



Oregon Coordinated Aquatic Bird Monitoring:
Description of Important Aquatic Bird Site



Klamath Marsh National Wildlife Refuge

BCS number: 48-16

Site description author(s)

Carol Damberg, Klamath Marsh NWR Refuge Manager
Kate Halstead, Field Technician, KBO

Primary contact for this site

Carol Damberg, Klamath Marsh NWR Refuge Manager. Phone: (541) 783-3380. Email: Carol_Damberg@fws.gov

Site location (UTM)

Datum: NAD 83, Zone: 10, Easting: 608512, Northing: 4755010

General description

Boundaries and ownership

Boundaries: Boundaries are fairly well marked in most areas by signs and fencing. A majority of the 40,960 currently owned by the Refuge is wetland habitat (30,000 acres +). The Refuge is bordered on the east by U.S. Forest Lands (Winema- Fremont Forest) and along the west by private and corporate lands.

Ownership: The U.S. Fish and Wildlife Service owns 40,960 acres in fee title of the proposed 49,583 acquisition boundary area. Private in-holdings within the Refuge are held by a variety of landowners. Please work through the Refuge Manager to obtain permission to conduct surveys on private lands. See Figures 1 and 2 for general and detailed ownership and boundary maps.

Water levels

Water is provided to the marsh via three primary routes – groundwater re-charge from precipitation; Williamson River & Big Springs surface flows (occasional contributions from other smaller tributaries); and direct precipitation. Historically, much of the bulrush marsh that is observed today was a lake. Changes in climate, water use in the Upper Williamson River watershed, and in land use practices have transformed the marsh from an open water habitat to a mono-culture of bulrush and cattail.

The Refuge Marsh is the wettest during the spring and early summer when it receives significant contributions of water from groundwater and surface flows (like the Williamson River and Big Springs). The majority of the marsh will dry out by mid to late fall, depending on summer rain patterns. The Williamson River is diverted into a variety of canals and ditches shortly after it enters the Refuge. The Refuge uses the existing

cannel and ditch system to create wetlands and to move water to various portions of the Marsh. The cannels allow the Refuge to provide some fall wetlands in irrigated areas.

The Refuge wetlands provide good spring and summer breeding and migration habitat, but very little fall migration habitat due to lack of water. Tim Mayer, hydrologist United States Fish and Wildlife Service (USFWS), Portland, OR office has written a paper regarding the hydrology of the Klamath Marsh that is available upon request.

Focal species use and timing

Focal Guild/Species	Wintering	Breeding	Migration
Secretive Marsh Birds*	Absent	Present	Present
Colonial Nesting Waterbirds	Absent	Present	Present
Ground-based Aquatic Birds	Absent	Present	Present
Migrating Shorebirds	Absent	Unknown	Present
American White Pelican	Absent	Unknown – Possible	Present
Barrow’s Goldeneye	Absent	Absent	Unknown
Black-necked Stilt	Absent	Unknown	Present
Bufflehead	Absent	Unknown	Present
Dusky Canada Goose	Absent	Absent	Absent
Franklin’s Gull	Absent	Absent	Absent
Greater Sandhill Crane	Absent	Present	Present
Long-billed Curlew	Absent	Absent	Unknown
Snowy Egret	Absent	Absent	Unknown
Red-Necked Grebe	Absent	Absent	Absent
Upland Sandpiper	Absent	Absent	Absent
Western Snowy Plover	Absent	Absent	Absent
Yellow Rail	Absent	Present	Present

*The focal species for Oregon’s aquatic secretive marsh bird monitoring are PBGR, LEBI, AMBI, VIRA, SORA, YERA.

Location of Type 1 and 2 habitat within the site

Guild	Type 1 Habitat	Type 2 Habitat
Secretive Marsh Birds	Wet sedge and grassland meadows; Emergent wetlands with bulrush, cattail, and sedge vegetation. (Wocus Bays, Private Lands, Irrigated wetlands, Northern Marsh areas)	Unknown
Ground-based Aquatic Birds	Wet sedge and grassland meadows; Emergent marsh; Upland grasslands. (Wocus Bays, Private Lands, Irrigated wetlands, Northern Marsh areas)	Unknown
Migrating Shorebirds	Short emergent sedge meadows, shallow open water areas (Wocus Bays), Mud flats in fall (Wocus Bays) and barrow ditches along Silver Lake Rd and Military Crossing Road.	Unknown
Colonial Nesters	Emergent Marsh with sedges, cattails, and bulrush interspersed with open water (Wocus Bays, Private Lands, Irrigated wetlands, Northern Marsh areas)	Unknown

*See Figures 3 and 4 for USFWS National Wetlands Inventory (2008) layer in Google Earth (2008).

Access to Type 1 and 2 habitat and visibility/audibility of birds

Road access into the middle or central portions of the marsh does not exist for several large wetland areas. Access via administrative refuge roads is good in the areas that have irrigated wetlands. Road access around the periphery of the Refuge is good via USFS two-tracked roads that are not maintained and require a 4 wheel drive vehicle or ATV. Access on all roads may be impossible during early spring or late fall due to snow or extremely wet conditions. Road noise along Silver Lake Rd can be distracting at times if trying to conduct a survey along this road.

Entering the central portions of the marsh during spring and summer can only be accomplished via a tracked vehicle like a Marsh Master (one is owned by the Refuge). Walking is generally not feasible due to the density of the bulrush and depth of water during the spring and summer. Boating is possible in Wocus Bay and Little Wocus Bay areas in spring and summer.

See Figures 4 and 5 for road maps of the area.

Past and current surveys

- Aerial waterfowl surveys – spring and fall (data held at Klamath Basin Refuge Complex office Tule Lake, CA – contact USFWS Biologist Dave Mauser)
- Spring Sandhill Crane survey – conducted in late May or early June: Ground survey via vehicles or ATV's completed by Refuge staff. Data available from Klamath Marsh NWR.
- Waterfowl breeding pairs – aerial survey completed by Klamath Basin Refuge Complex Office in spring (contact Dave Mauser)
- Goose breeding pair survey – aerial survey completed by Klamath Basin Refuge Complex Office in spring (contact Dave Mauser)
- Yellow Rail surveys – historically completed by Ken Popper of The Nature Conservancy (TNC) since 1991. Starting in 2007 the USFWS has started to complete surveys. Surveys conducted on foot in June at night using call playback technique. Data available from Klamath Marsh NWR.
- Bald eagle nest surveys – completed by volunteers at Klamath Marsh NWR. Ground surveys using vehicles, binoculars, and spotting scopes. Data available from Klamath Marsh NWR.
- In 2008, Klamath Bird Observatory (KBO) surveyed for six focal secretive marsh bird species (Pied-billed Grebe, American Bittern, Least Bittern, Yellow Rail, Sora, and Virginia Rail) during peak breeding season (May and June). Klamath Marsh was visited three times by KBO with 10 survey stations completed during each visit. Pied-billed Grebes were found in abundance, and several American Bittern, Yellow Rail, Sora, and Virginia Rail were detected.
- KBO conducted Black Tern surveys at Klamath Marsh during the breeding season from 1997 to 2004.
- KBO conducted point count surveys for 2 years in various habitats – contact Klamath Bird Observatory at kbo@klamathbird.org
- Sandhill Crane nesting survey completed in early 1990's. Results in Klamath Marsh Refuge Files.

Conservation issues

- Water availability and water adjudication in the Klamath Basin. The future allocation of water could be a major factor in the future viability of the Marsh.
- Introduced noxious weeds are a problem, which could become more serious.
- Potential future development of lands not acquired.
- Lack of vegetation management via fire and/or haying and grazing – the Marsh continues to fill in with dense stands of bulrush and the amount of open water habitat continues to diminish.

Conservation measures taken, in progress, or proposed

- Chemical, mechanical, and biological control of noxious weeds
- Continued use of prescribe fire and haying programs with hopes of resurrecting future grazing programs.
- Purchase of lands within acquisition boundary and continued pursuit of conservation easements on private lands within and outside acquisition boundary
- Continued work with Williamson River Basin Working Group to improve water regime for wildlife both on the refuge and on private lands.

Potential survey methods

a. Description:

- a. Nest searches for grebes and other waterbirds nesting in the emergent vegetation in small colonies. A Marsh Master or canoe may be necessary for access.
- b. Colony counts for nesting ibis, gulls, and terns. Aerial surveys will likely be necessary to determine location and size of any colonies in the area.
- c. Area searches for migrating shorebirds, gulls, and terns from observation points near Type 1 habitat.
- e. Systematic sampling, probably including the use of playback calls, for secretive marshbirds from the road and from a canoe within Wocus Bay(s).
- f. Census for terns and ibis during aerial waterfowl counts with verification via ground surveys.
- g. Ground foot transects through sedge and emergent marshes for secretive marsh birds using tape playback.

b. Selection Bias:

- a. Evaluate water level conditions in habitats surveyed as this can change in an area from year to year and determine utilization of species from year to year.
- b. Evaluate vegetation management that has occurred in areas historically and in the present – prescribe burns, haying, grazing, etc.

c. Measurement error and bias:

Manning and Hartley (2006) suggest that it should be determined whether a ground-based waterbird survey would be beneficial.

Potential Pilot Studies

Design a study to evaluate the positive and negative impacts of vegetation management such as fire, haying and grazing on yellow rail, sandhill crane, and other secretive marsh birds. This would need to be conducted via observational day surveys for species like cranes and call play back techniques (AM or PM) for secretive marsh birds. Monitoring of water depths and changes in vegetative conditions from year to year during surveys would be vital.

I would be beneficial to complete a general comprehensive survey of the various wetland habitats to determine what species are breeding and/or migrating through the areas. This survey may be conducted via point counts or transects in areas accessible via foot. Some surveys may need canoe or kayak in the Wocus Bay areas. This survey should attempt to determine if we have pockets of colonial nesting species (black terns, grebes, etc.)

Also, completing pre and post Williamson River and Wetland restoration surveys of select guild species to determine the impacts of the future restoration of the Williamson River and associated wetlands on wetland and riparian bird species would be beneficial.

Literature cited

Google Earth version 4.3. 2008. Image: Klamath Marsh National Wildlife Refuge, Oregon. Accessed October 10, 2008.

Google Map. 2009. Map of Klamath Marsh National Wildlife Refuge, Oregon.
<http://maps.google.com/maps?ll=42.925697,-121.66832&z=11&t=h&hl=en> .
Accessed March 24, 2009.

Manning, Ann and Laura Hartley. March 2006. Important sites for aquatic birds in Eastern Oregon. Version 2.0.

U. S. Fish and Wildlife Service (USFWS). 2008. National Wetlands Inventory website. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.
<http://www.fws.gov/wetlands/>. Accessed October 10, 2008.

Figure 1: General ownership map of Klamath Marsh National Wildlife Refuge.

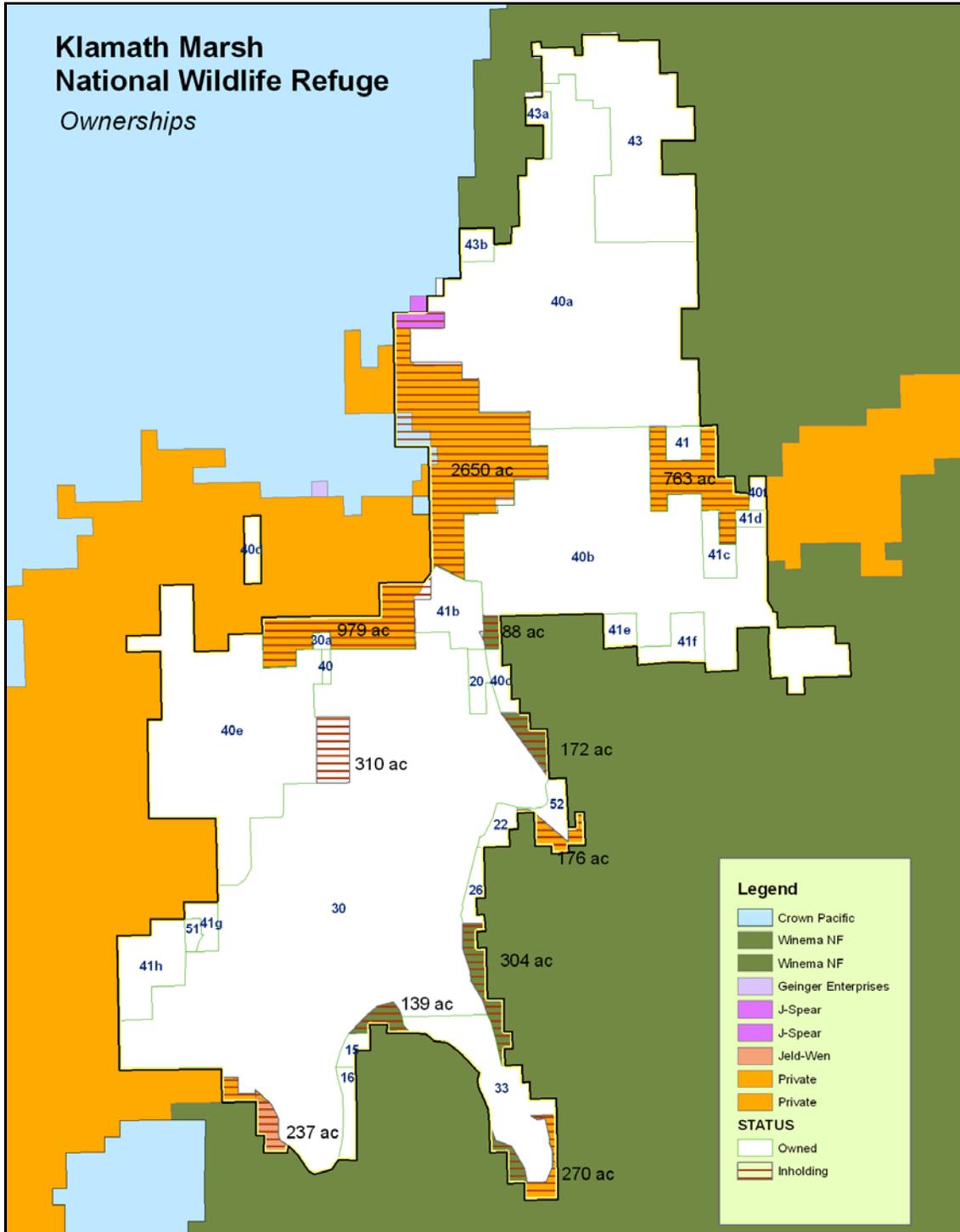


Figure 2: Detailed ownership map of Klamath Marsh National Wildlife Refuge.

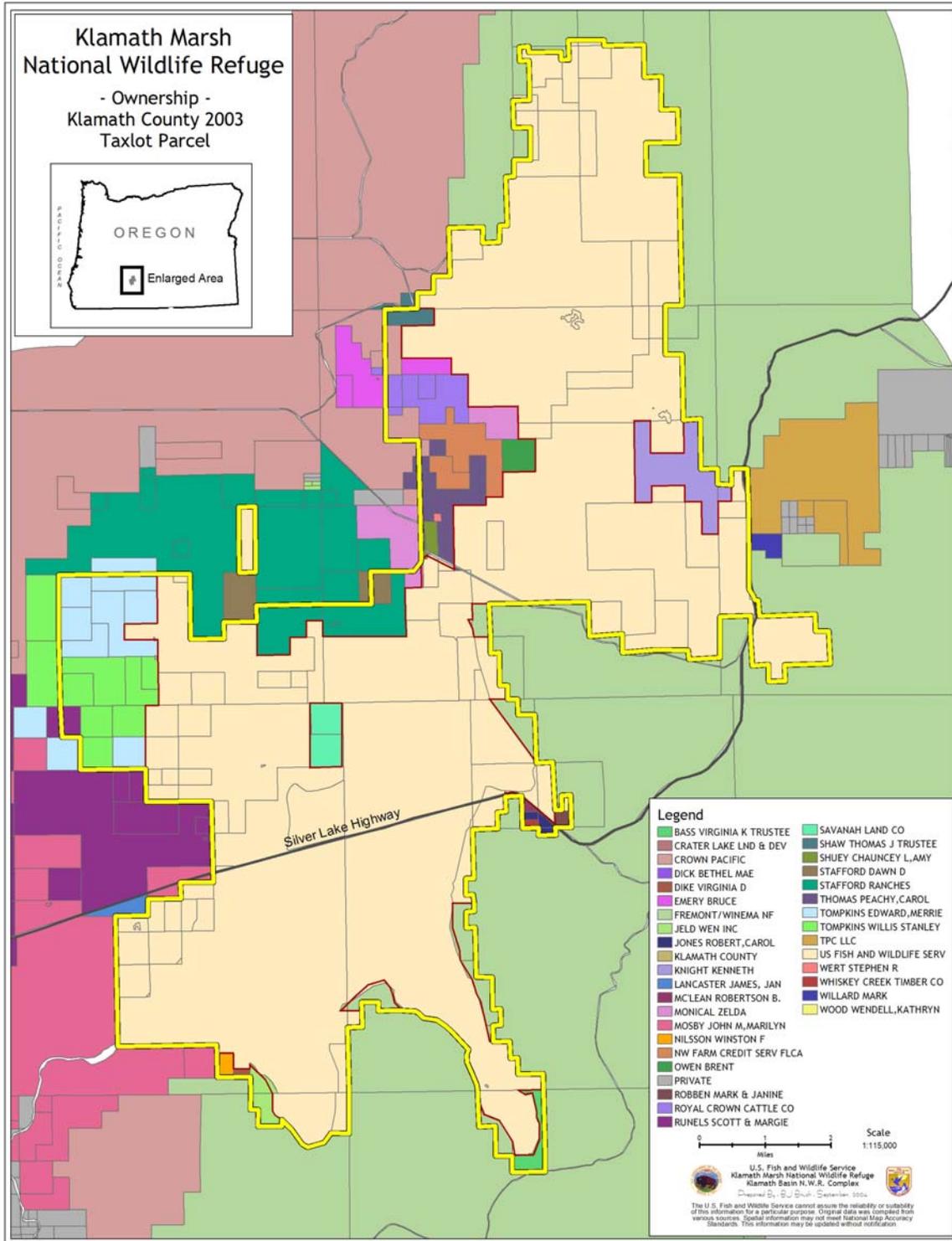


Figure 3: USFWS National Wetlands Inventory (2008) layer of the upper portion of Klamath Marsh NWR in Google Earth (2008).

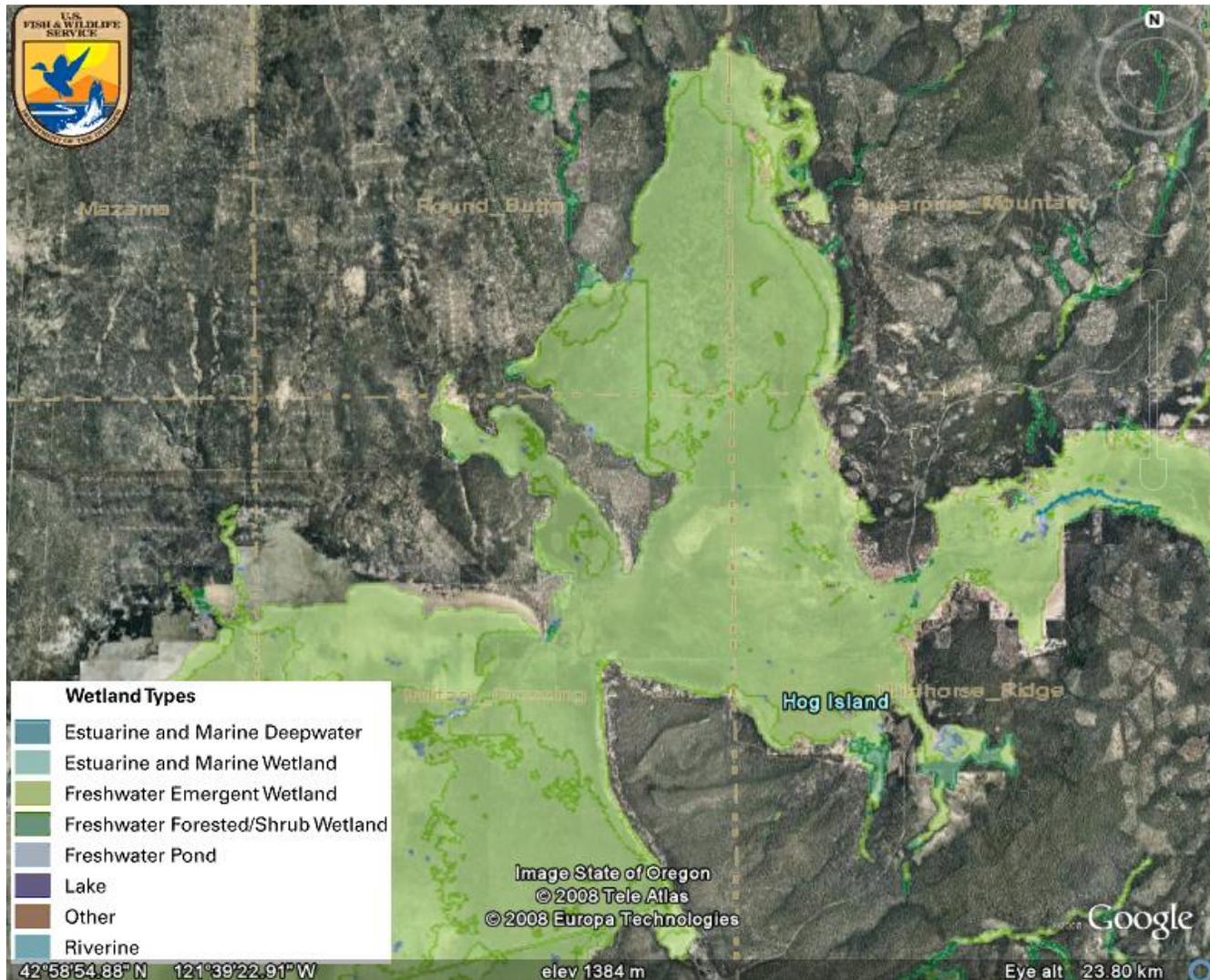


Figure 4: USFWS National Wetlands Inventory (2008) layer of the lower portion of Klamath Marsh NWR in Google Earth (2008).

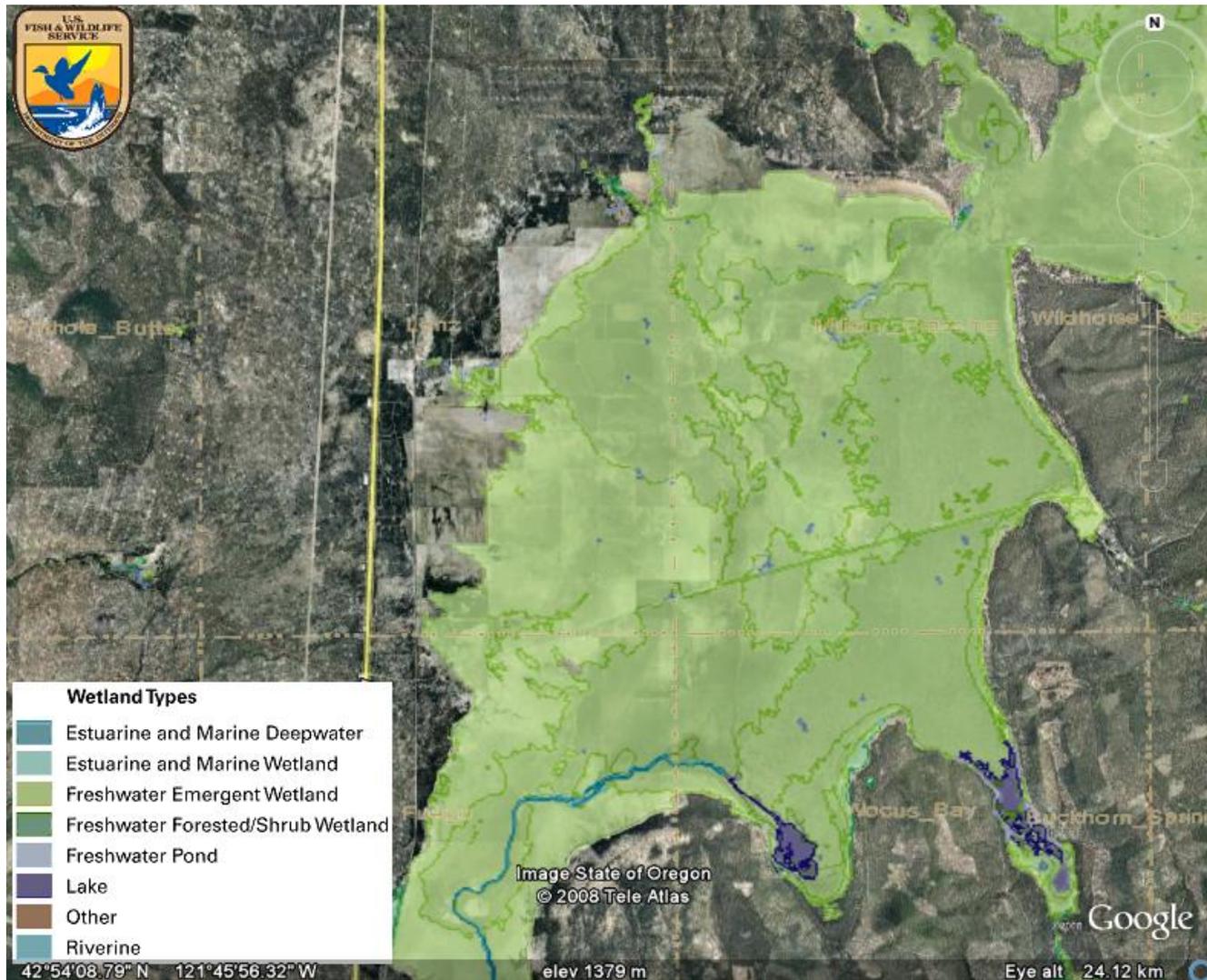


Figure 5: Klamath Marsh NWR road map.

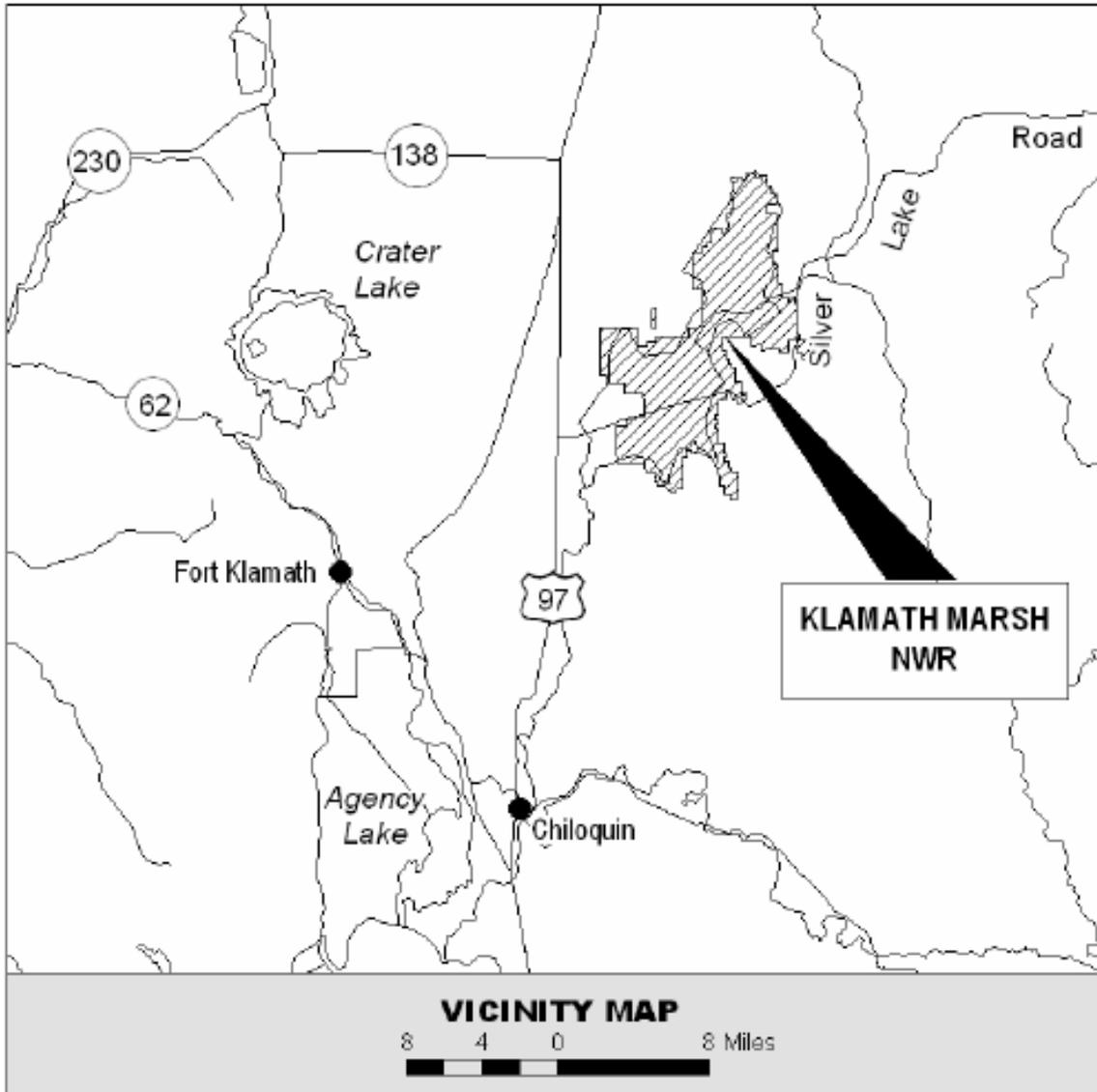


Figure 6: Google Map (2009) of Klamath Marsh NWR.

