

# **Report on 2014 and 2015 ISSSP Inventory for Rare Wildlife Species in Remote Wilderness Areas of the Willamette National Forest**

Compiled by Joe Doerr, Cheron Ferland, and Ruby Seitz – January 12, 2016

---

## **Summary**

*Wilderness areas contain important habitats for a number of rare species, especially those that require large tracts with limited human disturbance and those that require high-elevation montane habitats due to the presence of many wilderness areas in high elevation areas. We conducted surveys in 2014 and 2015 for rare species in two wilderness areas of the Willamette National Forest where past survey data were lacking. The surveys were intuitive-based and covered a wide range of habitats and species (“bio-blitz”). Over 70 water bodies were surveyed for Oregon spotted frogs, a key focus of the surveys, but none were detected. However, the 2015 surveys in the upper Horse Creek drainage of the Three Sisters Wilderness documented a substantial number of western bumble bees and breeding bufflehead sites among other detections of sensitive species and other species of interest. In addition to gathering data on rare species, wilderness bioblitzes offer opportunities to rejuvenate employees and foster intra-district involvement. We encourage agencies to review their corporate survey databases to determine where large tracts of wildernesses are unsurveyed, and to identify where survey knowledge in these areas would help develop conservation assessments, conservation strategies, and long-term monitoring relative to rare species.*

## **Introduction**

High elevation wilderness areas in the Oregon Cascades provide habitat for a variety of sensitive and rare wildlife species. Often because of their remoteness and because of the lack of active management, these areas are poorly surveyed. Because these areas are also at the upper elevation zones for forest habitat, they are particularly vulnerable to climate warming as there is limited higher elevation habitat that vegetation and wildlife can move to. For example, McKelvey et al. (2011) found that persistent mid-May snow cover may no longer exist to any substantial degree in the Oregon Cascades by 2070-2099 based on a series of climate change models. Such changes could affect the species that occupy high-elevation wilderness areas that currently get persistent late spring snow cover.

On the Willamette National Forest, we prioritized two particular wilderness areas with diverse habitats for a variety of sensitive wildlife species where surveys were lacking. The first area was the Eight Lakes Basin south of Marion Lake in the Mount Jefferson Wilderness on the Detroit Ranger District (Figure 1). A review of NRIS Wildlife showed only a single observation of a wildlife species of interest, a 1943 Oregon spotted frog record at Jorn Lake. The frog record is of great interest because no populations of this then candidate, now federally threatened, species are currently documented in the northern region of the Willamette National Forest. Limited past observations by district personnel suggested a complexity of wetlands in this area, including sphagnum and sundew bogs. Much of the area was burned in the 2003 B&B fire (Figure 2), but areas of intact forest and riparian shrub thickets and wetlands persist and the area contains a large number of lakes, ponds, and marshes plus several peaks and buttes. Elevations range from about 4,000-6,200 feet.

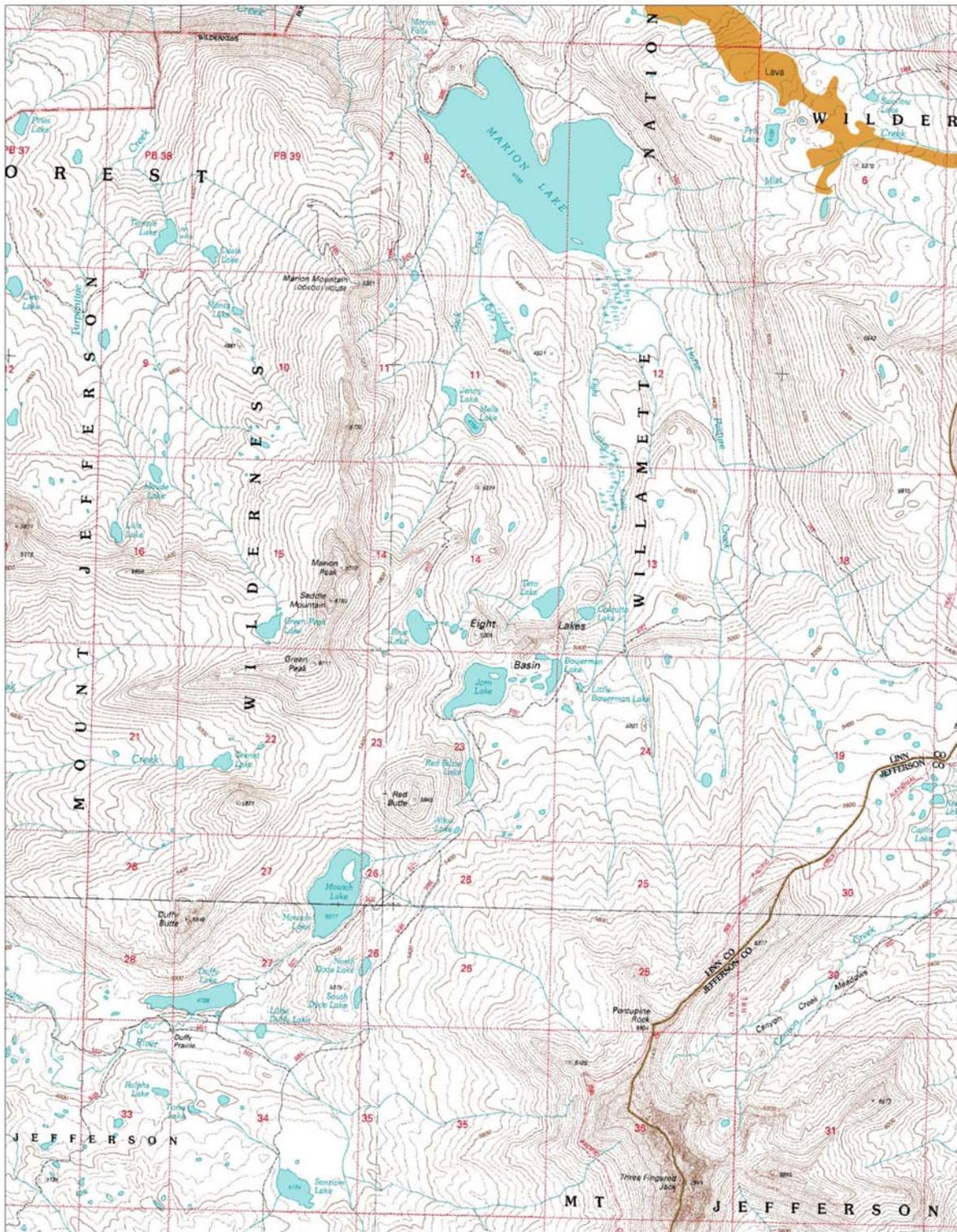
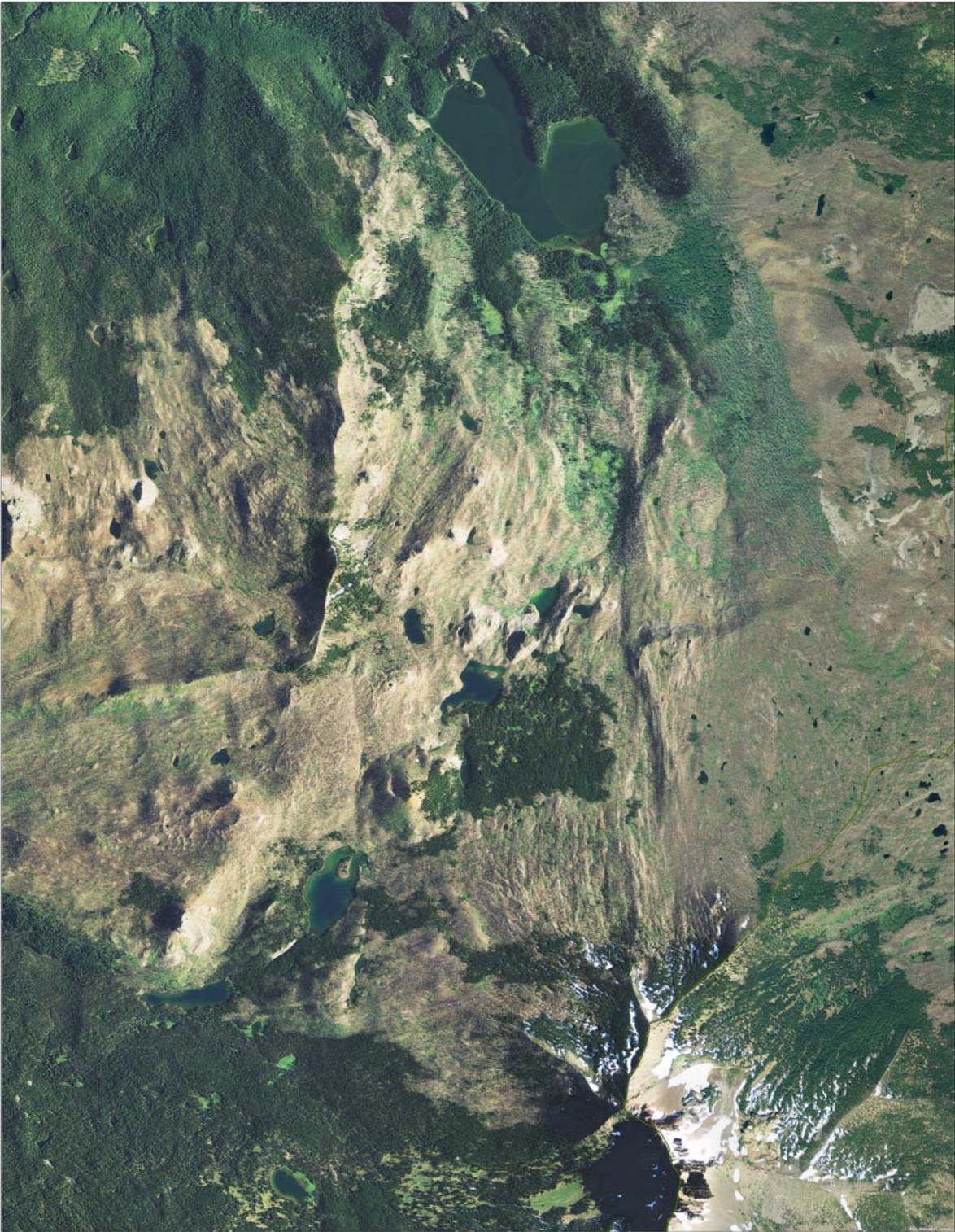


Figure 1. Eight Lakes Basin Study Area of Mt. Jefferson Wilderness, Detroit Ranger District.



**Figure 2. Eight Lakes Basin Imagery Showing Extent of the 2003 B&B Fire.**

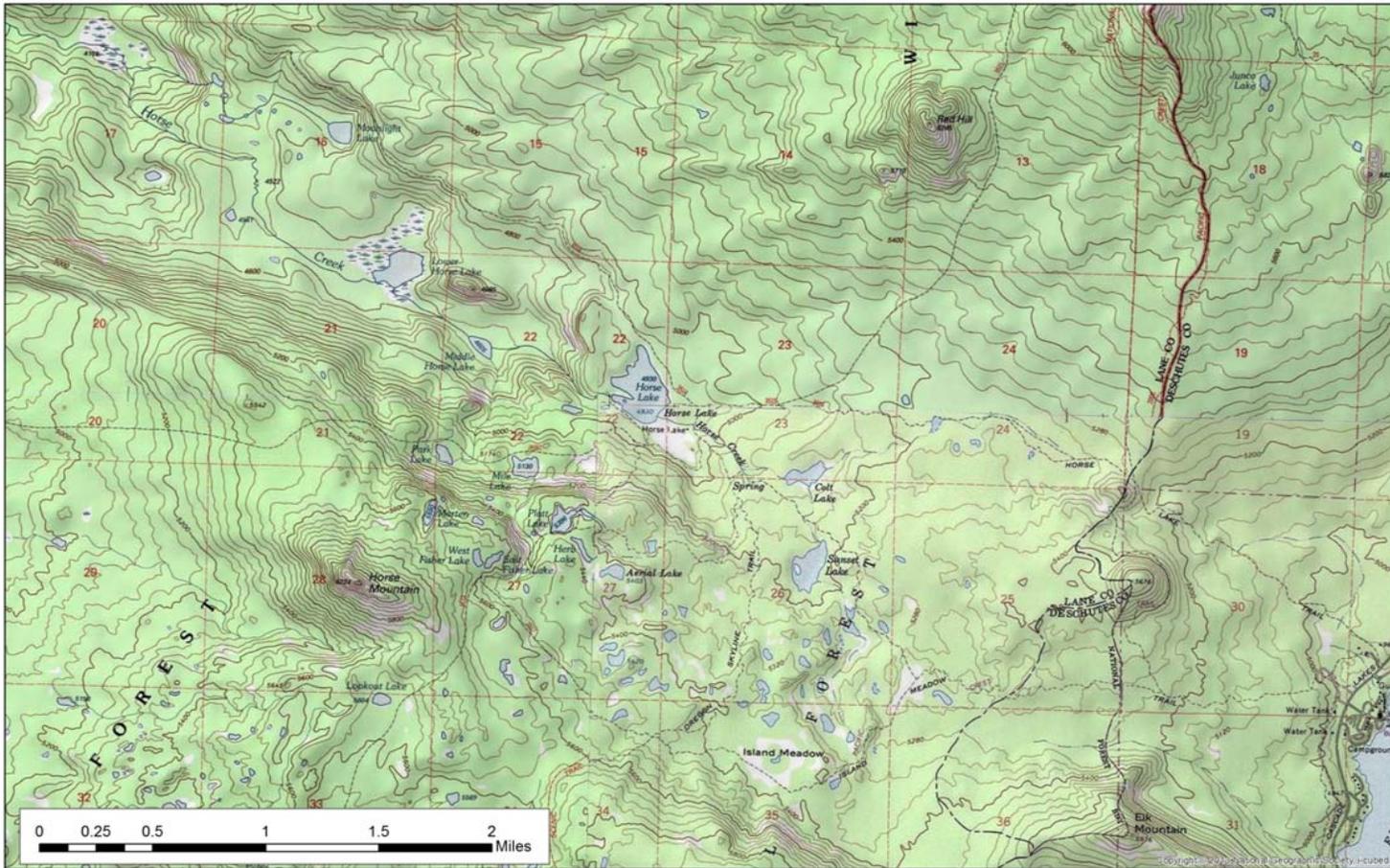


Figure 3. Horse Lake Survey Area, Three Sisters Wilderness Area, McKenzie River Ranger District.

The second area identified was the upper Horse Creek drainage of the Three Sisters Wilderness on the McKenzie River Ranger District (Figure 3). This area lies north of the Mink Lake Basin where Oregon spotted frogs are known to occur and is bounded by Cedar Swamp on the west, the Cascade Crest on the east, and Sphinx Creek on the north. The area contains numerous lakes, marshes, riparian shrub thickets, and upland peaks and lava outcrops. A review of NRIS wildlife showed no wildlife observation records in the core of this area. Elevations ranged from about 4,000-6,300 feet.

In response to this lack of survey data, the Forest submitted a proposal that received ISSSP funding to conduct field surveys for a wide range of rare species in these areas in FY 14 and FY 15. This report documents the result of these surveys.

### **Methods**

The intended method was to have a crew of 4 to 5 people hike into the sites, establish a base camp, and conduct wildlife inventories for up to a week. The timing of the surveys was to coincide with the mardon skipper survey period (end of June to mid-July, Seitz et al. 2007) which would also be a key time to survey for a wide array of rare species. In 2014, funding was received late in the fiscal year and the Eight Lakes Basin was surveyed from July 29 to Aug. 1 with a crew of five people after the mardon skipper survey period had passed. In 2015, funding was received in the early budget, we had ample time to plan and organize the survey work, and we surveyed the upper Horse Creek drainage from July 13-16 with a crew of eight people.

A key focus of our study was to search for Oregon spotted frogs which was done by walking the edges of lakes, ponds, and pools looking for adults and tadpoles. Breeding buffleheads and bald eagles were also searched for during shoreline lake surveys. Intuitive walk-about searches were conducted for western bumble bees wherever concentrations of flowers were found, including shorelines of water bodies, wet and dry meadows, and open forested habitats. Photo vouchers were taken of suspected individuals to confirm identification. We searched for scats of Sierra Nevada red fox along trails, in meadows and on ridgetops. Potential scats were sent to Ben Sacks, Univ. California Davis, for genetic identification. Ridgetops were searched for whitebark pine. Bird calling stations were conducted in riparian willow thickets for northern waterthrush (Rosterolla and Ferland 2012). Marshes were checked for evidence of nesting sandhill cranes. Because of the very dry weather, no mollusk surveys were undertaken. Other species of interest were recorded incidentally.

The wildlife biologists of the Willamette NF have developed a list of wildlife species of interest that we annually review and update if necessary (Appendix A). Any species on this list was noted during the surveys and the location and count information was entered into the forest NRIS Wildlife database. Cascade frog is a common and widespread amphibian in the Oregon Cascades that USFWS is recently evaluating for federal listing. We found it at most waterbodies surveyed in 2015, as well as some upland sites, and entered those detections into NRIS Wildlife to help document that some level of amphibian searches had been done at that location. Specific survey areas for spotted frog were not entered into the database because shoreline searches for frogs are not a protocol method even though they are effective at detecting them as well as other amphibian species.



**Figure 4. Western bumble held temporarily for identification and voucher photo and then released on site. Photo by Beverly Gregoire.**

## **Results and Discussion**

### **Mt Jefferson Area**

In 2014, reconnaissance surveys were conducted in the vicinity of Jorn and Duffy Lakes, in marshes and ponds along lower Eight Lakes Creek, at Horse Pasture Creek, by Jack Creek south of Marion Lake, and around Upper Berley, Lower Berley and Santiam Lakes. The only species of note found was an adult bald eagle seen at Duffy Lake. The eagle sighting was not associated with nesting activity. No Oregon spotted frogs were found, although Cascade frogs were detected at several sites, including Jorn Lake (the site of the unconfirmed 1943 report of Oregon spotted frog). Searches for bees were conducted in these areas but no western bumble bees were observed. No potential fox scats were found.

### **Upper Horse Creek**

In 2015 we surveyed in an east-west direction from the Willamette-Deschutes boundary to Moonlight Lake and in a north-south direction from Moonlight Lake to Lookout Lake, including Horse Mountain. The area surveyed totaled about 10 square miles. Key findings of the surveys are summarized in Table 1. Sixty three water bodies were searched for Oregon spotted frog, but none were found. One adult bald eagle was observed flying over Lower Horse Lake but no nesting sites were found. At seven lakes we observed buffleheads including three lakes that had young of the year.

We documented that western bumble bees (WBB) were well established in this area, finding them at 10 “sites”, where a site was defined as all detections within 0.25 miles apart or within one connected meadow area, whichever was larger. Flowers used for pollen-gathering by WBB included Douglas spirea, subalpine spirea, asters, sickletop lousewort, and Gray’s lovage (*Spiraea douglasii*, *Spiraea densiflora*, *Aster* sp., *Pedicularis racemose*, and *Ligustichum grayi*). Key habitats where WBB were found included spirea thickets along lakes and wetlands, meadow areas with asters, and open montane mixed conifer forests with abundant flowering plants, including sickletop lousewort. The number of individual WBB observed at each site ranged from 1 to more than 15.

We collected four potential fox scats. Two were analyzed and found to be marten and we are awaiting test results on the remaining two.

The summer of 2015 was exceptionally dry and followed the mildest winter in terms of snowfall on record. Few mosquitoes were present at the time of the surveys. Normally the area would have huge concentrations of them. We didn’t find any suitable fescue (*Festuca* spp.) meadows so no mardon skipper surveys were conducted. Due to the lack of rain in 2015, meadows were very dry and the presence of butterflies was very limited.

Northern waterthrush calling was done at Horse Meadow by Horse Lake and in willow habitat at Lower Horse Lake. At one call station by Horse Lake, the crew (which was inexperienced for this species) thought they heard a positive response, but we could not confirm that even though we called on three subsequent days at that site. Given the negative results of the follow up, we are considering this potential observation suspect. Horse Meadow, Little Horse Lake, and Cedar Swamp (which is farther downstream and was not surveyed in this study) all contain some extensive areas of willow thickets and potential northern waterthrush habitat in the upper headwaters of Horse Creek. These areas would warrant further surveying for northern waterthrush if there is interest in better verifying the range of this species in Oregon.

Twelve whitebark pine plants were found on the south side of Horse Mountain. Plants ranged from 10” dbh, 30’-tall trees to 3’ tall saplings. Two trees had cones and several plants were decadent. Two saplings were found on the 6,000’ elevation flat base near the top of the peak and the other plants were found at the very top of the mountain at 6,200’ elevation. We collected needles from two plants for DNA testing and the observations were entered into the NRM TESP plant database. Some ponderosa pine trees were also observed at the 6,000-6,200’ elevation on Horse Mountain.

A stand of quaking aspen was found north of Horse Lake just south of the 3514 trail. The aspen were growing at the top of a large, wide boulder-rubble hillside. The aspens occurred over about a 300’ long area and were growing out of the boulders at about 4940’ elevation. We counted 17 trees to 7” dbh, including some decadent plants, and about twelve 3’-4’ saplings. This is the 11<sup>th</sup> record of aspen on the McKenzie River Ranger District. The Willamette National Forest is in the process of creating an aspen Special Habitat (SHAB) class and recording these sites in the Forest SHAB layer.

One finding of note was the exceptional wetland characteristics of the Lower Horse Lake area. The lake and surrounding wetlands include a wide variety of special habitat types and contain potential habitat for Oregon spotted frog, although none were observed. At the north end of the lake there are numerous



**Figure 5. Lower Horse Lake is an extensive wetland complex of lake, marshes, bogs, and riparian shrub thickets. Photo by Joe Doerr.**

upwelling springs and exceptional sphagnum/sundew bogs. In places, sundew exceeded 50% ground cover in this wetland which is amply spring-fed, even in drought conditions. In addition Lower Horse Lake has extensive sedge and willow riparian wetlands all around the lake and would be a coarse-filter candidate to consider for rare wetland plants. This lake seems to have the most waterfowl of any waterbody in the upper Horse Creek drainage. We observed one female bufflehead, 1 female hooded merganser with 4 young, 2 male mallards, 1 green-winged teal with 3 young, and 2 female mallards with 4 and 6 young, respectively. We also had an uncommon July 14 sighting of 3 greater yellowlegs at the lake. These are most likely birds already returning from the Canadian breeding grounds (BirdWeb 2015).

#### Intrinsic Values of Wilderness Bioblitz

In addition to the opportunity to expand our knowledge of wildlife species occurrences, the bioblitzes offered a great opportunity to build professional relationships among peers, retune wildlife observation skills, rejuvenate personal connections to the natural world, and participate in “camp side” discussions on a wide range of wildlife issues. The value of this interaction cannot be discounted and many ranked the survey trip as the “high point” of their field season. We specifically created crews across district

boundaries with the Eight Lakes surveys being conducted by biologists from the Sweet Home and Detroit Ranger Districts and the Upper Horse Creek surveys being conducted by biologists from McKenzie River, Middle Fork, and Detroit Ranger Districts plus the Supervisors Office. One member of the Horse Creek crew is a wildlife biologist that now works as an archeological technician and that found and gathered data on a number of cultural sites. Another crew member was an International Visiting Wildlife Biologist from South Africa who worked as a volunteer for several months in 2015. We felt the varied backgrounds of the participants improved the overall survey results.

**Table 1. Key Findings of the 2015 Upper Horse Creek Bio-Blitz, July 13-16, Three Sisters Wilderness, McKenzie River Ranger District.**

TES Observations:

- 63 waterbodies searched for Oregon Spotted Frog-none found.
- 10 new “sites”<sup>1</sup> with Western Bumble bees (WBB)
- 7 lakes with Buffleheads including 3 lakes with young of the year
- 1 new Whitebark Pine area (Horse Mountain)
- 1 adult Bald Eagle flying over Lower Horse Lake
- Conducted Northern Waterthrush calling and located potential habitat areas
- Two potential Sierra Nevada Red Fox scats awaiting testing

Other Important Wildlife Observations:

- 2 new Pika sites
- Observation of Beaver on Horse Lake
- 1 new Aspen stand
- Identified Lower Horse Lake as a unique SHAB with waterfowl nesting and potential habitat for rare plants and Oregon Spotted Frog
- 3 Greater Yellowlegs on Lower Horse Lake

<sup>1</sup>A WBB site is defined as all bee locations within a 0.25 mile of one another or all locations within contiguous meadow area, whichever is larger.

**Acknowledgements**

Daryl Whitmore and Ruby Seitz coordinated the 2014 and the 2015 surveys, respectively. Dan Simpson, Beverly Gregoire, Annie Doss, Corinne Milinovich, and Tiffany Young participated in the 2014 surveys. Ruby Seitz, Peter Hamming, Corinne Milinovich, Beverly McCarroll, Tim Fox, Cheron Ferland, Shane Kamrath, and Joe Doerr conducted the 2015 surveys.

**Literature Cited**

BirdWeb. 2015. Greater yellowlegs. Seattle Audubon Website.  
[http://www.birdweb.org/birdweb/bird/greater\\_yellowlegs](http://www.birdweb.org/birdweb/bird/greater_yellowlegs) Accessed December 18, 2015.

- McKelvey, K. S., J. P. Copeland, M. K. Schwartz, J. S. Littell, K. B. Aubry, J. R. Squires, S. A. Parks, M. M. Elsner, and G. S. Mauger. 2011. Climate change predicted to shift wolverine distributions, connectivity, and dispersal corridors. *Ecological Applications* 21:2882–2897.
- Rosterolla, C., and C. Ferland. 2012. Northern Waterthrush Breeding Areas NRIS Update and Inventory/Monitoring Deschutes & Willamette National Forests Final Report. Deschutes National Forest, Bend, Oregon. 28 pp.
- Seitz, R., A. Potter, K. VanNorman, N. Barrett, and M. Wainwright. 2007. Survey protocol for the mardon skipper (*Polites mardon*) (v.1.1). Unpublished Report, Interagency Special Status Species Program (USDI Bureau of Land Management and USDA Forest Service), Portland, OR. Drew, R.E., J. G. Hallett, K. B. Aubry, K. W. Cullings, S. M. Koepfs, Andw . J. Zielinski. 2003. Conservation genetics of the fisher (*Martes pennanti*) based on mitochondrial DNA sequencing. *Molecular Ecology* 12:51-62.



**Figure 6. View of upper Horse Creek drainage from Horse Mountain, Three Sisters Wilderness. Photo by Joe Doerr.**

**APPENDIX A. Willamette National Forest NRIS Wildlife Database Data Entry Priority Species List  
(2015 Update)**

TES Species

Northern Spotted Owl (incidental observations only)-Includes Spurred Owl also  
Oregon Spotted Frog  
American Peregrine Falcon (incidental observations only)  
Pacific Fisher  
Bald Eagle  
Bufflehead (breeding locations-e.g. summer use of high elevation lakes)  
Harlequin Duck  
Yellow Rail  
Northern Waterthrush  
Black Swift  
Purple Martin  
Lewis' Woodpecker  
White-headed Woodpecker  
Wolverine  
Fringed Myotis  
Townsend's Big-eared Bat  
Pallid Bat  
Foothill Yellow-legged Frog  
Western Pond Turtle  
Mardon Skipper  
Johnson's Hairstreak  
Crater Lake Tightcoil  
Western Bumble bee  
California Shield-backed Bug  
Valley Silverspot (Monument Peak area)

2001 ROD Survey and Manage Species (not Sensitive)

Great Gray Owl  
Red Tree Vole  
Oregon Megomphix

Strategic Species

Broad-whorl Tightcoil  
Cascades Axetail

Special Species of Interest/MIS

Golden Eagles and uncommon raptors  
All Raptor Nests  
Pileated Woodpecker  
Three-toed Woodpecker  
Black-backed Woodpecker  
American Marten  
American Pika  
Elk (calving areas)  
Beaver

Mountain Goat  
Gray Wolf  
Badger  
Porcupine  
Montane (Sierra Nevada) Red Fox-locations above 3500'  
Red Fox-locations below 3500'  
*Hemphillia malonei*  
Meadow slug/Evening Fieldslug  
Sandhill Crane (breeding individuals)

Invasive Species

American Bullfrog  
Barred Owl  
Feral Swine  
Red-eared Slider  
Snapping Turtles  
Nutria  
Exotic Mollusks (e.g. *Arion intermedius*)  
Turkey