different times of the year. Drought resistant varieties of cereal grains, and if desired, mixed with other types of crops (sunflower, etc) are tailored to specific areas based on individual site characteristics, desired wildlife use, and overall vertical/horizontal cover yielded.

Strategy 1. Maintain established food and cover crop plantings at Irrigon (11 plantings = 17 acres), Coyote Springs (2 plantings = 6 acres), and Willow Creek (1 planting = 34 acres). Work entails use of farm equipment and implements required for soil cultivation and planting as well as monitoring and evaluation of utilization. Seeding activities will occur in fall and/or spring to incorporate usage by a variety of mammals, waterfowl, upland game birds, neotropical migrants and resident passerines at various physiological stages of development throughout the year. Crops selected for plantings shall depend on individual site characteristics with special consideration given to incorporate maximum horizontal and vertical cover and/or structure.

Strategy 2. Maintain and manage 42 acres of agricultural cropland in sharecrop agreement at Coyote Springs Wildlife Area. Work will entail planning, managing, maintaining, and monitoring agricultural activities to ensure overall desired effect of agreement and retention of the primary benefits to wildlife.

Strategy 3. Restore 20 acres of fallow agricultural land currently classed as grassland at Willow Creek Wildlife Area. Work entails removal of invasive species and noxious weeds and managed as per Objective 2.3 and Strategy 1.

Strategy 4. Utilize integrated pest management to control invasive plant species and noxious weeds within and adjacent to agricultural habitats. Work will entail monitoring, searching for, and treating infestations utilizing best management practices and techniques on 94 acres of agricultural habitat.

Objective 2.4: Protect, enhance and manage approximately 145 acres of deciduous tree habitat (riparian).

Rationale: Deciduous tree or riparian habitat is an important habitat, both directly and indirectly, for a broad spectrum of both fish and wildlife. Characterized by high diversity, riparian habitats typically have abundant invertebrate populations and provide year-long habitat and travel corridors for passerines and upland game birds. Historic natural recruitment and establishment of cottonwood and other deciduous trees on the CBWAs were influenced by natural flooding events. Management activities are focused on supplementing natural recruitment and suppression of competition from introduced invasive species.

Strategy 1. Enhance 145 acres of riparian habitat at Irrigon (114 acres) and Willow Creek (31 acres) Wildlife Areas. Work will entail selectively planting native woody vegetation (tree and shrub) to aid and supplement natural recruitment and increase species diversity and composition within this habitat type.

Strategy 2. Utilize integrated pest management to control invasive plant species (i.e. Russian olive) and noxious weeds within and adjacent to agricultural habitats. Work will entail monitoring, searching for, and treating infestations

utilizing best management practices and techniques within the riparian habitats on Irrigon and Willow Creek Wildlife Areas.

Objective 2.5: Maintain and improve wildlife area structures and equipment used to conduct habitat management and public use projects.

Rationale: Facilities, structures, and equipment are integral to the overall operation of the CBWAs. Facilities, structures, and equipment must be maintained, kept in good working order, or upgraded to accomplish habitat and wildlife management projects as well as to provide public use opportunities.

Strategy 1. Maintain and improve the wildlife areas' facilities and storage areas which, to reduce transportation costs, are currently housed at the John Day Watershed District facility located in Pendleton. Work will include carpentry repair to office and shop facilities, improvements to storage area and structures, landscaping maintenance, and general complex structural maintenance and improvement.

Strategy 2. Maintain, improve, and acquire integral capital items and disposable assets required for efficient wildlife habitat activities. Work will entail inventories, maintenance, repair, upgrades, and acquisitions of equipment (i.e. tractors, seeders, pumps, etc.) and supplies (i.e. seed, herbicide, etc.) needed to conduct fish and wildlife habitat operations as outlined in this plan.

Strategy 3. Construct storage facility at department-owned Irrigon Hatchery for storage of heavy equipment and field supplies. Work will entail purchase and installation of storage structure for field equipment and supplies which will help to reduce current transportation costs associated with moving equipment from Pendleton to the CBWAs.

Strategy 4. Continue proactive project administration activities to address easement, property boundary encroachment and other issues affecting or impacting CBWAs' operations. Work will entail identifying issues, preparing briefing documents and soliciting internal and external assistance where appropriate.

Goal 3: To provide a variety of wildlife oriented recreational and educational opportunities to the public.

The department and CBWA personnel strive to balance the biological needs of fish and wildlife using the areas habitats with various recreational and educational desires of the general public. In order to meet habitat management objectives, decisions are made to manage public use both temporally and spatially to minimize undesirable impacts to wildlife and their habits.

Objective 3.1: Provide hunting, trapping and angling opportunities in a manner compatible with habitat management objectives.

Rationale: The CBWAs are funded entirely by hunter dollars through the Federal Aid to Wildlife Restoration Act (Pittman Robertson) (75%) and hunting license receipts (25%). Hunting is the major public activity on the areas during fall and winter months and, excluding Irrigon Wildlife Area, constitutes the largest annual recreational use.

Strategy 1. Continue current upland game, waterfowl, big game hunting and trapping opportunities. Work will include providing recommendations for seasons and use of the Wildlife Areas and associated RHAs.

Strategy 2. Evaluate potential benefits and adverse effects of limited hunt entry (hunt days [eg. open to hunting Saturday, Sunday and Wednesday]). Work will entail research and trial periods surveys and evaluation of wildlife use and hunter desires and success.

Strategy 3. Continue current angling opportunities. Work will entail monitoring angler use by District fisheries staff and providing recommendations or changes as necessary regarding access.

Strategy 4. Conduct and improve wildlife population, distribution, and use surveys. Work will entail coordination with District wildlife staff and volunteers to adequately plan, conduct, collect, record, compile, and summarize survey data which assists and guides the prioritization of management activities.

Strategy 5. Develop a progam for tracking hunter use and success on the wildlife areas. Information will be used to evaluate and modify hunt programs and regulations. Work may include hunter questionnaires to assess hunt programs or development of a self-service permit system.

Strategy 6. Maintain and improve developments including all parking areas, informational signs (kiosks, safety zones, etc.), observation platform, boat launch, and trail.

Strategy 7. Continue current youth hunter education, information and outreach programs. Work entails assisting in and providing annual shotgun skills clinics in conjunction with September youth hunts at the CBWAs and associated field contacts.

Strategy 8. Evaluate potential for improving disabled hunter access at the Columbia Basin Wildlife Areas.

Strategy 9. Develop and maintain relationships with hunting and trapping organizations to assist with wildlife area management.

Objective 3.2: Provide wildlife viewing and education/interpretation opportunities compatible with Objective 3.1 and habitat management objectives.

Rationale: Wildlife viewing related activities constitute a small but increasing portion of public use over the entirety of the CBWAs. However, these activities comprise over half of all public use at the Irrigon Wildlife Area. CBWA personnel will continue to foster these activities and increase educational and informational efforts as outlined in subsequent strategies while ensuring compatibility with Goals 1 and 2.

Strategy 1. Develop a progam for tracking wildlife viewing (and other non hunting, trapping, or angling related activities) use on the wildlife areas. Information will be used to evaluate and modify public use programs and regulations. Work may include questionnaires to assess public use opportunities and programs or development of a self-service permit system.

Strategy 2. Maintain and improve developments including all parking areas, informational signs, observation platform, boat launch, and trail.

Strategy 3. Provide wildlife habitat educational and informational events as requested by schools, civic groups, conservation entities, and/or other institutions. Work entails conducting wildlife habitat educational events at the areas compatible with Goals 1 and 2, and subsequent objectives.

Strategy 4. Provide guidance, information, and support to local organizations and City, County, State, Federal and Tribal entities as requested.

Plan Implementation

Funding

Funding for operation and maintenance of the CBWAs has been accomplished through annual federal grant agreements under the Federal Aid to Wildlife Restoration (WR) Program. This program was created with the passage of the Pittman-Robertson (PR) Act in 1937. The PR Act authorizes the U.S. Fish and Wildlife Services to cooperate with the States, through their respective State fish and wildlife departments, to fund wildlife restoration projects. Eligible types of projects include restoration, conservation, management, and enhancement of wild birds, wild mammals and their habitats, as well as providing public use and benefit from these resources. Funding for WR is derived from a federal excise tax on the sale of firearms, ammunition, and archery equipment. Funding is then appropriated to states based on a mathematical formula of area of the state in square miles (50%) and total number of hunting licenses sold annually (50%), nor less than .5% of the total money available.

To be eligible, States must have assented to the provisions of the PR Act and passed laws for the conservation of wildlife that include a prohibition against diversion of license fees paid by hunters for any other purpose than the administration of the State fish and wildlife department. Another major requirement is that states have to contribute up to

25% of the total grant cost using non-federal funds, since federal participation is limited to 75% of eligible costs incurred under a grant. The department provides its 25% cost share from annual license and tag revenues.

Over the past five years, funding for the operation and maintenance of the CBWAs has averaged approximately $224,400 annually. To implement many of the proposed actions and achieve the objectives and goals of this plan, the department will need additional funding and staff to undertake several types of projects including upgrades of existing facilities, habitat improvement, construction of new facilities or amenities (educational/orientation kiosks and interpretive signs), and species and habitat monitoring.

Staffing / Organization

The department manages sixteen major wildlife areas throughout the state. The wildlife areas encompass approximately 200,000 acres and are found in all four department administrative regions. The CBWAs are currently staffed by two full time Wildlife Habitat Technicians stationed at the Pendleton District Office and one full time Wildlife Habitat Manager stationed at the Phillip.W. Schneider Wildlife Area, in John Day, Oregon. In addition to the CBWAs, the two Wildlife Habitat Technicians and Manager are also responsible for the Bridge Creek Wildlife Management Area. The Wildlife Habitat Manager is also responsible for oversight of the Phillip.W. Schneider Wildlife Area.

Compliance Requirements

The CBWA Management Plan was developed to comply with all Federal and State laws, Oregon Revised Statutes (ORS), Oregon Administrative Rules (OAR), and department policies. Full implementation of all components of this plan will require compliance with laws, regulations, rules, and policies listed in **Appendix E**.

Partnerships

Partnerships with federal, state and local agencies, universities, tribes, non-profits, individual volunteers and private landowners are an important part of CBWA operations and management. Partnerships occur through project funding assistance, research assistance, private land access and/or other types of collaboration. The department will continue to rely on these and other partners in the future as new potential opportunities arise. The Department welcomes and encourages such participation to assist in management and operation of the CBWAs as desired.

Examples of current partnerships at work on CBWAs include:

- USDA - Biological control dispersal, population monitoring, and control of noxious weed infestations.
- ODA - Biological control dispersal, population monitoring, and control of noxious weed infestations.
- West Extension Irrigation District - Release timing and duration of excess water flows onto the Coyote Springs Wildlife Area.
- CTUIR (Cultural Resource Protection Program) - Advisement and monitoring of cultural resources present on the CBWAs.

- CTUIR (Wildlife Program) - Discuss/advise/assist in wildlife habitat projects sharing similar goals and/or objectives. Assistance in biological monitoring.
- Lewis and Clark Trail Committee (Umatilla County) - Coordination of efforts to maintain the Lewis and Clark Trail.
- Columbia River Heritage Trail Committee (Morrow County) - Coordination of efforts to maintain this trail according to the county's Heritage Trail Concept Plan.
- Landowners -Assistance in federal regulation compliance (AOPs, NEPA, National Historic Preservation Act, etc).
- Adjacent landowners - Property access. Observation/report of activities and security on properties.
- Umatilla Rural Fire Department - Controlled burns, wildland fire protection and assistance.
- Irrigon Rural Fire Department - Controlled burns, wildland fire protection and assistance.
- Oregon Department of Forestry - Advisement and use of equipment for controlled burning activities.

Adaptive Management

This plan provides for adaptive management of CBWAs. Adaptive management is a flexible approach to long-term management of resources that is directed by the results of ongoing monitoring activities and latest data. Management techniques and strategies are regularly evaluated in light of monitoring results, new scientific understanding, and other new information. These periodic evaluations are used over time to adapt both management techniques and strategies to better achieve the wildlife area goals.

Monitoring is an essential component of adaptive management in general, and of this plan in particular; specific monitoring strategies have been integrated into goals and objectives described in this plan whenever possible. Habitat management activities will be monitored where possible to assess whether the desired effects on wildlife and habitat components have been achieved.

Plan Amendment and Revision

Wildlife area management plans are meant to evolve with each individual wildlife area, and as such, each plan will be formally revisited after five years and updated every ten years. In the meantime, however, the department will be reviewing and updating this plan periodically (at least as often as every five years) based on the results of the adaptive management program. This plan will also be informally reviewed by CBWA staff while preparing annual work plans. It may also be reviewed during routine inspections or programmatic evaluations. Results of any or all of these reviews may indicate a need to modify the plan. Goals and objectives described in this plan will not change until they are re-evaluated as part of the formal plan revision process. However, strategies may be revised to better address changing circumstances or due to increased knowledge of the resources on CBWAs. If changes are required, the level of public involvement and associated compliance requirements will be determined by the department.

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Dickson, Catherine E. 2005. *A Cultural Resource Inventory of the Irrigon Wildlife Refuge, Morrow and Umatilla Counties, Oregon.* Confederated Tribes of the Umatilla Indian Reservation. Report prepared for Oregon Department of Fish and Wildlife.

ODFW, 2006. *The Oregon Conservation Strategy*. Oregon Department of Fish and Wildlife, Salem, Oregon

Websites:

Boardman Chamber of Commerce-
http://www.boardmanchamber.org/Section/Business_Development/City_Profile.html

Hermiston Chamber of Commerce- http://www.hermistonchamber.com
City of Hermiston- http://www.hermiston.or.us/

Morrow County- Columbia River Heritage Trail Concept Plan
http://www.columbiarivertrail.org/

National Oceanic and Atmospheric Administration (NOAA)-National Weather Service-
http://www.noaa.gov/

U.S. Census Bureau-
http://www.census.gov/

Appendix A. Land Acquisitions and Adjustments Involving the Columbia Basin Wildlife Areas

Year	Acres	Action	Cooperator
1971	505 (Irrigon W.A.)	Management Agreement	U.S. Army Corps of Engineers
1971	646 (Willow Cr. W.A.)	Management Agreement	U.S. Army Corps of Engineers
1973	100 (Power City W.A.)	Management Agreement	Bureau of Land Management
1975	160 (Coyote Springs W.A.)	Management Agreement	Bureau of Reclamation
1977	478 (Irrigon W.A.)	Addition of Lands-Management Agreement	U.S. Army Corps of Engineers
2001	-4 (Irrigon W.A.)	Disposal of land-Sewage Treatment	U.S.Army Corps of Engineers/City of Irrigon
Total	**1,885**		

Appendix B. Plant Species Known to Occur on Columbia Basin Wildlife Areas

Plant

Order-Common Name	Species	Family	Location			
Apiales						
Poison Hemlock	Conium maculatum	Apiaceae	PC	IR	CS	WC
Water hemlock	Cicuta douglasii	Apiaceae				WC
Asparagales						
Asparagus	Asparagus officinalis	Asparagaceae	PC	IR		WC
Asterales						
Arrowleaf Balsomroot	Balsamorhiza sagittata	Asteraceae			CS	WC
Basin Big Sagebrush	Artemisia tridentata	Asteraceae	PC	IR	CS	WC
Black Oil Sunflower	Helianthus annuus	Asteraceae		IR		WC
Canada Goldenrod	Solidago canadensis	Asteraceae			CS	
Canada Thistle	Cirsium arvense	Asteraceae		IR		WC
Chicory	Cichorium intybus	Asteraceae		IR	CS	WC
Columbia Coreopsis	Coreopsis tinctoria var. atkinsoniana	Asteraceae			CS	
Common Cocklebur	Xanthium strumarium	Asteraceae		IR	CS	WC
Common Spring Gold	Crocidium multicaule	Asteraceae		IR		
Dandelion	Taraxacum officinale	Asteraceae	PC	IR	CS	WC
Diffuse Knapweed	Centaurea diffusa	Asteraceae		IR		WC
Mule's Ears	Wyenthia amplexicaulis	Asteraceae		IR	CS	WC
Rabbitbrush	Ericameria nauseosa	Asteraceae	PC	IR	CS	WC
Russian Knapweed	Acroptilon repens	Asteraceae	PC	IR	CS	WC
Tapertip Hawksbeard	Crepis acuminata	Asteraceae		IR	CS	
Yarrow	Achillea millefolium	Asteraceae	PC	IR	CS	WC
Yellow Starthistle	Centaurea solstitialis L.	Asteraceae			CS	WC
Capparales						
Field Mustard	Brassica rapa	Brassicaceae		IR		WC
Perennial Pepperweed	Lepidium Latifolium	Brassicaceae		IR		
Short fruited tansey mustard	Descurainia pinnata	Brassicaceae				WC
Tumble Mustard	Sisymbrium altissimum	Brassicaceae		IR		WC
Watercress	Nasturtium officinale	Brassicaceae	PC	IR	CS	WC
Caryophyllales						
Prickly Pear Cactus	Opuntia polyacantha	Cactaceae		IR	CS	WC
Fourwing Saltbrush	Atriplex canescens	Chenopodiaceae		IR		WC
Kochia	Kochia scoparia	Chenopodiaceae		IR		WC
Russian Thistle	Salsola iberica	Chenopodiaceae		IR	CS	WC
Winterfat	Krascheninnikovia lanata	Chenopodiaceae	PC	IR	CS	WC
Cyperales						
Hardstem Bulrush	Schoenoplectus acutus	Cyperaceae	PC	IR	CS	WC
Basin Wildrye	Leymus cinereus	Poaceae		IR		WC

Bluebunch Wheatgrass	Pseudoroegneria spicata	Poaceae	PC	IR	CS	WC
Cereal Rye	Secale cereale L.	Poaceae	PC	IR		
Cheatgrass	Bromus tectorum	Poaceae	PC	IR	CS	WC
Common Reed	Phalaris australis	Poaceae				WC
Crabgrass	Digitaria haller	Poaceae	PC	IR	CS	WC
Idaho Fescue	Festuca idahoensis	Poaceae		IR	CS	WC
Indian Ricegrass	Achnatherum hymenoides	Poaceae	PC	IR	CS	
Inland Saltgrass	Distichlis spicata	Poaceae	PC	IR		WC
Intermediate Wheatgrass	Thinopyrum intermedium	Poaceae		IR		
Needle and Thread	Hesperostipa comata	Poaceae	PC	IR	CS	
Reed Canarygrass	Phalaris arundinacea	Poaceae	PC	IR	CS	WC
Sandberg Bluegrass	Poa secunda	Poaceae		IR	CS	WC
Witchgrass	Panicum capillare	Poaceae		IR		
Dipsacales						
Teasel	Dipsacus fullonum	Dipsaceae		IR	CS	WC
Fabales						
False Indigo	Amorpha fruticosa	Fabaceae		IR		WC
Locust	Robinia pseudoacacia	Fabaceae		IR		
Lupine	Lupinus spp	Fabaceae		IR	CS	WC
Woolly-pod milkvetch	Astragalus purshii	Fabaceae				WC
Gentianales						
Showy Milkweed	Asclepias speciosa	Asclepiadaceae			CS	
Lamiales						
Fiddleneck (Buglass) Tarweed	Amsinckia intermedia	Boraginaceae		IR		WC
Malvales						
Common Mallow	Malva neglecta	Malvaceae	PC	IR	CS	WC
Mytrtales						
Purple Loosestrife	Lythrum salicaria	Lythraceae		IR		
Pale-stemmed Evening Primrose	Oenothera pallida	Onagraceae		IR	CS	WC
Najadales						
Waternymph	Nejas spp	Najadaceae	PC	IR	CS	WC
Sago	Stuckenia pectinata	Potamogetonaceae	PC	IR	CS	WC
Pinales						
Juniper	Juniperus occidentalis	Cupressaceae				WC
Poales						
Corn	Zea spp	Graminea		IR	CS	WC
Millet	Panicum miliaceum	Poaceae		IR	CS	WC
Wheat	Triticum spp	Poaceae		IR	CS	WC
Polygonales						
Western Dock	Rumex aquaticus	Polygonaceae		IR	CS	
Rhamnales						

Russian Olive	Elaeagnus angustifolia L.	Elaeagnaceae	PC	IR	CS	WC
Rosales						
Bitterbrush	Purshia tridentata	Rosaceae	PC	IR	CS	WC
Chokecherry	Prunus virginiana	Rosaceae		IR		
Himalayan Blackberry	Rubus armeniacus	Rosaceae	PC	IR	CS	
Nootka Rose	Rosa nutkana	Rosaceae		IR	CS	
Western Sand	Prunus pumila	Rosaceae		IR		
Wood's Rose	Rosa woodsii	Rosaceae		IR		WC
Rununculales						
Larkspur	Delphinium spp	Ranunculaceae		IR		
Salicales						
White Willow	Salix alba	Saliacaceae		IR		WC
Black Cottonwood	Populus balsamifera L. spp trichocarpa	Salicaceae	PC	IR	CS	WC
Coyote Willow	Salix exigua Nutt.	Salicaceae	PC	IR	CS	WC
Peachleaf Willow	Salix amygdaloides	Salicaceae		IR		WC
Sapindales						
Puncture Vine	Tribulus terrestris	Zygophyllaceae	PC	IR	CS	WC
Scrophulariales						
Common Mullein	Verbascum thapsus	Scrophulariaceae		IR	CS	
Solanales						
Field Bindweed	Convolvulus arvensis	Convolvulaceae	PC	IR	CS	WC
Longleaf Phlox	Phlox longifolia	Polemoniaceae		IR		WC
Nightshade	Solanum dulcamara	Solanaceae		IR		
Typhales						
Cattail	Typha latifolia L.	Typhaceae	PC	IR	CS	WC
Urticales						
Stinging Nettle	Urtica dioica	Urticaceae		IR		WC

Appendix C. Wildlife Species Known to Occur on Columbia Basin Wildlife Areas

	Order-Common Name	**Species**	**Family**	**Location**			
Bird	**Anseriformes**						
	American Widgeon	*Anas americana*	Anatidae		IR		WC
	Blue-winged Teal	*Anus discors*	Anatidae	PC	IR	CS	WC
	Bufflehead	*Bucephala albeola*	Anatidae	PC	IR		WC
	Cinnamon Teal	*Anas cyanoptera*	Anatidae	PC	IR	CS	WC
	Common Goldeneye	*Bucephala clangula*	Anatidae		IR		
	Common Merganser	*Mergus merganser*	Anatidae		IR		WC
	Gadwall	*Anas strepera*	Anatidae	PC	IR		
	Green-winged Teal	*Anus crecca*	Anatidae	PC	IR	CS	WC
	Lesser Canada Goose	*Branta canadensis parvipes*	Anatidae	PC	IR	CS	WC
	Lesser Scaup	*Aythya affinis*	Anatidae	PC	IR		WC
	Mallard	*Anas platyrhynchos*	Anatidae	PC	IR	CS	WC
	Northern Pintail	*Anas acuta*	Anatidae	PC	IR	CS	WC
	Northern Shoveler	*Anas clypeata*	Anatidae	PC	IR	CS	WC
	Redhead	*Aythya americana*	Anatidae	PC	IR		WC
	Ring-neck Duck	*Aythya collaris*	Anatidae	PC	IR		WC
	Ruddy Duck	*Oxyura jamaicensis*	Anatidae	PC	IR		WC
	Snow Geese	*Chen caerulescens*	Anatidae		IR		
	Taverner's Canada Goose	*Branta canadensis taverneri*	Anatidae		IR		WC
	Tundra (Whistling) Swan	*Cygnus columbianus*	Anatidae	PC	IR		WC
	Western Canada Goose	*Branta canadensis moffitti*	Anatidae	PC	IR	CS	WC
	Wood Duck	*Aix sponsa*	Anatidae	PC	IR		WC
	Caprimulgiformes						
	Common Nighthawk	*Chordeiles minor*	Caprimulgidae	PC			WC
	Charadriiformes						
	Killdeer	*Charadrius vociferus*	Charadriidae	PC	IR	CS	WC
	Caspian Tern	*Sterna hirundo*	Laridae		IR		WC
	Forster's Tern	*Sterna forsteri*	Laridae		IR		WC
	California Gull	*Larus californicus*	Laridae	PC	IR	CS	WC
	Ring-billed Gull	*Larus delawarensis*	Laridae	PC	IR	CS	WC
	American Avocet	*Recurvirostra americana*	Recurvirostriae	PC	IR		WC
	Black-necked Stilt	*Himantopus mexicanus*	Recurvirostriae	PC	IR		WC
	Common Snipe	*Gallinago gallinago*	Scolopacidae		IR		
	Greater Yellowlegs	*Tringa melanoleuca*	Scolopacidae		IR		
	Long-billed Curlew	*Numenius americanus*	Scolopacidae	PC	IR	CS	WC
	Long-billed Dowitcher	*Limnodromus scolopaceus*	Scolopacidae		IR		WC

Order – Common Name	***Species***	**Family**				
Short-billed Dowitcher	*Limnodromus griseus*	Scolopacidae		IR		
Spotted Sandpiper	*Actitis macularia*	Scolopacidae		IR	CS	WC
Western Sandpiper	*Calidris mauri*	Scolopacidae	PC			
Wilson's Phalarope	*Phalaropus tricolor*	Scolopacidae	PC	IR		
Wilson's Snipe	*Gallinago gallinago*	Scolopacidae	PC	IR		WC
Ciconiiformes						
American Bittern	*Botaurus lentiginosus*	Ardeidae	PC	IR		
Black-crowned Night Heron	*Nycticorax nycticorax*	Ardeidae	PC	IR	CS	WC
Great Blue Heron	*Ardea herodias*	Ardeidae	PC	IR	CS	WC
Great Egret	*Ardea alba*	Ardeidae		IR		WC
Turkey Vulture	*Cathartes aura*	Cathartidae				WC
Columbiformes						
Mourning Dove	*Zenaida macroura*	Columbidae	PC	IR	CS	WC
Rock Dove (Domestic Pigeon)	*Columba livia*	Columbidae	PC	IR		WC
Belted Kingfisher	*Ceryle alcyon*	Alcedinidae	PC	IR		
Falconiformes						
Bald Eagle	*Haliaeetus leucoephalus*	Accipitridae		IR		
Coopers Hawk	*Accipiter cooperii*	Accipitridae		IR		
Golden Eagle	*Aquila chrysaetos*	Accipitridae		IR		WC
Northern Harrier	*Circus cyaneus*	Accipitridae	PC	IR	CS	WC
Osprey	*Pandion haliaetus*	Accipitridae		IR		WC
Red-tailed Hawk	*Buteo jamaicensis*	Accipitridae	PC	IR	CS	WC
Rough-legged Hawk	*Buteo lagopus*	Accipitridae		IR		
Sharp-shinned Hawk	*Accipiter striatus*	Accipitridae	PC	IR	CS	
Swainson's Hawk	*Buteo swainsoni*	Accipitridae		IR		
American Kestral	*Falco sparverius*	Falconidae	PC	IR		
Prairie Falcon	*Falco mexicanus*	Falconidae		IR		
Galliformes						
California Quail	*Callipepla californica*	Odontophoridae	PC	IR	CS	WC
Chukar	*Alectoris chukar*	Phasianidae				WC
Gray Partridge (Hungarian)	*Perdix perdix*	Phasianidae		IR		WC
Ring-neck Pheasant	*Phasianus colchicus*	Phasianidae	PC	IR	CS	WC
Gruiformes						
Sandhill Crane	*Grus canadensis*	Gruidae		IR		
American Coot	*Fulica americana*	Rallidae	PC	IR		WC
Sora	*Porzana carolina*	Rallidae	PC			
Passeriformes						
Horned Lark	*Eremophila alpestris*	Alaudidae	PC	IR	CS	WC
Black-headed Grosbeak	*Pheucticus melanocephalus*	Cardinalidae		IR		
Lazuli Bunting	*Passerina amoena*	Cardinalidae			CS	
American Crow	*Corvus brachyrhynchos*	Corvidae	PC	IR	CS	WC
Black-billed Magpie	*Pica pica*	Corvidae	PC	IR	CS	WC

Common Raven	*Corvus corax*	Corvidae	PC	IR		WC
Chipping Sparrow	*Spizella passerina*	Emberizidae	PC	IR	CS	
Dark-eyed Junco	*Junco hyemalis*	Emberizidae	PC	IR	CS	WC
Gold-crowned Sparrow	*Zonotrichia atricapilla*	Emberizidae				WC
Lark Sparrow	*Chondestes grammacus*	Emberizidae			CS	
Savannah Sparrow	*Passerculus sandwichensis*	Emberizidae	PC	IR	CS	WC
Song Sparrow	*Melospiza melodia*	Emberizidae	PC	IR	CS	WC
Spotted Tohee	*Pipilo maculatus*	Emberizidae				WC
Tree Sparrow	*Spizella arborea*	Emberizidae			CS	WC
Vesper Sparrow	*Pooecetes gramineus*	Emberizidae		IR		WC
White-crowned Sparrow	*Zonotrichia leucophrys*	Emberizidae	PC	IR	CS	WC
House Finch	*Carpodacus mexicanus*	Fringillidae	PC	IR		
Pine Grosbeak	*Pinicola enucleator*	Fringillidae		IR		
Bank Swallow	*Riparia riparia*	Hiruninidae		IR		
Barn Swallow	*Hirundo rustica*	Hiruninidae	PC	IR	CS	WC
Cliff Swallow	*Petrochelidon pyrrhonota*	Hiruninidae		IR		WC
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	Hiruninidae	PC	IR		
Tree Swallow	*Tachycineta bicolor*	Hiruninidae	PC	IR	CS	WC
Violet-green Swallow	*Tachycineta thalassina*	Hiruninidae	PC	IR	CS	WC
Brewers Blackbird	*Euphagus cyanocephalus*	Icteridae	PC	IR	CS	WC
Brown-headed Cowbird	*Molothrus ater*	Icteridae	PC			
Bullock's Oriole	*Icterus bullockii*	Icteridae		IR	CS	WC
Red-winged Blackbird	*Agelaius phoeniceus*	Icteridae	PC	IR	CS	WC
Western Meadowlark	*Sturnella neglecta*	Icteridae	PC	IR	CS	WC
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*	Icteridae	PC	IR		
Loggerhead Shrike	*Lanius ludovicianus*	Laniidae		IR		WC
Black-capped Chickadee	*Poecile atricapilla*	Paridae		IR		
Common Yellowthroat	*Geothlypis trichas*	Parulidae		IR		
Nashville Warbler	*Vermivora ruficapilla*	Parulidae		IR		
Wilson's Warbler	*Wilsonia pusilla*	Parulidae		IR		WC
Yellow Warbler	*Dendroica petechia*	Parulidae	PC	IR		WC
Yellow-rumped Warbler	*Dendroica coronata*	Parulidae	PC			WC
House (English) Sparrow	*Paser domesticus*	Passeridae	PC	IR	CS	WC
White-breasted Nuthatch	*Sitta carolinensis*	Sittidae			CS	
European Starling	*Sturnus vulgaris*	Sturnidae	PC	IR	CS	WC
Western Tanager	*Piranga ludoviciana*	Thraupidae		IR		WC
Bewick's Wren	*Thryomanes bewickii*	Troglodytidae		IR		WC
Marsh wren	*Cistothorus palustris*	Troglodytidae	PC	IR		WC
American Robin	*Turdus migratorius*	Turdidae	PC	IR	CS	WC

	Swainson Thrush	*Catharus ustulatus*	Turdidae	PC			
	Western Bluebird	*Sialia mexicana*	Turdidae	PC			
	Eastern Kingbird	*Tyrannus tyrannus*	Tyrannidae		IR	CS	WC
	Say's Phoebe	*Sayornis saya*	Tyrannidae				WC
	Western Kingbird	*Tyrannus verticalis*	Tyrannidae	PC	IR	CS	WC
	Warbling Vireo	*Vireo gilvus*	Vireonidae		IR		WC
	Pelecaniformes						
	American White Pelican	*Pelecanus erythrorhynchos*	Pelecanidae		IR		WC
	Double-crested Cormorant	*Phalacrocorax auritus*	Phalacrocoracidae		IR		WC
	Piciformes						
	Downy Woodpecker	*Picoides pubescens*	Picidae	PC	IR		
	Lewis' Woodpecker	*Melanerpes lewis*	Picidae		IR		WC
	Northern Flicker	*Colaptes auratus*	Picidae	PC	IR	CS	WC
	Podicipediformes						
	Pied-billed Grebe	*Podilymbus podiceps*	Podicipedidae	PC	IR		
	Western Grebe	*Aechmophorus occidentalis*	Podicipedidae	PC	IR		WC
	Strigiformes						
	Burrowing Owl	*Athene cunicularia*	Strigidae	PC	IR		
	Great Horned Owl	*Bubo virginianus*	Strigidae		IR		WC
	Short-eared Owl	*Asio flammeus*	Strigidae	PC	IR		WC
	Western Screech Owl	*Megascops kennicottii*	Strigidae				WC
	Barn Owl	*Tyto alba*	Tytonidae	PC	IR		
Mammal	**Artiodactyla**						
	Mule Deer	*Odocoileus hemionus*	Cervidae	PC	IR	CS	WC
	Carnivora						
	Coyote	*Canis latrans*	Canidae	PC	IR	CS	WC
	Badger	*Taxidea taxus*	Mustelidae		IR		WC
	Mink	*Mustella vision*	Mustelidae		IR		WC
	Otter	*Lutra canadensis*	Mustelidae		IR		WC
	Striped Skunk	*Mephitis mephitis*	Mustelidae	PC	IR		WC
	Weasel	*Mustella spp*	Mustelidae	PC			
	Raccoon	*Procyon lotor*	Procyonidae	PC	IR	CS	WC
	Chiroptera						
	Little Brown Myotis	*Myotis lucifugus*	Vespertilionidae		IR		
	Lagomorpha						
	Black-tailed Jackrabbit	*Lepus californicus*	Leporidae	PC	IR		WC
	Mountain Cottontail	*Sylvilagus nuttallii*	Leporidae		IR		WC
	Rodentia						
	Beaver	*Castor canadensis*	Castoridae	PC	IR		WC
	Bushy-tailed Woodrat	*Neotoma cinerea*	Cricetidae		IR		
	Porcupine	*Erethizon dorsatum*	Erethizontidae		IR	CS	WC
	Northern Pocket Gopher	*Thomomys talpoides*	Geomyidae	PC	IR	CS	WC
	Great Basin Pocket Mouse	*Perognathus parvus*	Heteromyidae		IR		WC

	Kangaroo Rat	*Dipodomys ordii*	Heteromyidae	PC			
	Ords Kangaroo Rat	*Dipodomys ordii*	Heteromyidae		IR		WC
	Deer Mouse	*Peromyscus maniculatus*	Muridae	PC	IR	CS	WC
	Long-tailed Vole	*Microtus longicaudus*	Muridae		IR		WC
	Montane Vole	*Microtus montanus*	Muridae		IR		WC
	Muskrat	*Ondatra zibethicus*	Muridae	PC	IR	CS	WC
	Sagebrush Vole	*Lemmiscus curtatus*	Muridae		IR		WC
	White-footed Mouse	*Peromyscus leucopus*	Muridae	PC			
	Yellow-bellied Marmot	*Marmota flaviventris*	Sciuiridae	PC	IR		
Amph./ Reptile	**Anura**						
	Western Toad	*Bufo boreas*	Bufonidae		IR		WC
	Woodhouse Toad	*Bufo woodhouseii*	Bufonidae		IR		
	Tree (Chorus) Frog	*Hyla regilla*	Hylidae		IR		WC
	Great Basin Spadefoot	*Spea intermontana*	Pelobatidae		IR		
	Bullfrog	*Rana catesbeiana*	Ranidae	PC		IR	WC
	Leopard Frog	*Rana pipiens*	Ranidae		IR		
	Caudata						
	Long-toed Salamander	*Ambystoma macrodactylum*	Ambystomatidae	PC	IR	CS	WC
	Squamata						
	Rubber Boa	*Carhina bottae*	Boidae	PC	IR		WC
	Gopher Snake	*Pituophis catenifer sayi*	Colubridae	PC	IR		WC
	Racer	*Coluber constrictor*	Colubridae	PC	IR		WC
	Common Garter Snake	*Thamnophis sirtalis*	Colubridae	PC	IR		WC
	Western Terrestrial Garter Snake	*Thamnophis elegans*	Colubridae	PC	IR		WC
	Fence Lizard	*Sceloporus occidentalis*	Phrynosomatidae				WC
	Short-horned Lizard (Horned Toad)	*Phrynosoma douglasii*	Phrynosomatidae	PC			
	Western Rattlesnake	*Crotalus oreganus*	Viperidae				WC
	Testudines						
	Painted Turtle	*Chrysemys picta bellii*	Emydidae	PC	IR		WC
Fish	**Cypriniformes**						
	Carp	*Cyprinus carpio*	Cyprinidae	IR			
	Cyprinodontiformes						
	Gambusia	*Gambusia affinis*	Poeciliidae	PC	IR		
	Perciformes						
	Black Crappie	*Pomoxis nigromaculatus*	Centrarchidae	IR			
	Largemouth Bass	*Micropterus salmoides*	Centrarchidae	PC	IR		
	Siluriformes						
	Brown Bullhead	*Ameiurus nebulosus*	Ictaluridae	PC			

Scorpaeniformes						
Margined Sculpin	*Cottus marginatus*	Cottidae	IR			WC
Petromyzontiformes						
Pacific Lamprey	*Lampetra tridentate*	Petromyzontidae	IR			WC
Western Brook Lamprey	*Lampetra richardsoni*	Petromyzontidae	IR			WC
Salmoniformes						
Chinook Salmon - Snake River and Upper Columbia River	*Oncorhynchus tshawytscha*	Salmonidae	IR			WC
Coho Salmon	*Oncorhynchus kisutch*	Salmonidae	IR			WC
Steelhead-Upper and Middle Columbia River and Snake R.	*Oncorhynchus mykiss spp.*	Salmonidae	IR			WC
Interior Redband Trout	*Oncorhynchus mykiss gibbsi*	Salmonidae	IR			WC
Sockeye Salmon-Snake River	*Oncorhynchus nerka*	Salmonidae	IR			WC
Steelhead-Upper and Middle Columbia River and Snake R.	*Oncorhynchus mykiss spp.*	Salmonidae	IR			WC

Appendix D. Easements and Access Agreements on Columbia Basin Wildlife Areas

Easement/Access Type	Wildlife Area			
	Power City	Irrigon	Coyote Springs	Willow Cr.
Irrigation Delivery/Pumps	-	Multiple	X	Multiple
Electrical Transmission	X	-	X	X
Natural Gas Transmission	-	X	X	-
Public Access (private road)	-	-	X	X
Interstate/Highway	-	X	X	-
Railroad	-	-	X	-

Appendix E. Legal Obligations Influencing Management of the Columbia Basin Wildlife Areas

Federal Laws

Federal Aid in Wildlife Restoration Act
Pittman- Robertson Act of 1937
The Endangered Species Act of 1973, as amended
National Historic Preservation Act
National Environmental Policy Act
Americans with Disabilities Act

Oregon Revised Statutes

ORS 496.012 Oregon's Wildlife Policy
ORS 496.138 General Duties and Powers; Rulemaking Authority
ORS 496.146 Additional Powers of the Commission
ORS 496.162 Establishing seasons, amounts and manner of taking wildlife; rules
ORS 496.992 Penalties
ORS 570.535 Landowner responsibility for weed control

Oregon Administrative Rules

Division 008 - Department of Fish and Wildlife Lands
635-008-0015 Agreements to Restrict Motor-propelled Vehicles
635-008-0040 Forage Removal from State Lands
635-008-0050 Fish and Wildlife Commission to Post and Enforce Rules
635-008-0070,0105,0130,0185 Columbia Basin Wildlife Areas

Division 011 - Statewide Angling Regulations
635-011-0050 Procedure of Promulgation of Angling Regulations
635-011-0100 General Rule

Division 051 - General Game Bird Regulations
635-051-0000 Purpose and General Information
635-051-0065 State Wildlife Area Regulations

Division 065 - Game Mammal General Seasons and Regulations
635-065-0001 Purpose and General Information
635-065-0625 Regulations on State Wildlife Areas, Refuges and Special Areas

Oregon Department of Environmental Quality

The Port of Morrow disposes of effluent wastewater on agricultural lands on the Coyote Springs Wildlife Area. Their permit dictates limitations to allowable public access in areas treated with effluent wastewater and requires monitoring and managing negative effects to groundwater sources.