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## 3.4 Biological Resources

### 3.4.1 Existing Environment

#### 3.4.1.1 Vegetation/Land Cover

The study area for vegetation includes the areas proposed for new project surface disturbance and adjacent land. To estimate the effects on natural vegetation communities as well as human land uses, an overall land cover map (**Figure 3.4-1**) was prepared that encompasses all project components plus a 0.5 mile buffer on all sides. The map was based on recent (mid-1990s) aerial photography, and land cover types were verified by ground reconnaissance surveys. A second map (**Figure 3.4-2**) provides a more detailed view of the land cover between the plant site and the McNary substation.

The regional vegetation is located in the Steppe Region of northeastern Oregon. The dominant vegetation community is a shrub-steppe with big sagebrush (Franklin and Dyrness 1973). These natural communities have been highly modified by the development of irrigated and dryland agriculture wherever soils are sufficiently deep to support agricultural crops and adequate natural precipitation or irrigation water are available.

Land cover types were categorized in accordance with the criteria established by the Oregon Department of Fish and Wildlife (ODFW) for mitigation of wildlife habitat. These categories are defined by their vegetation assemblages as well as their value as wildlife habitat. The land cover types potentially affected by project components are discussed below.

#### **Shrub-steppe**

**ODFW Category 4 – Shrub-steppe, moderately grazed or weedy (SS4).** Shrub-steppe communities occur extensively across basalt outcrops on the Wanaket Wildlife Area south of the plant site where agricultural development is not possible because of shallow soils (Starbuck Rock Outcrop Complex, Quincy-Rock Outcrop Complex). The dominant species in basalt outcrop areas are stiff sagebrush and Sandberg bluegrass. Big sagebrush is the dominant species in pockets of deeper soils in depressions in the basalt. In 2001, a wildfire burned across the northern and eastern portion of the Wanaket Wildlife Area, removing the shrub and grass cover. The current community in the burned area is dominated by cheatgrass, filaree, and weedy mustards. Small patches of big

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sagebrush with an understory of cheatgrass are located along the margins of croplands between U.S. Highway 730 and the Stanfield compressor station. Because of the low annual precipitation and the cheatgrass competitive advantage for soil moisture, the recovery of the shrub component on the Wanaket Wildlife Area is expected to be long-term (likely 25 to 50 years). This habitat provides feeding and nesting areas for birds adapted to disturbed areas (e.g., meadowlark), and habitat for several species of small mammals (mice and rabbits).

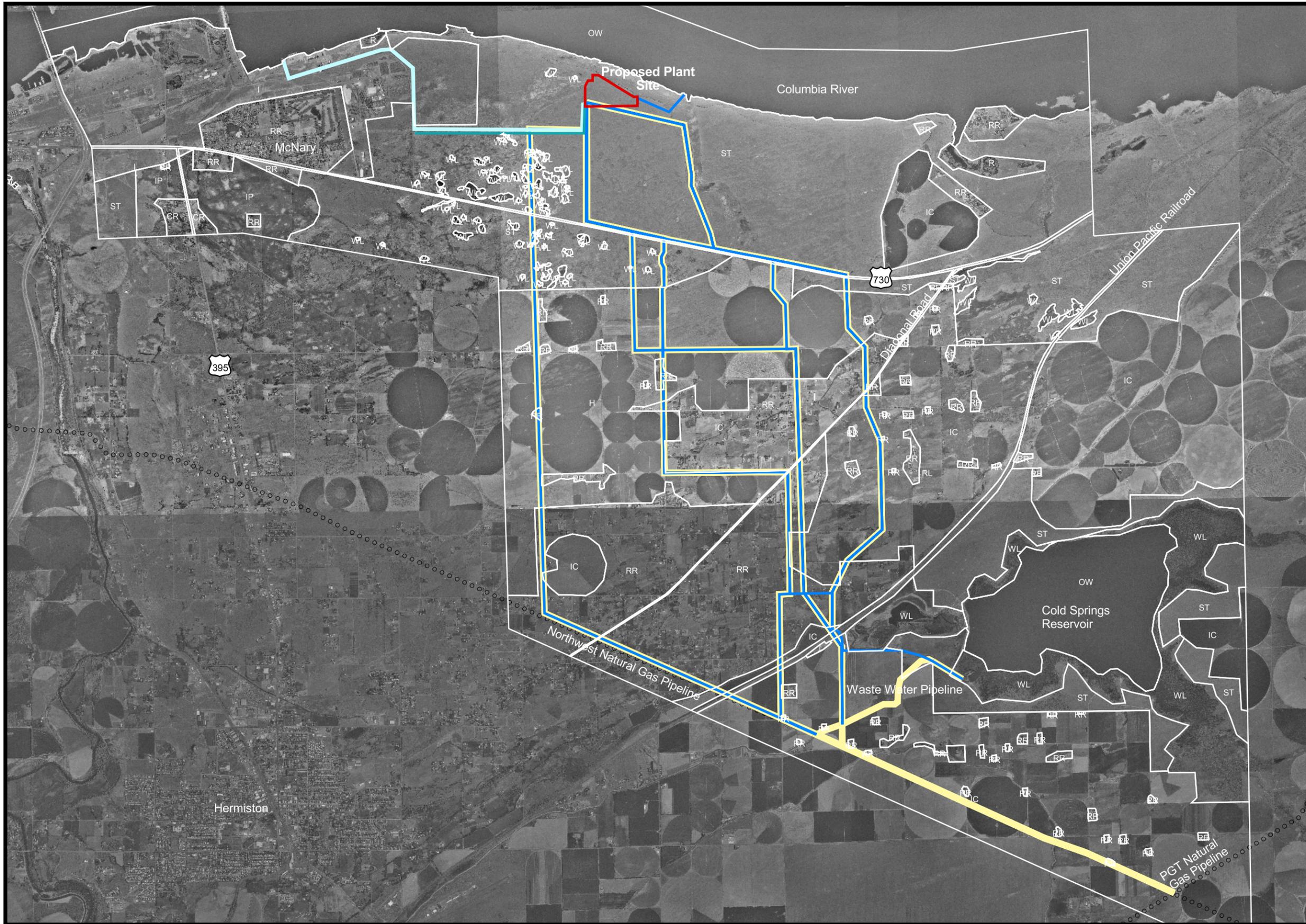
### **Wetlands**

**ODFW Category 3 - Permanent Ponds (WP3).** As part of a mitigation program for the inundation caused by the McNary Hydroelectric Facility (CTUIR and BPA 2001a), a series of ponds were developed on the Wanaket Wildlife Area. These ponds are located in depressions in basalt outcrops, and are fed by water pumped from the Columbia River. The water is pumped over the basalt bluff into an irrigation pipeline that extends toward the southwest. Water is then released from the pipeline into about 15 miles of canals that drain into the individual ponds. Water rights allow the CTUIR to apply a total of 4,764 acre-feet per water per month from March 1 to October 31. Overall water withdrawal does not exceed 7.8 cubic feet per second. The Wanaket Wildlife Area contains about 160 acres of emergent wetlands. Ponds range in size from 0.25 to 10.5 acres. Woody vegetation includes Russian olive, cottonwood, peach-leaf and Columbia River willows. Emergent vegetation rooted along the margins of ponds include cattails and bulrushes. Patches of inland salt grass, reed canary grass, and creeping spike rush occupy seasonally wet soils. These wetlands provide feeding and rearing habitat for shore birds and waterfowl.

Other mapped wetland areas include: 1) an area around an irrigation water regulating pond below the Cold Springs Reservoir; 2) irrigated pasture south of McNary, which is an irrigation-induced wetland caused by cropland drainage further to the east (see below); and 3) the fringe of cottonwood trees, Russian olive, peach-leaf willow, sand bar willow, and leadplant around Cold Springs Reservoir.

### **Open Water**

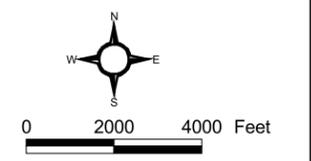
**ODFW Category 2.** The Columbia River channel, and the surface of Cold Springs Reservoir are open water features within the study area. Both areas provide fisheries habitat, and resting and feeding areas for waterfowl and shorebirds.



**Legend**

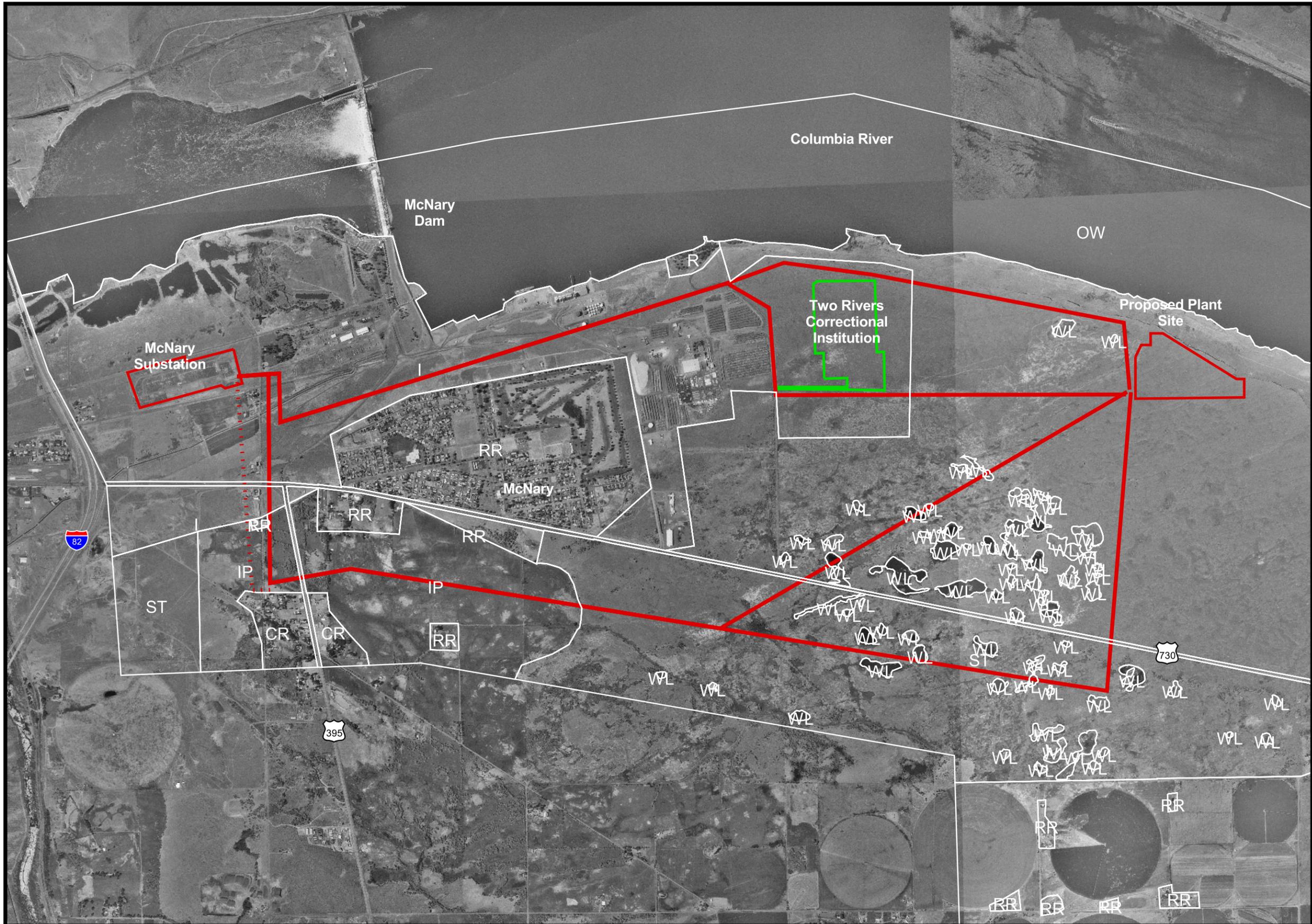
Abbreviation-Name  
 CR - Commercial & Residential  
 H - Highway  
 I - Industrial  
 IC - Irrigated Cropland  
 IP - Irrigated Pasture  
 OW - Water  
 R - Recreation  
 RL - Railroad  
 RR - Rural Residential  
 ST - Shrub Steppe  
 WL - Wetland

Gas Pipeline Route Alternatives  
 Plant Discharge Water Pipeline Route Alternatives  
 Potable Water / Sanitary Sewer Lines  
 Water Supply Pipeline



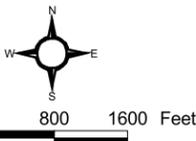
**Wanapa Energy Center EIS**

Figure 3.4-1  
 Land Cover - Pipeline Route Alternatives



**Legend**

- Abbreviation-Name  
 CR - Commercial & Residential  
 H - Highway  
 I - Industrial  
 IC - Irrigated Cropland  
 IP - Irrigated Pasture  
 OW - Water  
 R - Recreation  
 RL - Railroad  
 RR - Rural Residential  
 ST - Shrub Steppe  
 WL - Wetland
- Transmission Line Route Alternatives
- Lower Monumental-McNary Transmission Line Relocation



**Wanapa Energy Center EIS**

Figure 3.4-2  
 Land Cover-Transmission Line Route Alternatives

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### **Irrigated Cropland**

**ODFW Category 4 - Irrigated pasture and row crops (AW4).** Irrigated cropland occurs on deep sandy soils in the central portion of the study area that would be crossed by the natural gas and discharge water pipelines between U.S. Highway 730 and the Stanfield compressor station. Cold Springs Reservoir represents the primary water supply for this agricultural area. Grain, corn, and hay crops are grown under center pivot irrigation systems and in rectangular fields watered by furrow irrigation. Grain field stubble provides feeding areas for waterfowl and game birds (pheasants), and field tree windbreaks provide nesting and perching habitat for a variety of song birds and raptors.

### **Irrigated Pasture**

**ODFW Category 4 - Irrigated pasture and row crops (AW4).** Irrigated pasture occurs primarily in the western portion of the study area, south of McNary. This area is watered by agricultural drains, and has been invaded by Russian olive and cottonwood trees in areas that remain perennially wet. This pasture area is an irrigation-induced wetland, where soils remain saturated over long periods of time. Understory species include bulrush, spike rush, and a variety of pasture grasses.

### **Other Land Cover Categories**

The following human land use categories are present in the study area:

- **Industrial.** The industrial zone south of McNary Dam, which includes the Port of Umatilla, the BPA McNary Substation, an oil terminal, a lumber and wood chip facility, several small warehouse buildings and businesses, and the TRCI.
- **Commercial/Residential.** Mixed commercial and residential areas located on both sides of U.S. Highway 395 between Hermiston and the U.S. Highway 395/U.S. Highway 730 intersection.
- **Rural Residential.** The residential development at McNary, and the adjacent golf course; a large area of small acreage rural residences on both sides of Diagonal Road between Hermiston and the Diagonal Road/U.S. Highway 730 intersection; residential developments near Hat Rock State Park; and individual farmsteads within blocks of irrigated cropland.

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- Recreation. McNary Beach Park and Hat Rock State Park.
  - Highway. The major roadways crossing the study area: U.S. Highway 730, U.S. Highway 395, and Diagonal Road.
  - Railroad. The Union Pacific Railroad (UPRR) road that runs between Hermiston and the south bank of the Columbia River.

### **Noxious and Invasive Weeds**

Since agricultural development began in the late 1800s, a variety of exotic plant species have become established in croplands and rangelands, and have been distributed by irrigation and animals into adjacent native communities. These species compete with and displace native species. A noxious weed list has been developed for the Wanaket Wildlife Management Area (CTUIR and BPA 2001b), which is likely representative for the study area as a whole. Invasive annual species include cheatgrass, tumbled mustard, Russian thistle, and yellow starthistle. Perennial species that form large patches, and spread by underground rhizomes include perennial pepperweed, Swanson pea, diffuse and Russian knapweeds, and musk and Canada thistles. Russian olive is a small exotic tree species that rapidly invades seasonally wet areas, and grows and reproduces very quickly. Annual weed species represent a fire-hazard during dry seasons. The perennial weed species are usually controlled with herbicides with varying degrees of success. Long-established patches of thistles and knapweed are nearly impossible to eradicate because of their widespread root systems, and their capacity to spread vegetatively from rhizomes when disturbed.

#### **3.4.1.2 Aquatic Species**

The study area for aquatic species includes the Columbia River, Wanaket Wildlife Area, Cold Springs Reservoir, and the Umatilla River. The following information summarizes baseline conditions for aquatic species in aquatic habitats within the project study area.

### **Columbia River**

**Fisheries.** The Columbia River upstream of the McNary Dam supports a mixture of cold water and warm water fisheries. Cold water fish species that are present in the Columbia River upstream and

downstream of the McNary Dam include chinook salmon, coho salmon, steelhead, sockeye salmon, walleye, and white sturgeon. Warm water species include gizzard shad, smallmouth bass, largemouth bass, crappies, and channel catfish. In addition, bull trout (*Salvelinus malma*) potentially use the mainstem Columbia River as a movement corridor between tributaries.

Salmon, steelhead and white sturgeon are anadromous species, which spend their adult stage in the Pacific Ocean and migrate into the Columbia River drainage for spawning and juvenile rearing. The migration of white sturgeon was significantly impacted by the construction of mainstem dams. Above Bonneville Dam, surgeon now generally spend their entire life within the mainstem reservoirs. Juvenile salmon and steelhead however migrate to the Pacific Ocean before returning to fresh water. Based on adult counts at the McNary Dam, chinook salmon and steelhead usually are the most abundant salmon species. Adult counts for the year 2001 and the 10-year average from 1991 to 2000 are provided in **Table 3.4-1**. The counts represent a total for the months of April through October. The increased numbers of adult salmon in 2001 compared to the 10-year average is largely due to good juvenile outmigration and ocean conditions during the previous years.

**Table 3.4-1**  
**Adult Salmon Counts at the McNary Dam, 1991-2001**

Species	2001	1991-2000 (Average)
Chinook salmon (adults)	437,120	112,616
Chinook salmon ( <i>jacks</i> *)	52,664	21,441
Steelhead (hatchery stocked)	398,784	122,089
Steelhead (wild)	94,384	14,634
Sockeye salmon	97,188	40,062
Coho salmon (adults)	22,919	3,070
Coho salmon ( <i>jacks</i> *)	1,812	376

\*Sub-adults

Source: USACE 2002.

Salmon species use the mainstem portion of the Columbia River as a migratory route for both adult and juvenile life stages as well as for juvenile rearing. The timing of adult migration occurs during spring, summer, and fall and varies by species and run. Outmigration of smolts (i.e., movement downstream towards the ocean) occurs during the spring and summer months. Additional

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information on the salmon species and bull trout is provided in the Threatened and Endangered Aquatic Species section.

The Columbia River fisheries represent a source of substance, a gift of religion, and a foundation of culture for the Tribes. In their treaties, the Tribes reserved the rights to continue fishing on the Columbia River at all usual and accustomed fishing sites.

### **Wanaket Wildlife Area**

The Wanaket Wildlife Area contains 60 ponds or wetland habitats that range in size from approximately 0.25 to 10.5 acres (CTUIR and BPA 2001b). Fisheries in the ponds are limited to carp and mosquitofish. Fish populations in the ponds are limited due to low water levels from 1995 to 1997 when construction and maintenance improvements were completed. Future management plans for the ponds do not include stocking and maintenance of fish species for recreational fishing, since this use is not consistent with the intent of the Wildlife Mitigation Program and funding.

### **Cold Springs Reservoir**

Fish populations in Cold Springs Reservoir are comprised of warm water species. Fish species includes largemouth bass, white crappie, bluegill, yellow perch, and brown bullhead (ODFW 1997). Fishing occurs along the Inlet Canal and Cold Springs Dam. Sampling by the ODFW in 1997 indicated that white crappie and carp were the most abundant fish species, followed by largemouth bass, brown bullhead, yellow perch, and bluegill.

### **Umatilla River**

The Umatilla River contains a mixture of cold water and warm water species. The section of the river near Hermiston is considered a migratory corridor for spring-run chinook salmon, fall-run chinook salmon, coho salmon, and steelhead. These species are present in the spring, fall, or winter. Relatively high temperatures limit the presence of these cold water species in the summer. Creel census data for these species has varied considerably during the past 10 years, with harvest numbers per species ranging from 1 to 1,759 in the lower Umatilla River (ODFW 2003). In recent years, the largest harvests included fall-run chinook and spring-run chinook salmon. Warm water species in the lower Umatilla River consist of largemouth bass, smallmouth bass, black crappie,

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yellow perch, and brown bullhead. These fish originate from McKay Reservoir, which is located in a tributary (McKay Creek) to the Umatilla River. Redband trout occasionally may enter the river from McKay Reservoir. However, as discussed for the salmon species, summer temperatures limit use to sporadic occurrence.

### **3.4.1.3 Wildlife**

Wildlife habitat within the project study area consists primarily of a fragmented patchwork of irrigated agricultural lands, grasslands, and remnant areas of shrub-steppe. Although shrub-steppe habitat is considered an important habitat type for area wildlife, the shrub-steppe habitat within the project area has received considerable habitat fragmentation resulting from increased development and human presence within the area. The quality of this habitat has been further degraded by the encroachment of nonnative weed species to the area. Other wildlife habitats within the area include wetland and riparian habitats. Riparian woodlands within the study area occur primarily along the banks of ephemeral and perennial creeks, lakes, ponds, and drainages. Wetlands within the study area are limited to small depressional areas and areas along the edges of ephemeral and perennial water bodies.

Wildlife habitat was characterized based on a review of aerial maps and a site reconnaissance of the project component areas. Wildlife use was determined through a literature review, agency contacts, and on-site surveys for sensitive species. The following information summarizes wildlife use in the project study area.

#### **Game Species**

Big game species in the project study area include mule deer and elk. Mule deer occur throughout the year in all habitat types located within the project study area. However, higher quality habitats and increased densities of deer would typically occur within riparian habitat that provide adequate shrub layers for both food and shelter. Within the project study area, mule deer occur at relatively low densities. Mule deer numbers within the Wanaket Wildlife Area approximate 30 animals *year long*. The Wanaket Wildlife Area and Cold Springs National Wildlife Refuge provide wintering habitat for mule deer. Up to 75 to 80 mule deer have been reported on the Wanaket Wildlife Area during winter (Quaempts 2003). Elk use within the project area would be limited primarily to the Cold Springs National Wildlife Refuge in the southeast portion of the study area. On rare occasions elk may wander off the Cold Springs National Wildlife Refuge to surrounding habitats. One elk

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was observed in the Wanaket Wildlife Area several years ago. Elk primarily graze on grasses and forbs, but also utilize woody vegetation in the winter months.

Game bird species present in cropland and shrub-steppe habitats include California quail, ring-necked pheasant, and mourning dove. Hungarian partridge and chukar also occur along the Columbia River (Quaempts 2003). California quail and ring-necked pheasant are hunted on the Wanaket Wildlife Area.

Wetland areas in the Wanaket Wildlife Area and Cold Springs Reservoir provide habitat for waterfowl and shorebirds. Relatively large numbers of ducks and geese utilize Cold Springs Reservoir from October through February. Based on aerial waterfowl surveys during the fall and winter of 2002-2003, mallard and pintail accounted for most of the dabbling ducks with smaller numbers of gadwall, American widgeon, green-winged teal, and northern shoveler. Diving duck species such as canvasback, scaup, bufflehead, goldeneye, redhead, and merganser were generally lower in numbers than the dabbling species. Wintering geese mainly are represented by Canada geese with a few white-fronted geese. Small numbers of tundra swans also were observed. The greatest number of waterfowl was observed during February with 22,207 ducks, 6,720 geese, and 10 swans being tallied. Nearly 5,000 of these birds were observed on Memorial Marsh. Waterfowl counts for the period 1981 through 2002 have ranged from 12,300 in 2000/2001 to 162,610 in 1986/1987 (Allen 2003).

Waterfowl also represent an important biological component of the Wanaket Wildlife Area. From 1993-2002, a total of 18 duck species and 4 goose species have been documented on the Wildlife area (**Table 3.4-2**). The most common duck species that were observed include mallard, widgeon, and green-winged teal. Other duck species that are commonly observed on the Wildlife area include northern shoveler, pintail, bufflehead, gadwall, ringneck, and goldeneye. Wintering geese that have been observed on the Wildlife area include Canada and snow geese (Quaempts 2003).

### **Non-game Species**

A diversity of non-game species (e.g., small mammals, raptors, passerines, amphibians, and reptiles) occupy a variety of trophic levels and habitat types within the project study area. Non-game species include an assortment of small mammals including shrews, bats, squirrels,

**Table 3.4-2  
Wanaket Wildlife Area Hunter Use and Harvest Summary**

Species Harvested	1993-94	1994-95	1995-96 <sup>1</sup>	1996-97 <sup>2</sup>	1997-98	1998-99	1999-00	2000-01	2001 - 02 <sup>3</sup>	Total	Annual Average	Percent of Harvest
<b>Geese</b>												
Canada	5	31	7	0	5	14	38	9	1	109	14	31
Lesser Canada	16	62	14	25	19	9	43	21	2	209	26	59
Taverner Canada		10	7		6	3	8			34	4	10
White-Fronted		1								1	2	5
Snow												
Ross												
<b>Ducks</b>												
Mallard	279	921	2806	1109	1693	1198	1036	1206	206	10248	1281	72.4
Pintail	13	18	44	11	53	59	41	63	18	302	38	2.1
Gadwall	3	5	23	20	34	63	56	35	11	239	30	1.7
G.W. Teal	27	31	201	74	133	145	83	115	28	809	101	5.7
Wigeon	20	60	210	77	258	185	205	147	23	1162	145	8.2
Shoveler	6	56	53	11	92	100	68	41	7	427	53	3.0
Scaup	9	14	24	7	23	22	16	8		123	15	0.9
Redhead	0	2	6	3	3	10	6	2		32	4	0.2
BW Teal						4		2	1	6	1	0.0
Bufflehead	10	18	22	19	57	28	71	14	1	239	30	1.7
Goldeneye	0	13	10	20	25	30	41	9	1	148	19	1.0
Cinnamon Teal	2	3	9	5	4	2	10	4	2	39	5	0.3
Canvasback	0	5	3	1	1	2	2	3		17	2	0.1
Ringneck	1	13	56	16	14	32	62	20	8	214	27	1.5
Ruddy	1	7	14	1	5	3	8	3		42	5	0.3
Merganser	1		5	4	2	4	0	5	1	21	3	0.1
Woodduck	2		9	4	14	19	10	5		63	8	0.4
Unknown						7	2	9		18	2	0.1
<b>Upland</b>												
Pheasant	38	97	121	162	185	196	105	89	57	993	124	7.0
Quail	25	118	169	242	256	328	172	228	59	1538	192	10.9
Snipe	1				4	9	1	11	7	26	3	0.2
Coot	1	2	7	3	25	24	19	11	2	92	12	0.7
<b>TOTAL GEESE</b>	21	104	28	25	30	26	89	30	3	353	44	
<b>TOTAL DUCKS</b>	374	1166	3495	1382	2411	1913	1717	1691	308	14149	1769	
<b>TOTAL UPLAND BIRDS</b>	65	217	297	407	470	557	297	339	125	2649	331	

Hunter Effort	1993-94	1994-95	1995-96 <sup>1</sup>	1996-97 <sup>2</sup>	1997-98	1998-99	1999-00	2000-01	2001 - 02 <sup>3</sup>	Total	Annual Average
# Hunters	487	696	1419	846	1400	1267	1312	1098	299	8525	928
Ave. Hours Per Hunter	3.4	4.3	4.4	4.2	3.8	4.3	3.3	3.8	3.1	3.9	4.1
Total Hours	1670	2748	6223	3551	5306	5448	4272	4142	773	33360	3652

<sup>1</sup>In the 1995-96 Waterfowl Season, duck harvest limits were increased from 4 to 6 birds.

<sup>2</sup>In the 1996-97 Waterfowl Season, duck harvest limits were increased to 7 birds. However, morning waterfowl hunts were reduced from 30 to 16 hunters.

<sup>3</sup>In 2001 - 02, the north side of Wanaket was closed to hunting, reducing the number of hunters and the harvest. Additionally, harvest reporting was voluntary/optional.

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rabbits, rats, and mice. These small mammals provide a substantial prey base for the areas predators including mammals (coyote, fox, badger, skunk), raptors (eagles, buteos, accipiters, owls), and reptile species. A number of reptile (turtles, lizards) and amphibian (toads, frogs) species also occur within the project study area. A number of these species depend on the limited riparian and wetland habitats within the project study area.

Water birds that occur within the project study area include great blue heron, killdeer, common snipe, greater and lesser yellowlegs, sandpiper species, gulls and tern species, black-necked stilt, American avocet, Wilson's phalarope, long-billed dowitcher, and white pelican. Two great blue heron rookeries have been documented on the Cold Springs Reservoir refuge in Memorial Marsh and along Cold Springs Creek (Allen 2003).

Non-game birds encompass a variety of passerine and raptor species. Non-game birds include a diversity of neotropical migrants - birds that breed in North America and winter in the neotropical region of South America. These birds are considered integral to natural communities and act as environmental indicators based their sensitivity to environmental changes. Common bird species that occur within the project study area include horned lark, meadowlark, American robin, song sparrow, white-crowned sparrow, brown-headed cowbird, and Brewer's blackbird.

Habitat within the project study area also supports a variety of raptor species within the project study area. Species observed in the Wanaket Wildlife Area and Cold Spring National Wildlife Refuge include bald eagle, red-tailed hawk, northern harrier, American kestrel, barn owl, great-horned owl, and burrowing owl (Allen 2003; Quaempts 2003). Other raptor species that have been observed within the project study area include Swainson's hawk, rough-legged hawk, Cooper's hawk, sharp-shinned hawk, osprey, short-eared owl, and screech owl (Allen 2003). Mature trees within the study area provide potential nesting habitat for many of these raptor species. Breeding generally occurs from March through June depending upon the species. Additional distribution and habitat information for the bald eagle is discussed in the Threatened and Endangered Wildlife Species.

***Raptor surveys were conducted on the Wanaket Wildlife Area and the adjacent mainstem of the Columbia River on June 8 and 9, 2004. A total of three active nests and two inactive nests were recording in the wildlife area. Of the three active nest sites two nests in the western portion of the wildlife area were occupied by red-tailed hawks and one nest site north of the Two Rivers Correctional Institution was occupied by osprey (Quaempts 2004).***

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### 3.4.1.4 Special Status Species

On July 8, 2003, the BIA wrote letters to NOAA and the USFWS requesting an updated list of species to be considered in the analysis of the Wanapa Energy Center. In letters dated July 23, 2003, NOAA and USFWS provided updated species lists. These lists were reviewed to determine which species could potentially be affected by project construction and operation.

#### Federal Species

Federally listed fish species in the middle Columbia River include chinook salmon, sockeye salmon, steelhead, and bull trout (**Table 3.4-3**). The following information summarizes the distribution, habitat use, and life history characteristics for each species and their ESU, if applicable.

**Table 3.4-3  
Federally Listed or Proposed Species in the Middle Columbia River**

<b>Species</b>	<b>ESU</b>	<b>Federal Status</b>	<b>Responsible Agency</b>
Chinook salmon	Upper Columbia River spring-run	Endangered	NOAA
	Snake River spring/summer-run	Threatened	NOAA
	Snake River fall-run	Threatened	NOAA
Sockeye salmon	Snake River (Salmon River)	Endangered	NOAA
Steelhead	Middle Columbia River	Threatened	NOAA
	Upper Columbia River	Endangered	NOAA
	Snake River Basin	Threatened	NOAA
Bull trout	Not applicable	Threatened	USFWS

**Salmon and Steelhead Trout.** Three chinook salmon ESUs utilize the Middle Columbia River as a migratory route for adults and juveniles: Upper Columbia River spring-run, Snake River spring/summer-run, and Snake River fall-run. Critical habitat was designated for the three ESUs, which are located upstream of the proposed Wanapa Energy Facility. The timing of the adult spawning runs into the Columbia River drainage occurs during the spring, summer, and fall.

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Juvenile chinook salmon may spend from 3 months to 2 years in freshwater before they migrate downstream in the Columbia River to the Pacific Ocean.

The Snake River sockeye salmon ESU utilizes the Columbia River as a migratory route for adult spawners and juveniles. Critical habitat was designated in the Snake River drainage, which is located upstream of the proposed Wanapa Energy Facility. The migration period generally ranges from June through August for adult spawning runs and juvenile outmigration. Juvenile sockeye salmon usually spend 1 to 2 years in freshwater and then they migrate to the Pacific Ocean. After 1 to 3 years, they return to the Columbia River for their spawning migration.

Three steelhead ESUs utilize the Middle Columbia River as a migratory route. The Middle Columbia ESU occupies the Columbia River Basin from above the Wind River in Washington and the Hood River in Oregon including the Yakima River in Washington (NMFS 2002a). The Middle Columbia River also lies within critical habitat designated for the Middle Columbia steelhead ESU. All steelhead in the Columbia River Basin are summer-run, inland steelhead. Life history characteristics of most Middle Columbia steelhead rear for 2 years and spend 1 to 2 years in the ocean before they re-enter freshwater. Adults can remain in freshwater for up to a year before they spawn. Nonadromous Columbia River redband trout can coexist with the anadromous within this ESU (NMFS 2002a). The Upper Columbia River ESU and Snake River ESU occupy habitats located upstream of the Middle Columbia River (i.e., upstream from the Yakima River for the Upper Columbia ESU and the Snake River Basin in Washington, Oregon, and Idaho for the Snake River ESU).

The Middle Columbia River above and below the McNary Dam also is considered essential fish habitat (EFH) for salmon species, as regulated under the Magnuson-Stevens Fishery Conservation and Magnuson Act (NMFS 2002b). Freshwater EFH includes all streams, lakes, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas located upstream of certain impassable man-made barriers and naturally impassable barriers. EFH is defined as those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity. All habitat that was historically used by coho and chinook salmon is designated as EFH.

The occurrence of four federally listed salmon species (i.e., spring-run chinook salmon, fall-run chinook salmon, coho salmon, and steelhead) in the Umatilla River) is discussed in the Umatilla River Fisheries section.

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**Bull Trout.** The Columbia River near the McNary Dam is located within the Columbia River Distinct Populations Segment (DPS) for bull trout. The Columbia River Basin Bull Trout DPS includes all naturally spawning populations in the Columbia River Basin within the U.S. and its tributaries, excluding bull trout found in the Jarbidge River in Nevada. Adults and subadult bull trout use the Columbia River for foraging and overwintering. Movement out of tributaries into the Columbia River usually occurs in the early summer and seems to coincide with snowmelt runoff. Movement back into tributaries seems to occur mainly in September through November after spawning is completed (Rhew 2002). Bull trout spawning and rearing is restricted to relatively pristine cold streams usually within the headwater reaches (Rieman and McIntyre 1993). However, adults can reside in reservoirs, lakes, and coastal areas.

**Bald Eagle.** Individual bald eagles are observed annually at the Wanaket Wildlife Area during the winter. No historic or active communal roost sites, winter roosts, winter concentration areas have been identified within the area proposed for project facilities. The nearest historic bald eagle winter roost is located approximately 2 miles east of the plant site at Hat Rock State Park.

Detailed impact assessments for *these* species *are* presented in Appendix A, *Wildlife Surveys and Assessments*.

#### **3.4.1.5 Sensitive State Species**

A total of 19 terrestrial and aquatic special status species was identified as potentially occurring within the project area (Quaempts 2002; USFWS 2003; Oregon Natural Heritage Program 2002). These species, their associated habitat, and their potential for occurrence within the project study area are summarized in Appendix A, **Table A-1**. Occurrence potential within the study area was evaluated for each species based on its habitat requirements and/or known distribution. Based on these evaluations, four terrestrial species (Washington ground squirrel, white-tailed jackrabbit, yellow-billed cuckoo, black-throated sparrow) and two aquatic species (blotched tiger salamander and Columbia spotted frog) were eliminated from detailed analysis. The remaining 13 species are analyzed in the following sections.

*Terrestrial special status species surveys were conducted within the Wanaket Wildlife Area and along associated utility corridors in 2002 and 2004 (Kronner 2004; Quaempts 2003, 2004). Species that have been identified within the Wanaket Wildlife Area include bald eagle, burrowing owl, long-billed curlew, and American white pelican (Quaempts 2003, 2004). The*

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*American white pelican was also located on the Cold Springs National Wildlife Refuge during the 2004 surveys (Kronner 2004).*

Two amphibian/reptile surveys were conducted from April 29 through May 1 and May 22 through 24, 2002, in the Wanaket Wildlife wetlands. The purpose of the surveys was to determine if the federal candidate Columbia spotted frog (*Rana luteiventris*) or four state-sensitive species, blotched tiger salamander (*Ambystoma trigrinum melanosticum*), western painted turtle (*Chrysemys picta*), northern leopard frog (*Rana pipiens*), western toad (*Bufo boreas*), and Woodhouse toad (*Bufo woodhousii*), are present. Of 69 wetlands examined as potential habitat for the sensitive species, 53 had water and were surveyed at least once for amphibians and reptiles. None of the sensitive frog or salamander species were observed in any of the wetlands. Western painted turtle was observed in 24 wetlands (Appendix A, **Tables A-2** and **A-3**). Sixteen wetlands contained frog species such as bull frog, Great Basin spadefoot, and Pacific tree frog.

### **3.4.2 Environmental Consequences and Mitigation**

#### **3.4.2.1 Vegetation/Land Cover**

##### **Upland Native Vegetation Disturbance and Recovery**

The proposed power plant would occupy approximately 47 acres of a 195-acre site. Construction of the access road would remove approximately 4 acres. Vegetation within the power plant footprint and most of the access road consists of grassland-steppe habitat that has been burned. This shrub-steppe habitat for these project components is considered low quality due to the loss of shrub species as a result of the burn in 2001.

Construction of the gas, discharge water, and intake water pipelines would result in temporary disturbance to vegetation and wildlife habitat. Vegetation would be removed within a 100-foot width for the gas and discharge pipelines, and a 50-foot-width for the water intake pipeline. The estimated disturbance to vegetation types in acres is listed in **Table 3.4-4**. The majority of the disturbance would occur in irrigated cropland. Approximately 22 acres of grassland-steppe and shrub-steppe habitat would be disturbed during pipeline construction. Most of this disturbance area is grassland-steppe, with smaller patches of shrub-steppe. After construction is completed, the disturbed areas would be reclaimed using a seed mix recommended by the Natural Resource Conservation *Service* District *office* in Pendleton for native grasses or the CTUIR Wanaket

Wildlife Management Area staff. The estimated recovery period for grasses would be one growing season. Shrubs would require 25 to 50 years to naturally recolonize the affected areas.

**Table 3.4-4  
Proposed Action Construction Disturbance (Acres) to Vegetation and Wildlife Habitat  
for the Gas/Water Discharge and Water Supply Pipelines**

<b>Vegetation/Wildlife Habitat</b>	<b>Gas/Plant Discharge Water Pipelines</b>	<b>Water Intake Pipeline<sup>1</sup></b>	<b>Access Road</b>
Grassland and shrub-steppe	<b>23.4</b>	1.7	8.5
Irrigated cropland	<b>81.6</b>	0	0
Wetland	<0.1	0	0
Rural residential	21.9	0	0
Industrial	0	1.7	0
Highway/railroad	1.1	0	0
<b>Total</b>	<b>128.0</b>	3.4	8.5

<sup>1</sup>Water supply line ROW would be utilized for potable water and sanitary sewer pipeline.

Construction of the transmission line would remove vegetation at the power pole sites and cause temporary surface compaction from vehicle and equipment use. The types of vegetation and wildlife habitat in the transmission ROW are listed in **Table 3.4-5**. The majority of the affected habitat would consist of grassland and shrub-steppe and irrigated cropland. Vegetation would recover from surface compaction within the first growing season. Permanent vegetation removal would occur at tower sites. Each site would require a temporary work area of 0.25 acre and a permanent area of 0.05 acre. In total, tower construction would result in temporary disturbance to 6.3 acres and permanent removal of 1.3 acres for the towers. No permanent disturbance would occur in wetland habitat. Short-term disturbance to cover and foraging areas for wildlife would occur as a result of transmission line construction.

**Table 3.4-5  
Proposed Action Construction Disturbance (Acres) to Vegetation and Wildlife Habitat  
for the Transmission Line ROW**

<b>Vegetation/Wildlife Habitat</b>	<b>Acres</b>
Grassland and shrub-steppe	40.9
Irrigated pasture	34.8
Wetland	2.5
Rural residential	0.2
Industrial	21.7
Highway	0.9
<b>Total</b>	<b>101.0</b>

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### **Recommended Mitigation Measures.**

**VLC-1.** The revegetation mixture applied to disturbed soils on the Wanaket Wildlife Area would conform to the future management objectives for the site as described by the Wildlife Area Management Plan (CTUIR and BPA 2001b).

### **Wetlands Disturbance and Recovery**

The proposed pipeline would be routed around the small (less than 1 acre) pond on the Wanaket Wildlife Area south of U.S. Highway 730 (**Figure 3.4-1**). The north-south pipeline trench would be excavated in basalt bedrock, and would intercept and potentially change the general drainage pattern that flows from west to east because water would flow into the trench rather than following existing drainage channels. Where the pipeline intercepts the canals and natural drainage that feeds the Wanaket Wildlife Area wetland ponds, the pipeline trench would be backfilled with low permeability soil, and trench plugs would be placed at frequent intervals to prevent overland water flow from being diverted by the wetland trench. After project completion, the pipeline ROW would be monitored to verify that the natural drainage is restored. If the surface drainage is determined to have been modified, the pipeline operator would return to restore and redirect drainage channels.

**Recommended Mitigation Measures.** No measures beyond those included in the proposed project are recommended.

### **Noxious Weeds**

There is a high potential that seeds and rhizomes would be transported by excavation equipment wheels, tracks, and blades. Of particular concern is moving weeds into agricultural fields that are currently weed free, or expanding the range of weeds into native plant communities.

### **Recommended Mitigation Measures.**

**VLC-2.** A pre-construction weed inventory would be completed along the approved pipeline route to determine the location of weed populations within and adjacent to the construction ROW. Excavation equipment would be cleaned (air pressure hoses, or wash stations) after crossing weed

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infestation areas and entering weed-free areas. All soil excavated from weed-infested areas would be replaced in the same location.

**VLC-3.** Any hay used as mulch would be certified as weed-free prior to application.

### **Cooling Tower Drift**

Cooling water vapor and droplets would drift from the towers and be deposited on surface soils and vegetation. Based on air quality analyses, drift could occur within an approximate 0.25-mile radius from the towers. Vegetation within the drift area would mainly include grasses and weedy species. Wetland vegetation is present at two sites located approximately 400 and 1,300 feet east of the west tower. The total solids concentration for the drift plume is approximately 1,600 mg/l. Chemical components in the drift consist of calcium, magnesium, potassium, sulfates, phosphates, and other minerals. Studies on effects of saline drift on vegetation has shown that crops such as cotton, alfalfa, and cantaloupe were not affected at deposition rates of 6,908 kilogram/kilometer<sup>2</sup> (BPA 2001). This effect level is more than 300 times higher than the estimated deposition rate for the Wanapa Project. It is assumed that native grasses and wetland plant species would be affected at similar or higher concentrations as shown for the crop species. Therefore, cooling tower drift is not expected to affect vegetation.

#### **3.4.2.2 Aquatic Species**

### **Diversion of Water from the Columbia River**

Water for the proposed power plant would be obtained from the Port of Umatilla's regional raw water supply system under an existing municipal water right and use permit (*Permit No. 49497*). *Maximum water* withdrawal for the project would be **8** to **12** million gallons per day, which represents **8** to **12** percent of the Port of Umatilla total water right. No water would be discharged into the Columbia River as part of project operation. The potential impacts of water withdrawal (up to 62 cfs) on Columbia River federally listed salmon species for the Port of Umatilla's water supply were analyzed in a Biological Assessment (CH2M Hill 1993). Since the proposed water volume for the Wanapa Project is within the Port's water volume capacity, no new water rights in the Columbia River would be required. Depletions were accounted for in previous NEPA and Section 7 analyses. As indicated in the Umatilla Generating Project EIS (BPA 2001), the Port of

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Umatilla withdrawal volume represents an extremely small portion of Columbia River base flows (less than 0.005 percent of low flow conditions).

The intake system would follow the NMFS criteria for minimizing impingement and entrainment impacts on Columbia River salmon species. The maximum approach velocity of water would be 0.4 cfs and the intake screen would consist of 0.125-inch openings. No new construction would be required for the intake area. In summary, water withdrawal from the Columbia River for this project would not be likely to adversely affect federally listed salmon species and the bull trout and their critical habitat.

#### **Plant Discharge Water to Cold Springs Reservoir**

The discharge of cooling water would contribute approximately 2.4 cfs (average) or 3.4 cfs (maximum) to Cold Springs Reservoir via the Feed Canal. The addition of water to the reservoir would be a beneficial impact to aquatic habitat for fish species and wildlife such as waterfowl and shorebirds.

#### **3.4.2.3 Wildlife**

Potential impacts to terrestrial wildlife species from the Proposed Action can be classified as short term and long term. Short-term impacts consist of habitat removal and activities associated with project construction. Long-term impacts would consist of changes to wildlife habitat. The severity of both short- and long-term impacts would depend on factors such as the sensitivity of the species impacted, seasonal use patterns, type and timing of project activities, and physical parameters (e.g., topography, cover, forage, climate). Direct impacts to wildlife species would include limited direct mortalities from project construction and operation, habitat loss or alteration, incremental habitat fragmentation, and animal displacement. Indirect impacts would include increased noise, additional human presence, and the potential for increased vehicle-related mortalities.

Potential impacts to wildlife species from the Proposed Action would result from the conversion of approximately 47 acres of shrub-steppe habitat to industrial use from the construction of the electric power generation facility. Clearing and grading would alter 71 acres of a native habitat (i.e., grassland and shrub-steppe) from the construction of supplemental wastewater and gas pipelines, transmission lines, and other ancillary facilities (i.e., water intake pipeline and access roads).

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Wildlife habitat is low quality in areas that were burned north of U.S. Highway 730. ODFW classifications for the grassland-steppe and shrub-steppe habitat south of U.S. Highway 730 and the other habitat types are Category 4, which are important but not essential habitats for wildlife.

### **Game Species**

Direct impacts to mule deer would include the incremental loss of potential forage (native vegetation and previously disturbed vegetation) and would result in an incremental increase in habitat fragmentation within the proposed surface disturbance areas. However, these incremental losses of vegetation would represent a small percentage (less than 1 percent) of the overall available habitat within the project region. The loss of available vegetation would be long term (greater than 20 years). However, herbaceous species may become established within 3 to 5 years, depending on reclamation success, coupled with future weather conditions. However, in most instances, suitable habitat adjacent to the disturbed areas would be available for this species until grasses and woody vegetation were reestablished within the disturbance areas.

Indirect impacts would result from increased noise levels and human presence during surface disturbance activities. Disturbance would be greatest during the construction period due to presence of heavy equipment, traffic, and increased human activity. The duration of construction-related noise and human activity would vary depending upon the project component and type of activity. Overall, noise disturbance from construction activities would be short-term (approximately 3 months each for the transmission line and gas/water discharge pipelines and approximately 26 months for the power plant). Mule deer would likely decrease their use within areas during surface disturbance activities. However, this displacement would be short-term and animals would return to the project area following construction activities.

Potential impacts to small game from the Proposed Action would result in the incremental loss of habitat and increased habitat fragmentation until vegetation became reestablished. Potential direct impacts to small game species could include nest or burrow abandonment or loss of eggs or young. Indirect impacts could include the temporary displacement of small game from the disturbance areas as a result of increased noise and human presence. Displacement of small game animals from disturbance areas would be short-term and animals would return to the disturbance areas following construction activities.

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Noise-related disturbances from power plant operation could potentially result in long-term impacts to game species. However, the total extent of habitat lost as a result of wildlife avoidance response is impossible to predict since the degree this response varies from species to species and even varies between different individuals of the same species. Also, after initial avoidance from human activity and noise producing areas, certain wildlife species may acclimate to the activity and begin to reoccupy areas formerly avoided. For example, during the first few years of the power plant operation, it is likely that deer would be displaced from a larger area than the actual disturbance area at the power plant site due to avoidance response. However, deer have demonstrated the ability to acclimate to a variety of human development activities (e.g., mining) as long as human harassment levels do not increase substantially. It is possible, therefore, that the extent of deer displacement would approximate the actual disturbance area after the first few years of the power plant's operation. This response also may be similar to other game species that inhabit the project area.

### **Non-game Species**

Direct impacts to non-game species from surface disturbance activities would result in the incremental long-term loss of habitat and increased fragmentation until vegetation became reestablished. Potential impacts also would result in mortalities of less mobile or burrowing non-game species (e.g., small mammals, birds, reptiles, amphibians, invertebrates) as a result of crushing from vehicles and equipment. Other impacts would include the short-term displacement of some of the more mobile species (e.g., medium-sized mammals, adult birds) as a result of increased noise levels and human presence during surface disturbance activities. Although the habitats adjacent to the proposed disturbance area may support some displaced animals, species that are at or near carrying capacity could suffer some increased mortalities.

If surface disturbance activities were to occur during the breeding season for passerines (approximately March 1 through June 30), impacts would result in nest or territory abandonment or the loss of eggs or young, resulting in the loss of productivity for the breeding season. However, impacts to nesting birds would depend on the nest location relative to the proposed disturbance area, the phase of the breeding period, and the level and duration of the disturbance.

***Raptor surveys were conducted on the Wanaket Wildlife Area and the adjacent mainstem of the Columbia River on June 8 and 9, 2004. A total of three active nests and two inactive nests were recorded in the wildlife area. Of the three active nest sites, two nests in the western portion of the***

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*wildlife area were occupied by red-tailed hawks and one nest site north of the Two Rivers Correctional Institution was occupied by osprey (Quaempts 2004).*

Direct impacts to nesting raptors that are located within or adjacent to the project area, would include abandonment of a breeding territory or nest site or the potential loss of eggs or young as a result of surface disturbance activities (e.g., ground disturbance, noise, human presence). These losses, if they were to occur, would reduce productivity for that breeding season. However, the degree of these potential impacts would depend on a number of variables including the location of the nest site, the species' relative sensitivity, breeding phenology, and possible topographic shielding. Potential impacts to nesting raptors from construction activities could be minimized through related mitigation measures identified below. Noise-related disturbances from power plant operation would be the same as discussed above for game species.

The new 4.4-mile, 500-kV electrical transmission line segment would incrementally increase the collision potential for migrating and foraging bird species (e.g., raptors, ducks, passerines [Avian Power Line Interaction Committee (APLIC) 1994]). However, collision potential typically depends on variables such as the line location in relation to high-use habitat area (e.g., nesting, foraging, and roosting), line orientation to flight patterns and movement corridors, species composition, visibility, and line design. The Proposed Action transmission route crosses four wetlands in the Wanaket Wildlife Area. The route segment located within the Wanaket Wildlife Area also is located within flyways for waterfowl that utilize numerous other wetlands on either side of the route. The types of birds most likely to collide with the transmission lines are waterfowl such as ducks and geese, great blue herons, and birds that form tight flocks such as blackbirds (Parsons Brinckerhoff Quade & Douglas 2002). Potential impacts to bird species from potential collision could be reduced through related mitigation measures identified below.

While electrical power lines can pose a potential electrocution hazard for birds, such as raptors, configurations less than 1 kV or greater than 69 kV typically do not present an electrocution hazard, based on conductor placement and orientation (APLIC 1996). Consequently, no electrocution impacts would be anticipated from the operation of the proposed 500-kV transmission line.

**Recommended Mitigation Measures.** The following measures are proposed to reduce potential impacts to wildlife from pipeline construction.

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**W-1:** Prior to construction activities during the raptor breeding season (March 1 - June 30), breeding raptor surveys would be conducted by a qualified biologist through areas of suitable nesting habitat to identify any potentially active nest sites within 0.5 mile from the project area. If applicable, appropriate protection measures, including seasonal constraints and establishment of buffer areas would be implemented at active nest sites until the young have fledged and have dispersed from the nest area. These measures *would* be implemented on a site-specific and species-specific basis, in coordination with CTUIR/Wanaket Wildlife Area biologists.

**W-2:** Standard, safe designs as outlined in Mitigating Bird Collision with Power Lines (APLIC 1994) would be incorporated in the design of the electrical distribution lines to prevent collision to foraging and migrating bird species with the project area, in coordination with CTUIR and Wanaket Wildlife Area biologists. Design features would include the configuration of the route to avoid partitioning foraging and resting habitat, alignment of overhead groundwire to the same height as the conductors, and the use of markers to increase the visibility of the lines to birds.

#### **3.4.2.4 Special Status Wildlife Species**

The impact analysis for special status wildlife resources focused on those species that were identified as potentially occurring within the project area (see Appendix A, **Table A-1**). Consequently, project-related impacts for 13 special status species are discussed below.

##### **Federal Species**

**Bald Eagle.** No direct or indirect impacts to breeding or roosting bald eagles would be anticipated from project construction. No historic or active communal roost sites, winter roosts, winter concentration areas have been identified within the project area. The nearest historic bald eagle winter roost area occurs approximately 2 miles east of the plant site at Hat Rock State Park. However, individual bald eagles have been observed annually at the Wanaket Wildlife Area during the winter (Quaempts 2003). Consequently, eagles could occasionally forage on the Wanaket Wildlife Area. Impacts to foraging eagles from project development and operation would include alternation (removal of the shrub component) from approximately 71 acres of potential foraging habitat (i.e., grassland, shrub-steppe, and wetland habitats) from the construction of water supply, wastewater, and gas pipelines, electrical transmission lines, and ancillary facilities until reclamation is completed and vegetation is reestablished. Approximately 47 acres of potential foraging habitat would be removed by the construction of the power plant facility. Other impacts

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could also include the short-term displacement of this species as a result of increased noise levels and human presence during surface disturbance activities and operation of the power plant facility. However, based on the distance of known roost sites from the project area, marginal foraging habitat at the proposed power plant site, and amount and foraging habitat within the project region, potential impacts to the bald eagle from the project would be low.

### **State-Sensitive Species**

Sensitive species that occur primarily in grassland and shrub-steppe habitats within the project area include long-billed curlew, grasshopper sparrow, loggerhead shrike, and western burrowing owl. Sensitive raptor species that were identified for the project area include ferruginous hawk, Swainson's hawk, and American peregrine falcon. Impacts to these species would result in the incremental long-term alteration of approximately 71 acres of habitat from the construction of water and gas pipelines, electrical transmission lines, and ancillary facilities until reclamation is completed and vegetation is reestablished. Approximately 47 acres of habitat would be removed by the construction of the power plant facility. Impacts also could include the short-term displacement of these species as a result of increased noise levels and human presence during surface disturbance activities and operation of the plant facility. If surface disturbance activities were to occur during the breeding season for these birds (approximately March 1 through June 30), impacts could result in nest or territory abandonment or the loss of eggs or young, resulting in the loss of productivity for the breeding season. Two known burrowing owl nests occur along the proposed water and gas pipeline route on the Wanaket Wildlife Area. Potential impacts to these species from construction activities could be minimized through related mitigation measures identified below.

The American white pelican occurs primarily within wetland habitats within the project area. Impacts to this species would result from the temporary disturbance of approximately 2.6 acres of potentially suitable foraging wetland habitat during transmission line construction. Impacts also could include the short-term displacement of these species as a result of increased noise levels and human presence during surface disturbance activities and operation of the power plant facility. However, occurrence by this species would be limited to migrating and foraging individuals moving through the project area. Consequently, impacts to this species from construction and operation of the project would be low.

Sensitive species that occur primarily in or near wetland and riparian habitats within the project area include western painted turtle, western toad, Woodhouse's toad, and northern leopard frog.

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Impacts to these species would result from the temporary disturbance of approximately 2.6 acres of potentially suitable habitat for these species during transmission line construction.

**Recommended Mitigation Measures.** Mitigation measures that would be applicable for special status raptor species would include W-1. Additional mitigation measures that would minimize potential impacts to special status species as a result of project construction include:

**W-3:** Prior to construction activities during the avian breeding season (March 1 - June 30), avian breeding surveys for long-billed curlew, grasshopper sparrow, loggerhead shrike, and western burrowing owl would be conducted by a qualified biologist through areas of suitable nesting habitat to identify any potentially active nest sites within 0.25 mile from the project area. If applicable, appropriate protection measures, including seasonal constraints and establishment of buffer areas would be implemented at active nest sites until the young have fledged and have dispersed from the nest area. These measures would be implemented on a site-specific and species-specific basis, in coordination with CTUIR Wanaket Wildlife Area biologists.

**W-4:** Prior to construction activities through suitable breeding habitat for special status reptile and amphibian species, occurrence surveys for western painted turtle, western toad, Woodhouse's toad, and northern leopard frog would be conducted by a qualified biologist to determine presence. If present, appropriate protection measures could include rerouting the pipeline ROW to avoid breeding habitat, in coordination with CTUIR and Wanaket Wildlife Area biologists.

### **3.4.3      *Proposed Action Impact Summary***

#### **3.4.3.1      *Vegetation***

Project construction would result in vegetation disturbance to 47 acres at the plant site, 9 acres within access road ROW, **128** acres within the gas supply/**plant discharge water** ROW, and 101 acres within the electric transmission line ROW. The majority of the disturbance would be to grassland-steppe, shrub-steppe, and irrigated cropland. Vegetation removal would be permanent at the plant site. By implementing reclamation procedures, grassland and irrigated crop species would return by the next growing season. Recovery of shrub species would take an estimated 25 to 50 years. Impacts to wetlands would be eliminated by avoiding one wetland proposed to be crossed by the gas/water discharge pipeline and implementing drainage control measures within the

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pipeline ROW. Noxious weed control measures would be required to minimize the introduction and spread of noxious weed species in the disturbance areas.

Project operation would deposit vapor and droplets on vegetation such as grasses, weedy, and wetland species within an approximate 0.25-mile radius around the power plant. By assuming effect-levels would be similar to studies with crop species, cooling tower drift would not be expected to affect vegetation in the fallout area.

### **3.4.3.2 Fisheries**

Project construction would result in localized surface disturbance near wetlands, drainage canals, or intermittent drainages. These water bodies support invertebrate species *but* no fish. By implementing erosion control measures, sediment input to surface water resources would be minor. Therefore, impacts to aquatic habitat would be minor.

Project water use and discharge were evaluated for fisheries in the Columbia River, Cold Springs Reservoir, and the Umatilla River. Water withdrawal from the Columbia River would occur under an existing water right (*Permit No. 49497*). The impacts to fish species (including listed salmon, steelhead, and bull trout) in the Columbia River were accounted for in previous NEPA and Section 7 analyses (CH2M Hill 1993). Water discharge to Cold Springs Reservoir would provide a beneficial impact to fish and aquatic habitat in Cold Springs Reservoir by providing additional water. No direct impacts to the Umatilla River would be anticipated.

### **3.4.3.3 Wildlife**

Power plant construction would permanently remove 47 acres of natural wildlife habitat. Construction of ancillary facilities would alter (remove the shrub-component) on approximately 71 acres over the long-term (25 to 50 years). However, habitat quality within the project study area would be considered low, based on recent fires on the Wanaket Wildlife Area, the amount of existing habitat fragmentation from agricultural residential, and industrial activities in the study area, and the establishment of nonnative weed species to the area. Other impacts would include an incremental increase in habitat fragmentation; limited mortality of small, less mobile species; and temporary displacement of wildlife from the construction area as a result of increased noise and human presence.

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#### **3.4.3.4 Special Status Species**

Project surface disturbance activities would permanently remove 47 acres, and remove the shrub component from **81** acres of shrub-steppe habitat that represents potentially suitable foraging habitat for the bald eagle, ferruginous hawk, Swainson's hawk, and American peregrine falcon. These same activities would reduce the potential foraging and nesting habitat for the long-billed curlew, grasshopper sparrow, loggerhead shrike, and western burrowing owl. The western burrowing owl is known to have historically nested in the vicinity of the plant site. Transmission line construction could temporarily disturb 2.6 acres of potentially suitable wetland habitat for American white pelican, western painted turtle, western toad, Woodhouse's toad, and northern leopard frog. Other impacts could include the short-term displacement of these species from the project area as a result of increased noise levels and human presence during surface disturbance activities and operation of the power plant facility. However, impacts to these species from project construction and operation would be low, based on the known distribution of these species within the project area, available remaining habitat on adjacent areas, low overall habitat quality within the project area, and mitigation measures that have been developed for these species.

#### **3.4.4 Component Alternatives Impact Summaries**

*Comparisons of the relative wildlife and special status species impacts of No Action, Proposed Action, and constructing and operating project component alternatives in different locations are presented in Table 3.4-6 (gas/plant discharge water pipelines), Table 3.4-7 (transmission lines), and Table 3.4-8 (plant discharge locations).*

**Table 3.4-6  
Natural Gas Supply/Plant Discharge Water Pipeline Alternatives Comparison – Wildlife**

Resource/Impact Issue	Alternatives							
	No Action	Proposed Action	1	2	3	4	5	6
		(Figure 2.3-1)	(Figure 2.4-1)	(Figure 2.4-2)	(Figure 4.2-3)	(Figure 2.4-4)	(Figure 2.4-5)	(Figure 2.4-6)
<b>Vegetation</b>								
Shrub and grassland-steppe disturbance	No new surface disturbance would occur.	Approximately 24 acres of this vegetation community would temporarily be disturbed during construction.	Approximately 41 acres of this vegetation community would temporarily be disturbed during construction.	Approximately 23 acres of this vegetation community would temporarily be disturbed during construction.	Approximately 39 acres of this vegetation community would temporarily be disturbed during construction.	Approximately 30 acres of this vegetation community would temporarily be disturbed during construction.	Approximately 27 acres of this vegetation community would temporarily be disturbed during construction.	Approximately 27 acres of this vegetation community would temporarily be disturbed during construction.
Number of wetlands crossed	No new surface disturbance would occur	No developed wetlands within the Wanaket Wildlife Area would be crossed by the ROW.	No wetlands would be crossed by the ROW.	Seven wetlands would be crossed by the ROW.	No wetlands would be crossed by the ROW.	No wetlands would be crossed by the ROW.	No wetlands would be crossed by the ROW.	No wetlands would be crossed by the ROW.
Wetland area crossed	No new surface disturbance would occur	No developed wetlands within the Wanaket Wildlife Area would be crossed by the ROW.	No wetlands would be crossed by the ROW.	Approximately 1 acre would be crossed by the ROW.	No wetlands would be crossed by the ROW.	No wetlands would be crossed by the ROW.	No wetlands would be crossed by the ROW.	No wetlands would be crossed by the ROW.
<b>Wildlife</b>								
Wildlife habitat	No new surface disturbance would occur	Disturbance of approximately 24 acres of potentially suitable grassland/shrub-steppe habitat, and approximately 82 acres of irrigated cropland habitat.	No impacts to wetland habitat, disturbance of approximately 41 acres of grassland/shrub-steppe habitat, and 78 acres of irrigated cropland habitat.	Disturbance of approximately 1.2 acres of wetland habitat and approximately 25 acres of grassland/shrub-steppe foraging habitat, and 75 acres of irrigated cropland habitat.	No impacts to wetland habitat, disturbance of 39 acres of grassland/shrub-steppe foraging habitat, and 78 acres of irrigated cropland habitat.	No impacts to wetland habitat, disturbance of 30 acres of grassland/shrub-steppe habitat, and 69 acres of irrigated cropland habitat.	No impacts to wetland habitat, disturbance of 27 acres of grassland/shrub-steppe habitat, and 50 acres of irrigated cropland habitat.	No impacts to wetland habitat, disturbance of 27 acres of grassland/shrub-steppe habitat, and 50 acres of irrigated cropland habitat.

**Table 3.4-6 (Continued)**

Resource/Impact Issue	Alternatives							
	No Action	Proposed Action	1	2	3	4	5	6
		(Figure 2.3-1)	(Figure 2.4-1)	(Figure 2.4-2)	(Figure 4.2-3)	(Figure 2.4-4)	(Figure 2.4-5)	(Figure 2.4-6)
Wanaket Wildlife Area	No new surface disturbance would occur	Approximately 8,429 feet of land would be crossed by the ROW.	Approximately 14,640 feet of land would be crossed by the ROW.	Approximately 8,813 feet of land would be crossed by the ROW.	Approximately 11,636 feet of land would be crossed by the ROW.	Approximately 9,302 feet of land would be crossed by the ROW.	Approximately 9,229 feet of land would be crossed by the ROW.	Approximately 9,229 feet of land would be crossed
<b>Special Status Species</b>								
Bald eagle	No new surface disturbance would occur	Disturbance of approximately 24 acres of potentially suitable grassland/shrub-steppe foraging habitat for bald eagles. However, the project area consists of marginal foraging habitat, as compared to habitats within the project region.	No impacts to wetland foraging habitat, disturbance of approximately 41 acres of grassland/shrub-steppe foraging habitat.	Disturbance of approximately 1.2 acres of wetland habitat and approximately 25 acres of grassland/shrub-steppe foraging habitat.	No impacts to wetland habitat and disturbance of approximately 39 acres of grassland/shrub-steppe foraging habitat.	No impacts to wetland habitat and disturbance of approximately 30 acres of grassland/shrub-steppe foraging habitat.	No impacts to wetland habitat and disturbance of approximately 27 acres of grassland/shrub-steppe foraging habitat	No impacts to wetland habitat and disturbance of approximately 30 acres of grassland/shrub-steppe foraging habitat
Long-billed curlew, grasshopper sparrow, loggerhead shrike, western burrowing owl	No new surface disturbance would occur	Disturbance of approximately 24 acres of potentially suitable nesting and foraging grassland/shrub-steppe habitat for long-billed curlew, grasshopper sparrow, loggerhead shrike, western burrowing owl. The PA would come within several hundred feet of two known burrowing nest sites that have been active for several years.	Disturbance of approximately 41 acres of grassland/shrub-steppe nesting and foraging habitat.	Disturbance of approximately 25 acres of grassland/shrub-steppe nesting and foraging habitat.	Disturbance of approximately 39 acres of grassland/shrub-steppe nesting and foraging habitat.	Disturbance of approximately 30 acres of grassland/shrub-steppe nesting and foraging habitat.	Disturbance of approximately 27 acres of grassland/shrub-steppe nesting and foraging habitat.	Disturbance of approximately 27 acres of grassland/shrub-steppe nesting and foraging habitat.

**Table 3.4-6 (Continued)**

Resource/Impact Issue	Alternatives							
	No Action	Proposed Action	1	2	3	4	5	6
		(Figure 2.3-1)	(Figure 2.4-1)	(Figure 2.4-2)	(Figure 4.2-3)	(Figure 2.4-4)	(Figure 2.4-5)	(Figure 2.4-6)
Ferruginous hawk, Swainson's hawk, and American peregrine falcon	No new surface disturbance would occur	Disturbance of approximately 24 acres of potentially suitable grassland/shrub-steppe habitat for ferruginous hawk, Swainson's hawk, and American peregrine falcon.	No impacts to wetland habitat and a disturbance of approximately 41 acres of grassland/shrub-steppe habitat.	Disturbance of approximately 1.2 acres of wetland habitat and approximately 25 acres of grassland/shrub-steppe habitat.	No impacts to wetland habitat and disturbance of approximately 39 acres of grassland/shrub-steppe habitat.	No impacts to wetland habitat and disturbance of approximately 30 acres of grassland/shrub-steppe habitat.	No impacts to wetland habitat and disturbance of approximately 27 acres of grassland/shrub-steppe habitat	No impacts to wetland habitat and disturbance of approximately 27 acres of grassland/shrub-steppe habitat
American white pelican	No new surface disturbance would occur	No impacts to wetland habitat.	No impacts to wetland habitat.	Disturbance of approximately 1.2 acres of wetland habitat.	No impacts to wetland habitat.	No impacts to wetland habitat.	No impacts to wetland habitat.	No impacts to wetland habitat.
Western painted turtle, western toad, Woodhouse's toad, and northern leopard frog	No new surface disturbance would occur	No impacts to wetland breeding habitat.	No impacts to wetland breeding habitat.	Disturbance of approximately 1.2 acres of wetland breeding habitat.	No impacts to wetland breeding habitat.	No impacts to wetland breeding habitat.	No impacts to wetland habitat.	No impacts to wetland habitat.

**Table 3.4-7  
Electric Transmission Line Alternatives Comparison – Wildlife**

Resource/Impact Issue	Alternatives				
	No Action	Proposed Action (Figure 2.3-1)	1 (Figure 2.4-7)	2 (Figure 2.4-8)	3 (Figure 2.4-10)
<b>Vegetation</b>					
Shrub and grassland-steppe disturbance	No impact	Approximately 41 acres of disturbance to this vegetation community during construction.	Approximately 58 acres of disturbance to this vegetation community during construction.	Approximately 16 acres of disturbance to this vegetation community during construction.	Approximately 28 acres of disturbance to this vegetation community during construction.
Wetland area potential disturbance	No impact	Approximately 2.5 acres of potential disturbance to wetlands.	Approximately 1 acre potential disturbance to wetlands.	No potential disturbance to wetlands.	No potential disturbance to wetlands.
<b>Wildlife</b>					
Wildlife habitat	No impact	This action would result in the incremental increase in habitat fragmentation by crossing approximately 3.9 miles of potentially suitable wildlife habitat (wetland, grassland/shrub-steppe and irrigated cropland).	This alternative would result in habitat fragmentation of approximately 4.9 miles.	This alternative would result in habitat fragmentation of approximately 0.9 mile.	This alternative would result in habitat fragmentation of approximately 1.9 miles.
Wanaket Wildlife Area	No impact	Approximately 6,069 feet would be crossed by the ROW.	Approximately 11,915 feet would be crossed by the ROW.	Wanaket Wildlife Area would not be crossed by the ROW.	Wanaket Wildlife Area would not be crossed by the ROW.
Collision potential for waterfowl	No impact	This alignment crosses a portion of the 1.5 square mile wetland complex. Approximately 15% of the total wetland complex (waterfowl resting habitat) would be partitioned from agricultural fields to the south and east (waterfowl foraging habitat). Waterfowl using the isolated portion of the wetland would need to negotiate the transmission power line as they flew from one habitat type to the other.	This alignment would separate about 70% of the total wetland complex from the agricultural area.	This alignment would not separate the wetland complex from the agricultural areas.	This alignment would not separate the wetland complex from the agricultural areas.
	No impact	The alignment does not parallel the river and is offset from the river. As a result, waterfowl could use the river as a flight corridor and, for those birds crossing the river, the setback would allow waterfowl ample opportunity to adjust their flight paths and avoid the power lines.	Like the Proposed Action, the alignment would not parallel the river and is offset from the river. As a result, waterfowl could use the river as a flight corridor and, for those birds crossing the river, the setback would allow waterfowl ample opportunity to adjust their flight paths and avoid the power lines.	This alignment would parallel the river, though approximately 50% of the alignment would be about 0.5 mile from the river. This alignment would pose a potential collision hazard to waterfowl utilizing the river as a flight corridor as well as those birds crossing the river.	This alignment would parallel the river. The majority of the alignment would be within 0.2 mile from the river. This alignment would pose a potential collision hazard to waterfowl utilizing the river as a flight corridor as well as those birds crossing the river.

**Table 3.4-7 (Continued)**

Resource/Impact Issue	Alternatives				
	No Action	Proposed Action	1	2	3
<b>Special Status Species</b>					
Bald eagle	No impact	Temporary disturbance of approximately 2.5 acres of potentially suitable wetland habitat and approximately 41 acres of potentially suitable grassland/shrub-steppe habitat for foraging bald eagles. However, the project area consists of marginal foraging habitat, as compared to habitats within the project region.	Temporary disturbance of approximately 1 acre of wetland foraging habitat and approximately 58 acres of grassland/shrub-steppe foraging habitat.	No impacts to wetland habitat and disturbance of approximately 16 acres of grassland/shrub-steppe foraging habitat.	No impacts to wetland habitat and disturbance of approximately 28 acres of grassland/shrub-steppe foraging habitat.
Long-billed curlew, grasshopper sparrow, loggerhead shrike, western burrowing owl	No impact	Disturbance of approximately 41 acres of potentially suitable nesting and foraging habitat for long-billed curlew, grasshopper sparrow, loggerhead shrike, and western burrowing owl.	Disturbance of approximately 58 acres of grassland/ shrub-steppe nesting and foraging habitat.	Disturbance of approximately 16 acres of grassland/shrub-steppe nesting and foraging habitat.	Disturbance of approximately 28 acres of grassland/shrub-steppe nesting and foraging habitat.
Ferruginous hawk, Swainson's hawk, and American peregrine falcon	No impact	Temporary disturbance of approximately 2.5 acres of potentially suitable wetland habitat and approximately 41 acres of potentially suitable grassland/shrub-steppe habitat for ferruginous hawk, Swainson's hawk, and American peregrine falcon.	Temporary disturbance of approximately 1 acre of wetland habitat and approximately 58 acres of grassland/shrub-steppe nesting and foraging habitat.	No impacts to wetland habitat and disturbance of approximately 16 acres of grassland/shrub-steppe habitat.	No impacts to wetland habitat and disturbance of approximately 28 acres of grassland/shrub-steppe habitat.
American white pelican	No impact	Temporary disturbance of approximately 2.5 acres of potentially suitable wetland habitat for the American white pelican.	Temporary disturbance of approximately 1 acre of wetland habitat.	No impacts to wetland habitat.	No impacts to wetland habitat.
Western painted turtle, western toad, Woodhouse's toad, and northern leopard frog	No impact	Temporary disturbance of approximately 2.5 acres of potentially suitable wetland breeding habitat for the Western painted turtle, western toad, Woodhouse's toad, and northern leopard frog.	Temporary disturbance of approximately 1 acre of wetland breeding habitat.	No impacts to wetland breeding habitat.	No impacts to wetland breeding habitat.

**Table 3.4-8**  
**Plant Discharge Location Alternatives Comparisons – Wildlife and Special Status Species**

	No Action	Proposed Action (Figure 2.3-1)	Alternative 1 (Figure 2.4-11)
Resource/Impact Issue			
Vegetation/Land Cover	No new native vegetation community disturbance would occur.	Approximately 2 acres of shrub steppe vegetation would be removed during plant discharge water pipeline construction between the natural gas supply pipeline ROW and Cold Springs Reservoir, resulting in a long-term conversion of this shrub community to a grassland/weedy annual dominated community.	Approximately 5 acres of shrub steppe vegetation would be removed during construction, resulting in a long-term conversion of this shrub community to a grassland/weedy annual dominated community.
Wetlands	No new wetlands disturbance would occur.	The pipelines would avoid the Wanaket Wildlife Area created wetlands, but would cross an area that could be developed as wetlands in the future. Trenching across basalt rock could modify the surface drainage feeding wetlands, which could be partially mitigated with trench plugs.	The pipelines would avoid the Wanaket Wildlife Area created wetlands, as well as areas that could be developed as wetlands in the future. Trenching across basalt rock could modify the surface drainage, which could be partially mitigated with trench plugs.
Aquatic Species	No new water withdrawals or discharges would occur in the Columbia River or tributaries, and therefore no effects on fish habitats and populations would occur.	Proposed water withdrawal rates from Lake Wallula on the Columbia River represent a very small fraction of the Columbia River flow rate even at very low river flows (see Water Resources above). The proposed withdrawal would occur under an existing water right that was considered in prior USFWS consultations with the USCOE regarding construction of new intake structures at the Port of Umatilla.	Proposed water withdrawal rates from Lake Wallula on the Columbia River represent a very small fraction of the Columbia River flow rate even at very low river flows (see Water Resources above). The proposed withdrawal would occur under an existing water right that was considered in prior USFWS consultations with the USCOE regarding construction of new intake structures at the Port of Umatilla. As described under Water Resources above, about 20 percent of the power plant makeup water would be returned to the Columbia River near the same location it was withdrawn. The remainder of the water would be evaporated in the power plant cooling system.
Wildlife	No native shrublands would be removed or modified by project construction disturbance within the Wanaket Wildlife Management or the Cold Springs National Wildlife Refuge. Existing habitat improvement programs would continue in both areas.	Approximately 2 acres of shrub steppe vegetation would be removed during construction of the plant discharge water pipeline between the natural gas supply pipeline and Cold Springs Reservoir, resulting in a long-term reduction in habitat carrying capacity for species dependent on sagebrush communities, and an increase in habitat carrying capacity for species adapted to grasslands and disturbed weedy habitats. The route would cross 0.3 mile of the Cold Springs National Wildlife Refuge. The remainder of the surface disturbance for the plant discharge water pipeline is included in the ROW for the gas supply pipeline, which is the same for both alternatives.	Approximately 5 acres of shrub steppe vegetation would be removed during construction, resulting in a long-term reduction in habitat carrying capacity for species dependent on sagebrush communities, and an increase in habitat carrying capacity for species adapted to grasslands and disturbed weedy habitats. The pipeline route would cross approximately 0.2 mile of Oregon Fish and Wildlife lands located along the south bank of the Columbia River.

**Table 3.4-8 (Continued)**

	<b>No Action</b>	<b>Proposed Action</b> <b>(Figure 2.3-1)</b>	<b>Alternative 1</b> <b>(Figure 2.4-11)</b>
Resource/Impact Issue			
Special Status Species	No new native vegetation community or wetland disturbance would occur that would affect species dependent on these habitats. No new water withdrawals or discharges would occur in the Columbia River or tributaries, and therefore no effects on fish habitats and populations would occur.	Approximately 2 acres of bald eagle foraging habitat (consisting of native shrub-steppe) would be removed from construction of the plant discharge water pipeline segment from the gas supply pipeline/Feed Canal intersection to Cold Springs Reservoir, a small fraction of available foraging habitat near the Columbia River. No bald eagle roost or nesting trees would be affected. Approximately 2 acres of shrub-steppe and grassland foraging and nesting habitat would be removed for the long term for raptors (ferruginous hawk, Swainson’s hawk, American peregrine falcon), and other birds (long-billed curlew, grasshopper sparrow, loggerhead shrike, western burrowing owl). The remainder of the surface disturbance for the plant discharge water pipeline is included in the ROW for the gas supply pipeline, which is the same for both alternatives.	Approximately 5 acres of bald eagle foraging habitat (consisting of native shrub-steppe) would be removed by pipeline construction of a plant discharge water pipeline between the plant site and the Columbia River, a small fraction of available foraging habitat near the Columbia River. No bald eagle roost or nesting trees would be affected. The proposed plant discharge water pipeline construction would remove approximately 5 acres of shrub-steppe, grassland and disturbed area foraging and nesting habitat would be removed for the long term for raptors (ferruginous hawk, Swainson’s hawk, American peregrine falcon), and other birds (long-billed curlew, grasshopper sparrow, loggerhead shrike, western burrowing owl).