



# **Vertebrate and Vascular Plant Inventory, Weippe Prairie and Buffalo Eddy, Nez Perce National Historical Park, Idaho–Washington, 2006–2007**

Natural Resource Technical Report NPS/PWR/UCBN/NRTR—2007/069



**ON THE COVER**

Photograph of Buffalo Eddy, Nez Perce National Historical Park, Idaho—Washington  
Photograph by: Karen Gray

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# **Vertebrate and Vascular Plant Inventory, Weippe Prairie and Buffalo Eddy, Nez Perce National Historical Park, Idaho–Washington, 2006–2007**

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# Contents

|                           | Page |
|---------------------------|------|
| Figures.....              | iv   |
| Tables.....               | v    |
| Appendixes .....          | vi   |
| Abstract.....             | vii  |
| Acknowledgments.....      | ix   |
| Introduction.....         | 1    |
| Study Area .....          | 3    |
| Weippe Prairie .....      | 3    |
| Buffalo Eddy.....         | 3    |
| Methods.....              | 7    |
| Vertebrate Sampling ..... | 7    |
| Vegetation Sampling.....  | 8    |
| Results.....              | 9    |
| Vertebrate Sampling ..... | 9    |
| Vegetation Sampling.....  | 15   |
| Discussion.....           | 25   |
| Vertebrate Sampling ..... | 25   |
| Vegetation Sampling.....  | 27   |
| Literature Cited.....     | 35   |

# Figures

|                                                                                                                                                                                                                                                                                                                                                            | Page |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Figure 1. Map of Weippe Prairie. USGS Quad: Weippe South, Idaho. ....                                                                                                                                                                                                                                                                                      | 4    |
| Figure 2. Map of Buffalo Eddy. USGS Quad: Captain John Rapids, Idaho–Washington. ....                                                                                                                                                                                                                                                                      | 5    |
| Figure 3. Ditch with native sedges ( <i>Carex</i> sp.).....                                                                                                                                                                                                                                                                                                | 28   |
| Figure 4. Photograph of the landscape at Weippe Prairie showing grazed vegetation taken on 7 August 2006. ....                                                                                                                                                                                                                                             | 29   |
| Figure 5. Landscape at Weippe Prairie showing orange hawkweed patch.....                                                                                                                                                                                                                                                                                   | 30   |
| Figure 6. Foam on Jim Ford Creek, 23 October 2006. ....                                                                                                                                                                                                                                                                                                    | 30   |
| Figure 7. Weed infestation on gentle slope. The gray vegetation is yellow starthistle skeletons from the previous year. The green vegetation patches in the foreground are mats of burr chervil and common chickweed. The rust–brown skeletons are common St. Johnswort, and the tan horizontal strip near the center is tall tumbled mustard stalks. .... | 31   |
| Figure 8. Waha milkvetch habitat, dominated by bluebunch wheatgrass. The tall plant on the ridgetop is Scotch cottonthistle ( <i>Onopordum acanthium</i> ). ....                                                                                                                                                                                           | 32   |
| Figure 9. Northeast–facing hillside. Native bunchgrasses and phlox ( <i>Phlox</i> sp.) persist, but a tangle of burr chervil and common chickweed (green vegetation) infests the interspaces. ....                                                                                                                                                         | 32   |
| Figure 10. Spalding's silene. ....                                                                                                                                                                                                                                                                                                                         | 33   |
| Figure 11. Sweetscented biscuitroot (center with yellow flowers), burr chervil (fern–like leaves in upper right), and yellow starthistle (plant above the left sweetscented biscuitroot umbel).....                                                                                                                                                        | 34   |

## Tables

|                                                                                                                   | Page |
|-------------------------------------------------------------------------------------------------------------------|------|
| Table 1. Vertebrate species detected in Weippe Prairie, Nez Perce National Historical Park, 2006–2007.....        | 10   |
| Table 2. Vertebrates that have special conservation status in Idaho (IDFG 2005) and occur in Weippe Prairie. .... | 12   |
| Table 3. Vertebrate species detected in Buffalo Eddy, Nez Perce National Historical Park, 1999 and 2006–2007..... | 13   |
| Table 4. Recorded plant species, Weippe Prairie, Nez Perce National Historical Park, 2006. ....                   | 15   |
| Table 5. Plants that have special conservation status in Idaho and occur in Weippe Prairie. ....                  | 18   |
| Table 6. Recorded plant species, Buffalo Eddy, Nez Perce National Historical Park, 2006–2007. ....                | 19   |
| Table 7. Plants that have special conservation status in Washington and are known to occur in Buffalo Eddy.....   | 22   |

## Appendixes

|                                                                                                                                                                                           | Page |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Appendix A. Checklist of anticipated vertebrate species in Weippe Prairie. ....                                                                                                           | 39   |
| Appendix B. Checklist of anticipated vertebrate species in Buffalo Eddy.....                                                                                                              | 41   |
| Appendix C. UTM coordinates for observed rare plants, orange hawkweed, confirmed bird nests,<br>and special status vertebrate species, Nez Perce National Historical Park, 2006–2007..... | 44   |

## Abstract

Between 2006 and 2007, the Idaho Conservation Data Center conducted a baseline inventory of terrestrial vertebrates and vascular plants within two Nez Perce National Historical Park (NEPE) sites: Weippe Prairie, Idaho, and Buffalo Eddy, Washington, using standard vertebrate and floristic inventory methods. For the purpose of this study, vertebrate species included birds, non-volant mammals (i.e., excluding bats), reptiles, and amphibians. We detected 53 terrestrial vertebrate species in Weippe Prairie between 22 June 2006 and 27 July 2007, including two amphibians, one reptile, 42 birds and eight mammals. Of these, three were special status species: short-eared owl (*Asio flammeus*), merlin (*Falco columbarius*), and the northernmost documented occurrence of sandhill crane (*Grus canadensis*) in Idaho. Of the two amphibian species detected, one was the nonnative American bullfrog (*Rana catesbeiana*). We also detected the rare plant, Leiberg's umbrellawort (*Tauschia tenuissima*) in Weippe Prairie. In Buffalo Eddy, we detected 44 terrestrial vertebrate species between 23 June 2006 and 26 July 2007, including 38 birds and six mammals. We failed to detect any amphibian or reptile species at Buffalo Eddy. Likewise, no special status vertebrates were detected in Buffalo Eddy. However, we detected four rare plants in Buffalo Eddy including Waha milkvetch (*Astragalus arthurii*), Nez Perce mariposa lily (*Calochortus macrocarpus* var. *maculosus*), sweetscented biscuitroot (*Lomatium serpentinum*), and the federally threatened Spalding's silene (*Silene spaldingii*). This report summarizes data on the occurrence of terrestrial vertebrates and vascular plants in a 2-year period. These data are intended to help guide the park in the long-term planning and management of natural resources.

**Key Words:** Amphibian, *Asio flammeus*, *Astragalus arthurii*, avian, bird, Buffalo Eddy, *Calochortus macrocarpus* var. *maculosus*, *Falco columbarius*, *Grus canadensis*, Idaho, invasive weed, inventory, *Lomatium serpentinum*, mammal, Nez Perce National Historical Park, *Rana catesbeiana*, rare plant, reptile, sandhill crane, *Silene spaldingii*, *Tauschia tenuissima*, vascular plant, vertebrate, Washington, Weippe Prairie.



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## Introduction

In 2000, the National Park Service initiated biological inventories of vertebrates and vascular plants in more than 265 national park units with significant natural resources. This need to inventory and monitor natural resources stems from NPS policy that states:

*The National Park Service will assemble baseline inventory data describing the natural resources under its stewardship and will monitor those resources at regular intervals to detect or predict changes. The resulting information will be analyzed to detect changes that may require intervention and to provide reference points for comparison with other, more altered environments (NPS Management Policies, Chapter 4:4, 1988).*

In response to this directive, the Nez Perce National Historical Park established a program to collect baseline inventory data on terrestrial vertebrates and vascular plants within the park network. The primary objectives of this inventory were to:

1. Document through existing, verifiable data and targeted field investigations the occurrence of at least 90% of the species of vertebrates and vascular plants currently estimated to occur in the park.
2. Describe the distribution and relative abundance of species of special concern, such as species listed under the Endangered Species Act, nonnatives, and other species of special management interest occurring within park boundaries.
3. Provide the baseline information needed to develop a general monitoring strategy and design that can be implemented by the park once inventories have been completed, tailored to specific park threats and resource issues.

One of the first calls for inventories within the Nez Perce National Historical Park came for targeted bird inventories at eight park sites (Dixon 2005), one of which is also included in the present inventory, Buffalo Eddy. Prior to that, there had been limited inventories in any of the park sites. Since that time, a number of inventories have been completed for the park and are available at (<http://www1.nature.nps.gov/im/units/ucbn/Inventories.htm>). This inventory was designed to document the occurrence of vertebrates (excluding bats) and vascular plants in two Nez Perce National Historical Park sites, Weippe Prairie and Buffalo Eddy. These two sites are relatively new land additions to the park and together comprise approximately 149 ha. Information obtained in this inventory can be used to inform park managers about the resources within the park and to provide a foundation for effective, long-term management of natural resources within the park.



## Study Area

Nez Perce National Historical Park comprises 40 sites significant to the history of the Nez Perce people throughout Oregon, Washington, Idaho, and Montana. The park is unique in that no single contiguous federal landbase comprises its boundary. Instead, the majority of park sites are owned by various other federal agencies; tribes; state, county, or local governments; and private non-profit groups or individual landowners. The National Park Service works in partnership with these other landowners to protect the natural and cultural resources of the sites and to provide interpretation of the significance of these resources to Nez Perce history and culture, and the nation (U.S. Department of the Interior, National Park Service 2006a). We conducted vertebrate and vascular plant inventories in 2006 and 2007 at two relatively new land additions to the park: Weippe Prairie (Fig. 1) and Buffalo Eddy (Fig. 2).

### Weippe Prairie

Located in north-central Idaho approximately 2 km southeast of Weippe, Clearwater County, Idaho, USA, Weippe Prairie (Z11 E583166m N5133723m) lies within a swath of camas (*Camassia quamash*) prairie without much topography. The site encompasses 111 ha in the Palouse Prairie ecological section of the Columbia Plateau ecoregion. Elevations range from 917 m to 922 m. Northern Rocky Mountain Dry-mesic Montane Mixed Conifer Forest, Columbia Basin Foothill Riparian Woodland and Shrubland, and Columbia Basin Palouse Prairie ecological systems characterize the vegetation. Jim Ford Creek bisects the site and runs from northwest to southeast. Mean maximum July temperature is 27.4°C, while mean January minimum is -8.5°C. Average annual precipitation is 107.49 cm, most of which falls during the winter, between November and February (U.S. Department of Commerce. National Oceanic and Atmospheric Administration. National Climatic Data Center, Pierce, ID).

### Buffalo Eddy

Buffalo Eddy (Z11 E504858m N5113122m) lies along the Washington side of the Snake River approximately 32 km south of Lewiston, Idaho, in Asotin County, Washington, USA. The 38-ha site lies within the Blue Mountains ecological section of the Middle Rockies-Blue Mountains ecoregion with elevations ranging from 230 m to 405 m. Punctuated by steep, rocky draws lined with netleaf hackberry (*Celtis laevigata* var. *reticulata*), most of the vegetation is characterized by the Columbia Basin Foothill and Canyon Dry Grassland ecological system. Mean maximum July temperature is 30.9°C, while mean January minimum is -2.2°C. Average annual precipitation is 32.36 cm, most of which falls during the winter and spring, between November and June (U.S. Department of Commerce. National Oceanic and Atmospheric Administration. National Climatic Data Center, Lewiston AP, ID).

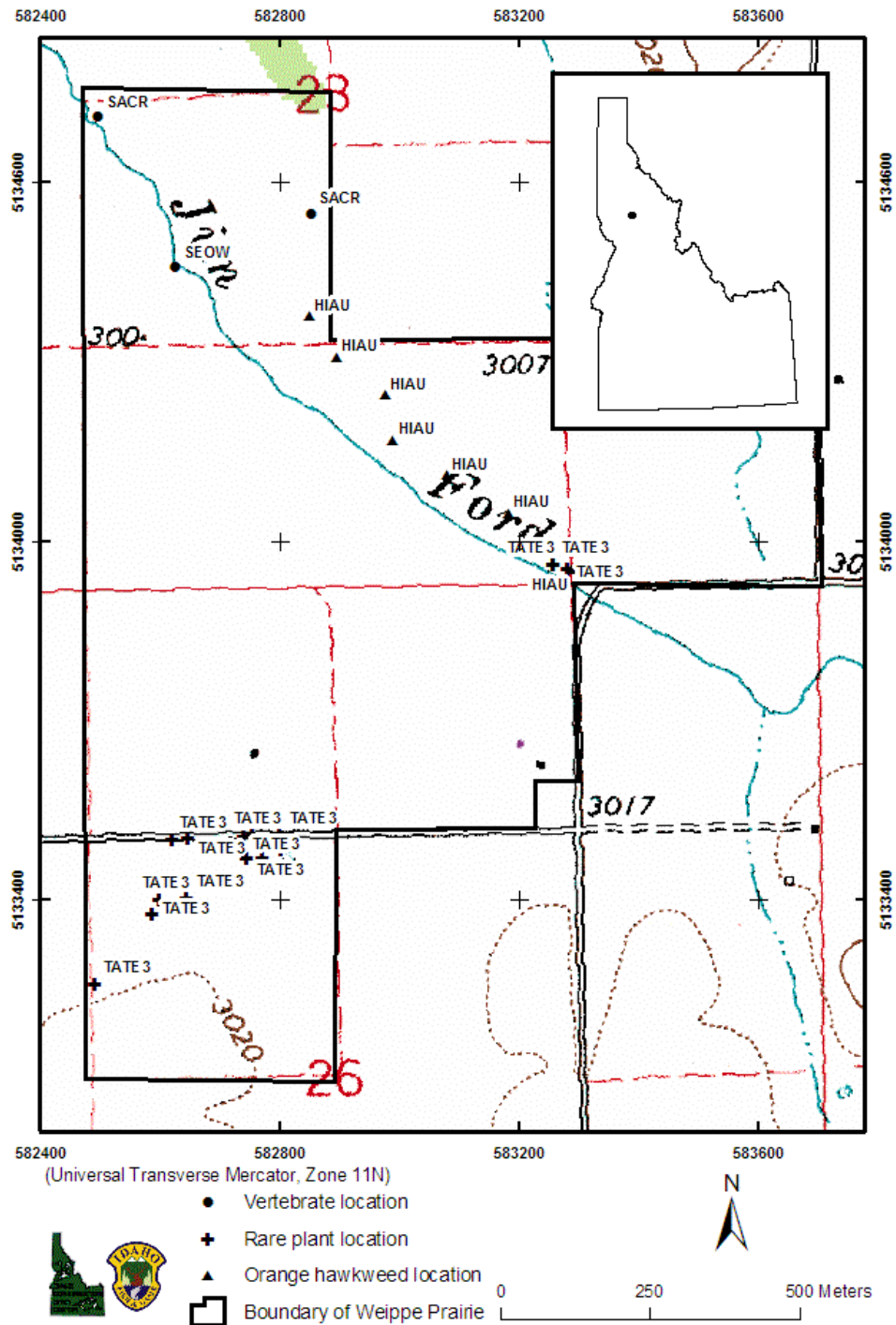


Figure 1. Map of Weippe Prairie. USGS Quad: Weippe South, Idaho.

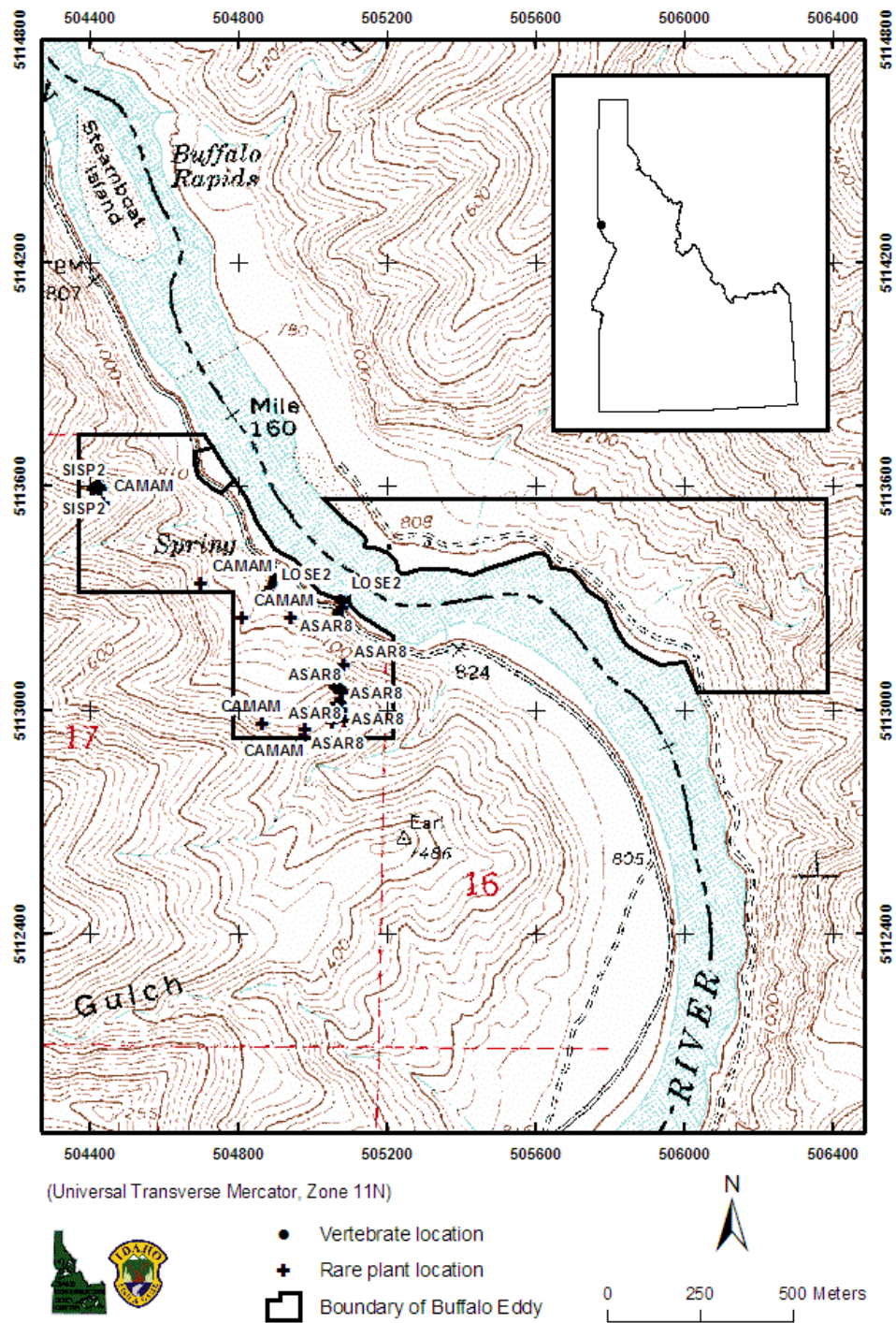


Figure 2. Map of Buffalo Eddy. USGS Quad: Captain John Rapids, Idaho–Washington.



## Methods

### Vertebrate Sampling

We conducted surveys at each park site to develop a species list and conducted surveys in a way that would confirm the presence of as many vertebrate species as possible in the shortest amount of time (e.g., Ralph et al. 1993; Nichols and Conroy 1996; Rudran and Foster 1996; Fancy and Sauer 2000). For the purpose of this study, vertebrate species included birds, non-volant mammals (i.e., excluding bats), reptiles, and amphibians. We recorded all species or their sign (e.g., tracks, scat, nest, or burrow), observed during the sampling period. We attempted to identify each animal to species level at a minimum. We used area searches (Ralph et al. 1993) to detect birds and treated the entire park site as the search area. Observers were proficient at identification of birds by sight and sound and were familiar with birds in the area of interest. We conducted two sampling events between 22 June 2006 and 27 September 2006 to account for both breeding birds and migrants. In addition, all bird detections were recorded during the 2007 targeted surveys for herps and mammals. To conduct an area search, we systematically searched each site within the designated boundary, stopping or moving to investigate sightings or calls when appropriate, and taking the time to track down unfamiliar calls and to look for quiet birds. We recorded numbers of birds of each species seen, heard, or both seen and heard in the site separately, but concentrated on finding as many birds as possible within the site. The intensive nature of this method enables surveys to extend later into the morning than other methods, although ideally, surveys should be completed within five hours after sunrise (Ralph et al. 1993). We started breeding season surveys at or within one hour after local sunrise and completed them within six hours. We conducted surveys during favorable weather that was free of rain, high winds, or other inclement conditions that could affect our detection of birds. We also recorded incidental observations of other vertebrates during the avian survey and identified species using standard field guides. We used a standard field form listing the species found and kept a running tally of the number of birds. We determined UTM coordinates for special status species using a hand-held GPS receiver. We sampled all habitats in each site to ensure that all species groups and areas were sampled.

After initial surveys, we assembled vertebrate records from surveys, research datasets, and incidental sightings by agency biologists and the general public within the study sites or at nearby sites to develop a comprehensive list of species that may be encountered in the park sites, given that appropriate habitat exists and that the park site lies within the normal range of the species. We tallied the information required to populate the NPSpecies database for each species in Microsoft® Office Excel spreadsheets. Taxonomy generally follows the Integrated Taxonomic Information System (ITIS) (<http://www.itis.gov>), except for birds, which follows the American Ornithologists' Union *Check-list of North American Birds* (American Ornithologists' Union 1998) and supplements, as published in the Auk: 42<sup>nd</sup> (American Ornithologists' Union 2000), 43<sup>rd</sup> (Banks et al. 2002), 44<sup>th</sup> (Banks et al. 2003), 45<sup>th</sup> (Banks et al. 2004), 46<sup>th</sup> (Banks et al. 2005), and 47<sup>th</sup> (Banks et al. 2006).

In July 2007, we returned to each of the two sites to conduct surveys for herps and mammals. Generally, we used similar area search methods as described for birds. We recorded all species or their sign (tracks, scat, nest, or burrow), observed during the sampling period. Tracks and scat were identified through reference to field guides (e.g., Kays and Wilson 2002; Murie and

Elbroch 2005). We used both diurnal and nocturnal visual encounter surveys (VES) (e.g., Crump and Scott, Jr. 1994) to search for animals, which involved walking through an area or habitat systematically searching for animals. For nocturnal surveys, we used a Brinkmann® QBeam Max Million II 2,000,000 candlepower spotlight to systematically scan areas for animals. An advantage to a VES is that it can be done along a transect, in a plot, along a stream, around a pond, or so forth and it samples all animals that are visible. More importantly, VES is often the best way to survey species that are rare or unlikely to be caught in traps (Crump and Scott, Jr. 1994). In addition to counting exposed animals, we turned over surface objects such as rocks, logs, and boards to look for animals uncovered. We returned the cover objects to their original positions to minimize habitat disturbance. Animals encountered were observed only.

We sampled small mammals by placing an array of Sherman live traps (H.B. Sherman Traps, Tallahassee, FL, USA), baited with rolled oats, and provisioned with cotton bedding (e.g., Jones et al. 1996), within representative habitats in each study site, e.g., netleaf hackberry (*Celtis laevigata* var. *reticulata*) draws, base of rock outcrops, and canyon grasslands at Buffalo Eddy; black hawthorn (*Crataegus douglasii*), broadleaf cattail (*Typha latifolia*) wetlands, along Jim Ford Creek, and camas (*Camassia quamash*) prairie at Weippe Prairie. We placed and activated the Sherman live traps in the evening and checked traps the following morning. For traps placed along transects, we spaced the traps at equal intervals approximately 25 m apart. Trap placement at Buffalo Eddy was more opportunistic because of the terrain and heterogeneity of the site.

### **Vegetation Sampling**

Two Idaho Conservation Data Center (IDCDC) botanists traversed each site by foot (Weippe Prairie and Buffalo Eddy) in parallel transects, recording all known plants, and collecting unknown species for later identification. We attempted to visit all types of vegetation. We tallied the information required to populate the NPSpecies database in a Microsoft® Office Excel spreadsheet, and recorded UTM locations for plant species listed under the Endangered Species Act, and species of state or federal concern. For rare plants encountered at Weippe Prairie, we submitted updated information to the IDCDC for entry into its rare plant database. For rare plants found at Buffalo Eddy, we submitted Rare Plant Observation Forms to the Washington Natural Heritage Program. Plant taxonomy and classification follows the Integrated Taxonomic Information System (ITIS) (<http://www.itis.gov>), but when ITIS provides more than one common name, the accepted name that appears in the National PLANTS Database (USDA NRCS 2004) is given.

# Results

## Vertebrate Sampling

### **Weippe Prairie**

We detected 53 terrestrial vertebrate species in Weippe Prairie between 22 June 2006 and 27 July 2007, including two amphibians, one reptile, 42 birds, and 8 mammals (Table 1). We failed to capture any small mammal species in 40 Sherman live traps during one trap–night of effort. However, during an area search, we found what was probably a western jumping mouse (*Zapus princeps*) based on its long tail, range, habitat (near Jim Ford Creek), and behavior (repeatedly leapt up to 2 m in a patch of sedges). We found numerous adult, young, and tadpoles of the nonnative American Bullfrog (*Rana catesbeiana*) along the length of Jim Ford Creek. Given the presence of this species, it is not surprising that we found a dearth of native amphibians. We found one small frog under a cover board by a pool in the creek, but it jumped into the pool before we could make a positive identification. However, based on its size, range, behavior, and that it was under a cover board, it was most likely a Pacific treefrog (*Pseudacris regilla*). The only reptile detected was common garter snake (*Thamnophis sirtalis*): one individual along Jim Ford Creek, and a second in the cattail wetland in the south parcel of the site. We found identifiable northern raccoon (*Procyon lotor*) and coyote (*Canis latrans*) tracks in the mud along the creek. On the bank of the creek, we found a burrow with scat (5 cm long and curved); after careful evaluation of the photos of the burrow and scat, we concluded that it was most likely that of the northern river otter (*Lontra canadensis*). While checking small mammal traps set at the edge of the wetland, we saw a large, dark brown vole. Based on range, appearance, and habitat, it was likely a water vole (*Microtus richardsoni*). We attempted to conduct both foot and road nocturnal surveys by spotlight, but unfortunately, we had to cut them short due to two local residents becoming agitated over the spotlighting.

We found direct evidence of breeding for one bird species, common yellowthroat (*Geothlypis trichas*), which was observed carrying food in its bill. Ten additional species are believed to nest in the site, given the observations of singing males, courtship, copulation, or other territorial behavior and include American robin (*Turdus migratorius*), bobolink (*Dolichonyx oryzivorus*), brown-headed cowbird (*Molothrus ater*), red-winged blackbird (*Agelaius phoeniceus*), savannah sparrow (*Passerculus sandwichensis*), song sparrow (*Melospiza melodia*), western meadowlark (*Sturnella neglecta*), willow flycatcher (*Empidonax traillii*), Wilson's snipe (*Gallinago delicata*) and yellow warbler (*Dendroica petechia*).

We detected three Idaho species of greatest conservation need (Idaho Department of Fish and Game 2005) in Weippe Prairie, including sandhill crane (*Grus canadensis*), short-eared owl (*Asio flammeus*), and merlin (*Falco columbarius*) (Fig. 1, Table 2). Although probably not nesting on site, we observed three adult sandhill cranes in the open meadow in the northernmost part of the site during the 22 June 2006 visit. Two cranes were initially heard duetting off-site from the east at 6:25 a.m. (approximately 1.5 hours after sunrise). At 8:08 a.m., two adult cranes flew in together and landed on the open meadow adjacent a black hawthorn (*Crataegus douglasii*) thicket, both stained cinnamon-rufous from preening. At 9:44 a.m., a third crane flew in and joined the other two. All three birds had adult plumage. We also detected sandhill crane

during the 27 September 2006 visit, and again in July 2007. The short-eared owl was observed in a black hawthorn thicket on 22 June 2006 and the merlin was observed on 27 September 2006.

We observed a male and female northern harrier (*Circus cyaneus*), so it's possible that they could be a breeding pair. In addition to the merlin, migrants observed included American pipit (*Anthus rubescens*), yellow-rumped warbler (*Dendroica coronata*), horned lark (*Eremophila alpestris*), long-billed dowitcher (*Limnodromus scolopaceus*), solitary sandpiper (*Tringa solitaria*), greater yellowlegs (*Tringa melanoleuca*), and white-crowned sparrow (*Zonotrichia leucophrys*). The mudflats created as the water level in Jim Ford Creek drops later in the summer create foraging habitat for migratory shorebirds. Two nonnative bird species were detected including ring-necked pheasant (*Phasianus colchicus*) and European starling (*Sturnus vulgaris*).

A checklist of anticipated vertebrate species in Weippe Prairie is given in Appendix A.

Table 1. Vertebrate species detected in Weippe Prairie, Nez Perce National Historical Park, 2006–2007.

| Common name <sup>a</sup>      | Scientific name               | Species code <sup>b</sup> | Nativity  | 2006 | 2007 |
|-------------------------------|-------------------------------|---------------------------|-----------|------|------|
| <b>Amphibians</b>             |                               |                           |           |      |      |
| Pacific treefrog <sup>c</sup> | <i>Pseudacris regilla</i>     | PSRE                      | Native    |      | +    |
| American bullfrog             | <i>Rana catesbeiana</i>       | RACA                      | Nonnative |      | +    |
| <b>Reptiles</b>               |                               |                           |           |      |      |
| Common garter snake           | <i>Thamnophis sirtalis</i>    | THSI                      | Native    |      | +    |
| <b>Birds</b>                  |                               |                           |           |      |      |
| Red-winged blackbird          | <i>Agelaius phoeniceus</i>    | RWBL                      | Native    | +    |      |
| Mallard                       | <i>Anas platyrhynchos</i>     | MALL                      | Native    | +    | +    |
| American pipit                | <i>Anthus rubescens</i>       | AMPI                      | Native    | +    |      |
| Great blue heron              | <i>Ardea herodias</i>         | GBHE                      | Native    | +    | +    |
| Short-eared owl               | <i>Asio flammeus</i>          | SEOW                      | Native    | +    |      |
| Cedar waxwing                 | <i>Bombycilla cedrorum</i>    | CEDW                      | Native    |      | +    |
| American goldfinch            | <i>Carduelis tristis</i>      | AMGO                      | Native    | +    |      |
| Turkey vulture                | <i>Cathartes aura</i>         | TUVU                      | Native    | +    |      |
| Killdeer                      | <i>Charadrius vociferus</i>   | KILL                      | Native    | +    |      |
| Northern harrier              | <i>Circus cyaneus</i>         | NOHA                      | Native    | +    | +    |
| Northern flicker              | <i>Colaptes auratus</i>       | NOFL                      | Native    | +    |      |
| American crow                 | <i>Corvus brachyrhynchos</i>  | AMCR                      | Native    | +    |      |
| Common raven                  | <i>Corvus corax</i>           | CORA                      | Native    | +    |      |
| Yellow-rumped warbler         | <i>Dendroica coronata</i>     | YRWA                      | Native    | +    |      |
| Yellow warbler                | <i>Dendroica petechia</i>     | YWAR                      | Native    | +    |      |
| Bobolink                      | <i>Dolichonyx oryzivorus</i>  | BOBO                      | Native    | +    |      |
| Willow flycatcher             | <i>Empidonax traillii</i>     | WIFL                      | Native    | +    |      |
| Horned lark                   | <i>Eremophila alpestris</i>   | HOLA                      | Native    | +    |      |
| Brewer's blackbird            | <i>Euphagus cyanocephalus</i> | BRBL                      | Native    | +    | +    |
| Merlin                        | <i>Falco columbarius</i>      | MERL                      | Native    | +    |      |
| Wilson's snipe                | <i>Gallinago delicata</i>     | WISN                      | Native    | +    | +    |
| Common yellowthroat           | <i>Geothlypis trichas</i>     | COYE                      | Native    | +    | +    |

| Common name <sup>a</sup>           | Scientific name                   | Species code <sup>b</sup> | Nativity  | 2006 | 2007 |
|------------------------------------|-----------------------------------|---------------------------|-----------|------|------|
| Sandhill crane                     | <i>Grus canadensis</i>            | SACR                      | Native    | +    | +    |
| Barn swallow                       | <i>Hirundo rustica</i>            | BARS                      | Native    | +    |      |
| Long-billed dowitcher              | <i>Limnodromus scolopaceus</i>    | LBDO                      | Native    | +    |      |
| Song sparrow                       | <i>Melospiza melodia</i>          | SOSP                      | Native    | +    | +    |
| Brown-headed cowbird               | <i>Molothrus ater</i>             | BHCO                      | Native    | +    |      |
| Savannah sparrow                   | <i>Passerculus sandwichensis</i>  | SAVS                      | Native    | +    | +    |
| Cliff swallow                      | <i>Petrochelidon pyrrhonota</i>   | CLSW                      | Native    | +    | +    |
| Ring-necked pheasant               | <i>Phasianus colchicus</i>        | RNEP                      | Nonnative | +    |      |
| Black-billed magpie                | <i>Pica hudsonia</i>              | BBMA                      | Native    | +    |      |
| Northern rough-winged swallow      | <i>Stelgidopteryx serripennis</i> | NRWS                      | Native    | +    |      |
| Western meadowlark                 | <i>Sturnella neglecta</i>         | WEME                      | Native    | +    | +    |
| European starling                  | <i>Sturnus vulgaris</i>           | EUST                      | Nonnative | +    | +    |
| Tree swallow                       | <i>Tachycineta bicolor</i>        | TRES                      | Native    | +    |      |
| Greater yellowlegs                 | <i>Tringa melanoleuca</i>         | GRYE                      | Native    |      | +    |
| Solitary sandpiper                 | <i>Tringa solitaria</i>           | SOSA                      | Native    |      | +    |
| American robin                     | <i>Turdus migratorius</i>         | AMRO                      | Native    | +    |      |
| Eastern kingbird                   | <i>Tyrannus tyrannus</i>          | EAKI                      | Native    | +    | +    |
| Mourning dove                      | <i>Zenaidura macroura</i>         | MODO                      | Native    | +    | +    |
| White-crowned sparrow              | <i>Zonotrichia leucophrys</i>     | WCSP                      | Native    | +    |      |
| Unidentified owl species           |                                   | UNOW                      | Unknown   | +    |      |
| <b>Mammals</b>                     |                                   |                           |           |      |      |
| Domestic cattle                    | <i>Bos taurus</i>                 | BOTA                      | Nonnative | +    | +    |
| Coyote                             | <i>Canis latrans</i>              | CALA                      | Native    | +    | +    |
| Northern river otter <sup>c</sup>  | <i>Lontra canadensis</i>          | LOCA                      | Native    |      | +    |
| Water vole <sup>c</sup>            | <i>Microtus richardsoni</i>       | MIRI                      | Native    |      | +    |
| Unidentified deer species          | <i>Odocoileus</i> sp.             | UNOD                      | Native    | +    | +    |
| Northern raccoon                   | <i>Procyon lotor</i>              | PRLO                      | Native    |      | +    |
| Northern pocket gopher             | <i>Thomomys talpoides</i>         | THTA                      | Native    | +    | +    |
| Western jumping mouse <sup>c</sup> | <i>Zapus princeps</i>             | ZAPR                      | Native    |      | +    |

<sup>a</sup> Scientific and English common names of organisms generally follow the Integrated Taxonomic Information System (ITIS) (<http://www.itis.gov>). For birds, taxonomy and nomenclature follow the American Ornithologists' Union *Check-list of North American Birds* (American Ornithologists' Union 1998) and supplements, as published in the Auk: 42<sup>nd</sup> (American Ornithologists' Union 2000), 43<sup>rd</sup> (Banks et al. 2002), 44<sup>th</sup> (Banks et al. 2003), 45<sup>th</sup> (Banks et al. 2004), 46<sup>th</sup> (Banks et al. 2005), and 47<sup>th</sup> (Banks et al. 2006).

<sup>b</sup> Alphabetic (alpha) codes for English common names of birds follow Pyle and DeSante (2006). Alpha codes for amphibians, reptiles, and mammals were derived from the first two letters of the genus and first two letters of the species.

<sup>c</sup> Certainty of taxon identification is questionable because identification was either based on circumstantial or equivocal evidence, e.g., scat, tracks, other sign that could not be confidently determined or because a particular species was not observed closely enough to be certain of its identification. However, based on range, behavior, and habits of the species in question, identification should be considered probable.

Table 2. Vertebrates that have special conservation status in Idaho (IDFG 2005) and occur in Weippe Prairie.

| Common name     | Scientific name          | Global rank <sup>a</sup> | State rank <sup>a</sup> |
|-----------------|--------------------------|--------------------------|-------------------------|
| <b>Birds</b>    |                          |                          |                         |
| Short-eared owl | <i>Asio flammeus</i>     | G5                       | S4                      |
| Merlin          | <i>Falco columbarius</i> | G5                       | S2B, S2N                |
| Sandhill crane  | <i>Grus canadensis</i>   | G5                       | S3B                     |

<sup>a</sup> These ranks reflect an assessment of the condition of the species rangewide (Global rank) and statewide (State rank). Rangewide ranks are assigned by NatureServe and statewide ranks for Idaho are assigned by the Idaho Conservation Data Center.

G1 or S1 Critically imperiled (often 5 or fewer populations).

G2 or S2 Imperiled (often 20 or fewer populations) at high risk of extinction or extirpation.

G3 or S3 Vulnerable (often 80 or fewer populations) at moderate risk of extinction or extirpation.

G4 or S4 Apparently secure, but some cause for long-term concern.

G5 or S5 Secure—common, widespread, and abundant.

B Breeding—conservation status refers to the breeding population of the species in the state.

N Nonbreeding—conservation status refers to the non-breeding population of the species in the state.

### **Buffalo Eddy**

We detected 44 terrestrial vertebrate species in Buffalo Eddy between 23 June 2006 and 26 July 2007, including 38 birds and six mammals (Table 3). Species detected during a 1999 avian inventory of Buffalo Eddy (Dixon 2005) are also given in Table 3 for comparison. We failed to detect any amphibian or reptile species at Buffalo Eddy. Likewise, we failed to capture any small mammals in the 24 Sherman live traps that we placed at Buffalo Eddy. However, we detected six mammal species through either direct or indirect observation on 25 July 2007. We found the bleached jawbones and partial skull of a small mammal at the base of a basalt rock outcrop. Upon inspection of the upper teeth, palate openings, and partial skull, we identified it to montane vole *Microtus montanus*, which has 3 upper and lower jagged molars that form triangles of dentine bordered by enamel; narrow, tapered openings in the palate; and a dental formula of i 1/1, c 0/0, p 0/0, m 3/3, total 16 (see Reid 2006). We also found the scat (9–10 mm diameter) of what appeared to be mountain cottontail in the grasses in the draw bottom at the base of a basalt outcrop. We found a mammal nest lined with leaves, twigs, and grasses with *Opuntia* at the entrance to a crevice in a basalt outcrop. Based on the characteristics of the nest, scat below the nest (black scat 10–12 mm x 3–4 mm), and the characteristic white urine streaks on the rock below the nest, it was likely that of a bushy-tailed woodrat (*Neotoma cinerea*). We found a large pile of scat at the base of a basalt outcrop near a draw bottom and under a hackberry tree. Based on field guide descriptions and illustrations, this was most likely northern raccoon (*Procyon lotor*). Raccoons often place latrines of scats at the base of rock overhangs in outcrops or cliffy areas (Murie and Elbroch 2005), which is consistent with what we found at Buffalo Eddy. We also found two large burrows in the side of a grassy hillside, which could have been those of American badger (*Taxidea taxus*), but this observation remains equivocal.

We found direct evidence of breeding for four bird species including American goldfinch (*Carduelis tristis*; adult with fledgling), Bullock's oriole (*Icterus bullockii*; current year's nest found), cliff swallow (*Petrochelidon pyrrhonota*; current year's nest found), and western

kingbird (*Tyrannus verticalis*; 2 current year's nests found). Thirteen additional species are believed to nest in the site, given the observations of singing males, courtship, copulation, or other territorial behavior and include black-capped chickadee (*Poecile atricapillus*), black-headed grosbeak (*Pheucticus melanocephalus*), brown-headed cowbird (*Molothrus ater*), canyon wren (*Catherpes mexicanus*), house finch (*Carpodacus mexicanus*), lazuli bunting (*Passerina amoena*), rock wren (*Salpinctes obsoletus*), song sparrow (*Melospiza melodia*), spotted towhee (*Pipilo maculatus*), western meadowlark (*Sturnella neglecta*), western wood-pewee (*Contopus sordidulus*), yellow warbler (*Dendroica petechia*), and yellow-breasted chat (*Icteria virens*). Four nonnative species were detected at Buffalo Eddy including California quail (*Callipepla californica*), chukar (*Alectoris chukar*), gray partridge (*Perdix perdix*), and rock pigeon (*Columba livia*). Migrants included dark-eyed junco (*Junco hyemalis*), unidentified *Larus* gull (*Larus* sp.), and white-crowned sparrow (*Zonotrichia leucophrys*). We failed to detect any special status species in Buffalo Eddy.

A checklist of anticipated vertebrate species in Buffalo Eddy is given in Appendix B.

Table 3. Vertebrate species detected in Buffalo Eddy, Nez Perce National Historical Park, 1999 and 2006–2007.

| Common name <sup>a</sup> | Scientific name               | Species code <sup>b</sup> | Nativity  | 1999 | 2006 | 2007 |
|--------------------------|-------------------------------|---------------------------|-----------|------|------|------|
| <b>Amphibians</b>        |                               |                           |           |      |      |      |
| None detected            |                               |                           |           |      |      |      |
| <b>Reptiles</b>          |                               |                           |           |      |      |      |
| None detected            |                               |                           |           |      |      |      |
| <b>Birds</b>             |                               |                           |           |      |      |      |
| Cooper's hawk            | <i>Accipiter cooperii</i>     | COHA                      | Native    | +    |      |      |
| Spotted sandpiper        | <i>Actitis macularius</i>     | SPSA                      | Native    |      |      | +    |
| Red-winged blackbird     | <i>Agelaius phoeniceus</i>    | RWBL                      | Native    | +    |      |      |
| Chukar                   | <i>Alectoris chukar</i>       | CHUK                      | Nonnative | +    | +    |      |
| Golden eagle             | <i>Aquila chrysaetos</i>      | GOEA                      | Native    | +    | +    |      |
| Cedar waxwing            | <i>Bombycilla cedrorum</i>    | CEDW                      | Native    |      | +    | +    |
| Canada goose             | <i>Branta canadensis</i>      | CANG                      | Native    | +    |      |      |
| Great horned owl         | <i>Bubo virginianus</i>       | GHOW                      | Native    |      |      | +    |
| Red-tailed hawk          | <i>Buteo jamaicensis</i>      | RTHA                      | Native    | +    | +    | +    |
| California quail         | <i>Callipepla californica</i> | CAQU                      | Nonnative | +    | +    | +    |
| American goldfinch       | <i>Carduelis tristis</i>      | AMGO                      | Native    | +    | +    | +    |
| House finch              | <i>Carpodacus mexicanus</i>   | HOFI                      | Native    |      | +    |      |
| Canyon wren              | <i>Catherpes mexicanus</i>    | CANW                      | Native    | +    | +    | +    |
| Belted kingfisher        | <i>Ceryle alcyon</i>          | BEKI                      | Native    | +    | +    |      |
| Killdeer                 | <i>Charadrius vociferus</i>   | KILL                      | Native    | +    |      |      |
| Common nighthawk         | <i>Chordeiles minor</i>       | CONI                      | Native    | +    |      | +    |
| Northern harrier         | <i>Circus cyaneus</i>         | NOHA                      | Native    | +    |      |      |
| Northern flicker         | <i>Colaptes auratus</i>       | NOFL                      | Native    | +    |      |      |
| Rock pigeon              | <i>Columba livia</i>          | ROPI                      | Nonnative | +    |      |      |
| Western wood-pewee       | <i>Contopus sordidulus</i>    | WEWP                      | Native    |      | +    |      |
| American crow            | <i>Corvus brachyrhynchos</i>  | AMCR                      | Native    | +    | +    | +    |

| Common name <sup>a</sup>          | Scientific name                  | Species code <sup>b</sup> | Nativity  | 1999 | 2006 | 2007 |
|-----------------------------------|----------------------------------|---------------------------|-----------|------|------|------|
| Common raven                      | <i>Corvus corax</i>              | CORA                      | Native    |      | +    |      |
| Yellow-rumped warbler             | <i>Dendroica coronata</i>        | YRWA                      | Native    | +    |      |      |
| Yellow warbler                    | <i>Dendroica petechia</i>        | YWAR                      | Native    | +    | +    |      |
| Willow flycatcher                 | <i>Empidonax traillii</i>        | WIFL                      | Native    | +    |      |      |
| American kestrel                  | <i>Falco sparverius</i>          | AMKE                      | Native    | +    | +    |      |
| Yellow-breasted chat              | <i>Icteria virens</i>            | YBCH                      | Native    | +    | +    |      |
| Bullock's oriole                  | <i>Icterus bullockii</i>         | BUOR                      | Native    |      | +    |      |
| Dark-eyed junco                   | <i>Junco hyemalis</i>            | DEJU                      | Native    | +    | +    |      |
| Unidentified Larus gull           | <i>Larus</i> sp.                 | ULGU                      | Native    |      | +    |      |
| Western screech-owl               | <i>Megascops kennicottii</i>     | WESO                      | Native    | +    |      |      |
| Song sparrow                      | <i>Melospiza melodia</i>         | SOSP                      | Native    | +    | +    |      |
| Common merganser                  | <i>Mergus merganser</i>          | COME                      | Native    | +    |      |      |
| Brown-headed cowbird              | <i>Molothrus ater</i>            | BHCO                      | Native    | +    | +    |      |
| MacGillivray's warbler            | <i>Oporornis tolmiei</i>         | MGWA                      | Native    | +    |      |      |
| Lazuli bunting                    | <i>Passerina amoena</i>          | LAZB                      | Native    | +    | +    | +    |
| Gray partridge                    | <i>Perdix perdix</i>             | GRAP                      | Nonnative | +    |      |      |
| Cliff swallow                     | <i>Petrochelidon pyrrhonota</i>  | CLSW                      | Native    |      | +    | +    |
| Black-headed grosbeak             | <i>Pheucticus melanocephalus</i> | BHGR                      | Native    | +    | +    | +    |
| Black-billed magpie               | <i>Pica hudsonia</i>             | BBMA                      | Native    | +    | +    |      |
| Spotted towhee                    | <i>Pipilo maculatus</i>          | SPTO                      | Native    | +    | +    |      |
| Black-capped chickadee            | <i>Poecile atricapillus</i>      | BCCH                      | Native    | +    | +    |      |
| Ruby-crowned kinglet              | <i>Regulus calendula</i>         | RCKI                      | Native    | +    |      |      |
| Golden-crowned kinglet            | <i>Regulus satrapa</i>           | GCKI                      | Native    | +    |      |      |
| Rock wren                         | <i>Salpinctes obsoletus</i>      | ROWR                      | Native    | +    | +    | +    |
| Say's phoebe                      | <i>Sayornis saya</i>             | SAPH                      | Native    |      | +    | +    |
| Western meadowlark                | <i>Sturnella neglecta</i>        | WEME                      | Native    | +    | +    |      |
| Violet-green swallow              | <i>Tachycineta thalassina</i>    | VGSW                      | Native    | +    | +    |      |
| Bewick's wren                     | <i>Thryomanes bewickii</i>       | BEWR                      | Native    | +    |      |      |
| Winter wren                       | <i>Troglodytes troglodytes</i>   | WIWR                      | Native    | +    |      |      |
| American robin                    | <i>Turdus migratorius</i>        | AMRO                      | Native    |      | +    |      |
| Eastern kingbird                  | <i>Tyrannus tyrannus</i>         | EAKI                      | Native    |      |      | +    |
| Western kingbird                  | <i>Tyrannus verticalis</i>       | WEKI                      | Native    | +    | +    | +    |
| Mourning dove                     | <i>Zenaida macroura</i>          | MODO                      | Native    | +    | +    | +    |
| White-crowned sparrow             | <i>Zonotrichia leucophrys</i>    | WCSP                      | Native    |      | +    |      |
| Unidentified hummingbird          |                                  | UNHU                      | Native    | +    |      |      |
| <b>Mammals</b>                    |                                  |                           |           |      |      |      |
| Striped skunk                     | <i>Mephitis mephitis</i>         | MEME                      | Native    |      |      | +    |
| Montane vole                      | <i>Microtus montanus</i>         | MIMO                      | Native    |      |      | +    |
| Bushy-tailed woodrat <sup>c</sup> | <i>Neotoma cinerea</i>           | NECI                      | Native    |      |      | +    |
| Mule deer                         | <i>Odocoileus hemionus</i>       | ODHE                      | Native    |      | +    | +    |
| Northern raccoon <sup>c</sup>     | <i>Procyon lotor</i>             | PRLO                      | Native    |      |      | +    |
| Mountain cottontail <sup>c</sup>  | <i>Sylvilagus nuttallii</i>      | SYNU                      | Native    |      |      | +    |

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<sup>b</sup> Alphabetic (alpha) codes for English common names of birds follow Pyle and DeSante (2006). Alpha codes for amphibians, reptiles, and mammals were derived from the first two letters of the genus and first two letters of the species.

<sup>c</sup> Certainty of taxon identification is questionable because identification was either based on circumstantial or equivocal evidence, e.g., scat, tracks, other sign that could not be confidently determined or because a particular species was not observed closely enough to be certain of its identification. However, based on range, behavior, and habits of the species in question, identification should be considered probable.

## Vegetation Sampling

### Weippe Prairie 2006

Pasture grasses—such as creeping bentgrass (*Agrostis stolonifera*), timothy (*Phleum pratense*), and meadow foxtail (*Alopecurus pratensis*)—dominated the site, whereas native plants often persisted in low-lying areas, along streams, in black hawthorn (*Crataegus douglasii*) thickets, and along fencelines. Eighty acres (32 ha) were in cut hay pasture, the remainder grazed by cattle. One rare plant, Leiberg's umbrellawort (*Tauschia tenuissima*), was present. The noxious weeds orange hawkweed (*Hieracium aurantiacum*) and Canada thistle (*Cirsium arvense*) have invaded in places. In October 2006, a layer of foam was present on Jim Ford Creek.

False hellebore (*Veratrum* sp.) was found in Weippe Prairie, but the plants were not in flower when we found it. California false hellebore (*Veratrum californicum*) has white flowers and green false hellebore (*Veratrum viride*) has green flowers. The plants in the park had no flowers. Consequently, we could not identify it to species.

We noticed what looked like a cottonwood (*Populus* sp.) near the Opresik's farmhouse, but could not establish whether it was cultivated or not, i.e., Lombardy poplar (*Populus nigra*) or black cottonwood (*Populus trichocarpa*).

Table 4. Recorded plant species, Weippe Prairie, Nez Perce National Historical Park, 2006.

| Family <sup>a</sup> | Common name <sup>b</sup> | Scientific name <sup>a</sup>                    | Code <sup>b</sup> | Nativity  |
|---------------------|--------------------------|-------------------------------------------------|-------------------|-----------|
| Asteraceae          | Common yarrow            | <i>Achillea millefolium</i>                     | ACMI2             | Native    |
| Poaceae             | Western needlegrass      | <i>Achnatherum occidentale</i>                  | ACOCO             | Native    |
| Poaceae             | Spike bentgrass          | <i>Agrostis exarata</i>                         | AGEX              | Native    |
| Poaceae             | Rough bentgrass          | <i>Agrostis scabra</i>                          | AGSC5             | Native    |
| Poaceae             | Creeping bentgrass       | <i>Agrostis stolonifera</i>                     | AGST2             | Nonnative |
| Alismataceae        | American waterplantain   | <i>Alisma plantago-aquatica</i>                 | ALPL              | Native    |
| Poaceae             | Water foxtail            | <i>Alopecurus geniculatus</i>                   | ALGE2             | Nonnative |
| Poaceae             | Meadow foxtail           | <i>Alopecurus pratensis</i>                     | ALPR3             | Nonnative |
| Rosaceae            | Saskatoon serviceberry   | <i>Amelanchier alnifolia</i>                    | AMAL2             | Native    |
| Asteraceae          | Stinking chamomile       | <i>Anthemis cotula</i>                          | ANCO2             | Nonnative |
| Poaceae             | Dense silkybent          | <i>Apera interrupta</i>                         | APIN              | Nonnative |
| Brassicaceae        | Tower rockcress          | <i>Arabis glabra</i>                            | ARGL              | Nonnative |
| Asteraceae          | Lesser burdock           | <i>Arctium minus</i>                            | ARM12             | Nonnative |
| Aulacomniaceae      | Aulacomnium moss         | <i>Aulacomnium palustre</i>                     | AUPA              | Native    |
| Brassicaceae        | American yellowrocket    | <i>Barbarea orthoceras</i>                      | BAOR              | Native    |
| Scrophulariaceae    | Red besseya              | <i>Besseyia rubra</i>                           | BERU              | Native    |
| Poaceae             | Fringed brome            | <i>Bromus ciliatus</i>                          | BRCI2             | Native    |
| Poaceae             | Soft brome               | <i>Bromus hordeaceus</i> ssp. <i>hordeaceus</i> | BRHOH             | Nonnative |
| Poaceae             | Smooth brome             | <i>Bromus inermis</i>                           | BRIN2             | Nonnative |
| Poaceae             | Japanese brome           | <i>Bromus japonicus</i>                         | BRJA              | Nonnative |

| Family <sup>a</sup> | Common name <sup>b</sup>   | Scientific name <sup>a</sup>                   | Code <sup>b</sup> | Nativity  |
|---------------------|----------------------------|------------------------------------------------|-------------------|-----------|
| Poaceae             | Cheatgrass                 | <i>Bromus tectorum</i>                         | BRTE              | Nonnative |
| Liliaceae           | Small camas                | <i>Camassia quamash</i>                        | CAQU2             | Native    |
| Campanulaceae       | Bluebell bellflower        | <i>Campanula rotundifolia</i>                  | CARO2             | Native    |
| Brassicaceae        | Shepherd's purse           | <i>Capsella bursa-pastoris</i>                 | CABU2             | Nonnative |
| Cyperaceae          | Widfruit sedge             | <i>Carex angustata</i>                         | CAAN15            | Native    |
| Cyperaceae          | Water sedge                | <i>Carex aquatilis</i>                         | CAAQ              | Native    |
| Cyperaceae          | Slenderbeak sedge          | <i>Carex athrostachya</i>                      | CAAT3             | Native    |
| Cyperaceae          | Smallwing sedge            | <i>Carex microptera</i>                        | CAMI7             | Native    |
| Cyperaceae          | Chamisso sedge             | <i>Carex pachystachya</i>                      | CAPA14            | Native    |
| Cyperaceae          | Woolly sedge               | <i>Carex pellita</i>                           | CAPE42            | Native    |
| Cyperaceae          | Meadow sedge               | <i>Carex praticola</i>                         | CAPR7             | Native    |
| Cyperaceae          | Northwest Territory sedge  | <i>Carex utriculata</i>                        | CAUT              | Native    |
| Cyperaceae          | Fox sedge                  | <i>Carex vulpinoidea</i>                       | CAVU2             | Native    |
| Scrophulariaceae    | Cusick's Indian paintbrush | <i>Castilleja cusickii</i>                     | CACU7             | Native    |
| Scrophulariaceae    | Hairy Indian paintbrush    | <i>Castilleja tenuis</i>                       | CATE26            | Native    |
| Caryophyllaceae     | Sticky chickweed           | <i>Cerastium glomeratum</i>                    | CEGL2             | Nonnative |
| Asteraceae          | Canada thistle             | <i>Cirsium arvense</i>                         | CIAR4             | Nonnative |
| Portulacaceae       | Miner's lettuce            | <i>Claytonia perfoliata</i>                    | CLPE              | Native    |
| Scrophulariaceae    | Maiden blue eyed Mary      | <i>Collinsia parviflora</i>                    | COPA3             | Native    |
| Rosaceae            | Black hawthorn             | <i>Crataegus douglasii</i>                     | CRDO2             | Native    |
| Rubiaceae           | Piedmont bedstraw          | <i>Cruciata pedemontana</i>                    | CRPE10            | Nonnative |
| Boraginaceae        | Gypsyflower                | <i>Cynoglossum officinale</i>                  | CYOF              | Nonnative |
| Poaceae             | California oatgrass        | <i>Danthonia californica</i>                   | DACA3             | Native    |
| Ranunculaceae       | Twospike larkspur          | <i>Delphinium distichum</i>                    | DEDI11            | Native    |
| Poaceae             | Tufted hairgrass           | <i>Deschampsia caespitosa</i>                  | DECA18            | Native    |
| Poaceae             | Annual hairgrass           | <i>Deschampsia danthonioides</i>               | DEDA              | Native    |
| Campanulaceae       | Elegant calicoflower       | <i>Downingia elegans</i>                       | DOEL              | Native    |
| Poaceae             | Barnyardgrass              | <i>Echinochloa crus-galli</i>                  | ECCR              | Nonnative |
| Poaceae             | Bolander's spikerush       | <i>Eleocharis bolanderi</i>                    | ELBO              | Native    |
| Poaceae             | Common spikerush           | <i>Eleocharis palustris</i>                    | ELPA3             | Native    |
| Poaceae             | Quackgrass                 | <i>Elymus repens</i>                           | ELRE4             | Nonnative |
| Onagraceae          | Tall annual willowherb     | <i>Epilobium brachycarpum</i>                  | EPBR3             | Native    |
| Onagraceae          | Fringed willowherb         | <i>Epilobium ciliatum</i> ssp. <i>ciliatum</i> | EPCIC             | Native    |
| Equisetaceae        | Field horsetail            | <i>Equisetum arvense</i>                       | EQAR              | Native    |
| Equisetaceae        | Water horsetail            | <i>Equisetum fluviatile</i>                    | EQFL              | Native    |
| Geraniaceae         | Redstem stork's bill       | <i>Erodium cicutarium</i>                      | ERIC16            | Nonnative |
| Parmeliaceae        |                            | <i>Evernia prunastri</i>                       | EVPR              | Native    |
| Fontinalaceae       | Fontinalis moss            | <i>Fontinalis</i> sp.                          | FONT1             | Native    |
| Rosaceae            | Virginia strawberry        | <i>Fragaria virginiana</i>                     | FRVI              | Native    |
| Rubiaceae           | Stickywilly                | <i>Galium aparine</i>                          | GAAP2             | Native    |
| Rubiaceae           | Northern bedstraw          | <i>Galium boreale</i>                          | GABO2             | Native    |
| Gentianaceae        | Rainier pleated gentian    | <i>Gentiana calycosa</i>                       | GECA              | Native    |
| Geraniaceae         | Small geranium             | <i>Geranium pusillum</i>                       | GEPU2             | Nonnative |
| Rosaceae            | Largeleaf avens            | <i>Geum macrophyllum</i>                       | GEMA4             | Native    |
| Poaceae             | Northwestern mannagrass    | <i>Glyceria occidentalis</i>                   | GLOC              | Native    |
| Asteraceae          | Western marsh cudweed      | <i>Gnaphalium palustre</i>                     | GNPA              | Native    |
| Asteraceae          | Oneflower helianthella     | <i>Helianthella uniflora</i>                   | HEUN              | Native    |
| Apiaceae            | Common cowparsnip          | <i>Heracleum maximum</i>                       | HEMA80            | Native    |
| Asteraceae          | Orange hawkweed            | <i>Hieracium aurantiacum</i>                   | HIAU              | Nonnative |
| Clusiaceae          | Common St. Johnswort       | <i>Hypericum perforatum</i>                    | HYPE              | Nonnative |
| Juncaceae           | Tapertip rush              | <i>Juncus acuminatus</i>                       | JUAC              | Native    |
| Juncaceae           | Jointleaf rush             | <i>Juncus articulatus</i>                      | JUAR4             | Native    |
| Juncaceae           | Toad rush                  | <i>Juncus bufonius</i>                         | JUBU              | Native    |
| Juncaceae           | Common rush                | <i>Juncus effusus</i>                          | JUEF              | Native    |
| Juncaceae           | Swordleaf rush             | <i>Juncus ensifolius</i>                       | JUEN              | Native    |
| Juncaceae           | Poverty rush               | <i>Juncus tenuis</i>                           | JUTE              | Native    |

| Family <sup>a</sup> | Common name <sup>b</sup>     | Scientific name <sup>a</sup>                             | Code <sup>b</sup> | Nativity  |
|---------------------|------------------------------|----------------------------------------------------------|-------------------|-----------|
| Lamiaceae           | Purple deadnettle            | <i>Lamium purpureum</i>                                  | LAPU2             | Nonnative |
| Lemnaceae           | Common duckweed              | <i>Lemna minor</i>                                       | LEMI3             | Native    |
| Asteraceae          | Oxeye daisy                  | <i>Leucanthemum vulgare</i>                              | LEVU              | Nonnative |
| Poaceae             | Tall fescue                  | <i>Lolium arundinaceum</i>                               | LOAR10            | Nonnative |
| Apiaceae            | Wasatch desertparsley        | <i>Lomatium bicolor</i> var. <i>leptocarpum</i>          | LOBIL             | Native    |
| Apiaceae            | Fernleaf biscuitroot         | <i>Lomatium dissectum</i>                                | LODI              | Native    |
| Apiaceae            | Nineleaf biscuitroot         | <i>Lomatium triternatum</i>                              | LOTR2             | Native    |
| Apiaceae            | Broadnineleaf biscuitroot    | <i>Lomatium triternatum</i> var. <i>anomalum</i>         | LOTRA             | Native    |
| Fabaceae            | American bird's-foot trefoil | <i>Lotus unifoliolatus</i> var. <i>unifoliolatus</i>     | LOUNU             | Native    |
| Fabaceae            | Longspur lupine              | <i>Lupinus arbustus</i> ssp. <i>pseudoparviflorus</i>    | LUARP             | Native    |
| Juncaceae           | Field woodrush               | <i>Luzula campestris</i>                                 | LUCA              | Native    |
| Lamiaceae           | American water horehound     | <i>Lycopus americanus</i>                                | LYAM              | Native    |
| Asteraceae          | Mountain tarweed             | <i>Madia glomerata</i>                                   | MAGL2             | Native    |
| Fabaceae            | Black medick                 | <i>Medicago lupulina</i>                                 | MELU              | Nonnative |
| Lamiaceae           | Field mint                   | <i>Mentha arvensis</i>                                   | MEAR4             | Native    |
| Portulacaceae       | Narrowleaf minerslettuce     | <i>Montia linearis</i>                                   | MOL14             | Native    |
| Boraginaceae        | Changing forget-me-not       | <i>Myosotis discolor</i>                                 | MYDI              | Nonnative |
| Boraginaceae        | Strict forget-me-not         | <i>Myosotis stricta</i>                                  | MYST2             | Nonnative |
| Polemoniaceae       | Needleleaf navarretia        | <i>Navarretia intertexta</i>                             | NAIN2             | Native    |
| Hydrophyllaceae     | Basin nemophila              | <i>Nemophila breviflora</i>                              | NEBR              | Native    |
| Iridaceae           | Douglas' grasswidow          | <i>Olsynium douglasii</i> var. <i>douglasii</i>          | OLDOD             | Native    |
| Poaceae             | Witchgrass                   | <i>Panicum capillare</i>                                 | PACA6             | Native    |
| Scrophulariaceae    | Globe penstemon              | <i>Penstemon globosus</i>                                | PEGL5             | Native    |
| Scrophulariaceae    | Littleflower penstemon       | <i>Penstemon procerus</i>                                | PEPR2             | Native    |
| Apiaceae            | Yampa                        | <i>Perideridia gairdneri</i>                             | PEGA3             | Native    |
| Poaceae             | Reed canarygrass             | <i>Phalaris arundinacea</i>                              | PHAR3             | Unknown   |
| Poaceae             | Timothy                      | <i>Phleum pratense</i>                                   | PHPR3             | Nonnative |
| Polemoniaceae       | Slender phlox                | <i>Phlox gracilis</i>                                    | PHGR16            | Native    |
| Pinaceae            | Ponderosa pine               | <i>Pinus ponderosa</i>                                   | PIPO              | Native    |
| Poaceae             | Canada bluegrass             | <i>Poa compressa</i>                                     | POCO              | Nonnative |
| Poaceae             | Inland bluegrass             | <i>Poa nemoralis</i> ssp. <i>interior</i>                | PONE12            | Native    |
| Poaceae             | Kentucky bluegrass           | <i>Poa pratensis</i>                                     | POPR              | Nonnative |
| Polygonaceae        | American bistort             | <i>Polygonum bistortoides</i>                            | POBI6             | Native    |
| Polygonaceae        | Douglas' knotweed            | <i>Polygonum douglasii</i>                               | PODO4             | Native    |
| Polygonaceae        | Curlytop knotweed            | <i>Polygonum lapathifolium</i>                           | POLA4             | Native    |
| Polygonaceae        | Fruitleaf knotweed           | <i>Polygonum polygaloides</i> ssp. <i>confertifolium</i> | POPOC             | Native    |
| Polytrichaceae      | Juniper polytrichum moss     | <i>Polytrichum juniperinum</i>                           | POJU              | Native    |
| Salicaceae          | Cottonwood                   | <i>Populus</i> sp.                                       | POPUL             | Unknown   |
| Potamogetonaceae    | Illinois pondweed            | <i>Potamogeton illinoensis</i>                           | POIL              | Native    |
| Rosaceae            | Slender cinquefoil           | <i>Potentilla gracilis</i>                               | POGR9             | Native    |
| Rosaceae            | Sulfur cinquefoil            | <i>Potentilla recta</i>                                  | PORE5             | Nonnative |
| Lamiaceae           | Common selfheal              | <i>Prunella vulgaris</i>                                 | PRVU              | Native    |
| Pinaceae            | Douglas-fir                  | <i>Pseudotsuga menziesii</i>                             | PSME              | Native    |
| Ramalinaceae        |                              | <i>Ramalina farinacea</i>                                | RAFA              | Native    |
| Ramalinaceae        | Lichen                       | <i>Ramalina subleptocarpa</i>                            | RASU              | Native    |
| Ranunculaceae       | Plantainleaf buttercup       | <i>Ranunculus alismifolius</i> var. <i>alismifolius</i>  | RAALA2            | Native    |
| Ranunculaceae       | Whitewater crowfoot          | <i>Ranunculus aquatilis</i>                              | RAAQ              | Native    |
| Ranunculaceae       | Greater creeping spearwort   | <i>Ranunculus flammula</i>                               | RAFL2             | Native    |
| Ranunculaceae       | Straightbeak buttercup       | <i>Ranunculus orthorhynchus</i>                          | RAOR3             | Native    |
| Ranunculaceae       | Woodland buttercup           | <i>Ranunculus uncinatus</i>                              | RAUN              | Native    |
| Asteraceae          | Western coneflower           | <i>Rudbeckia occidentalis</i>                            | RUOC2             | Native    |
| Polygonaceae        | Common sheep sorrel          | <i>Rumex acetosella</i>                                  | RUAC3             | Nonnative |
| Polygonaceae        | Curly dock                   | <i>Rumex crispus</i>                                     | RUCR              | Nonnative |
| Polygonaceae        | Willow dock                  | <i>Rumex salicifolius</i>                                | RUSA              | Native    |
| Salicaceae          | White willow                 | <i>Salix alba</i>                                        | SAAL2             | Nonnative |
| Cyperaceae          | Softstem bulrush             | <i>Schoenoplectus tabernaemontani</i>                    | SCTA2             | Native    |

| Family <sup>a</sup> | Common name <sup>b</sup>      | Scientific name <sup>a</sup>                             | Code <sup>b</sup> | Nativity  |
|---------------------|-------------------------------|----------------------------------------------------------|-------------------|-----------|
| Asteraceae          | Tall groundsel                | <i>Senecio hydrophiloides</i>                            | SEHY              | Native    |
| Malvaceae           | Oregon checkerbloom           | <i>Sidalcea oregana</i>                                  | SIOR              | Native    |
| Caryophyllaceae     | Bladder campion               | <i>Silene latifolia</i> ssp. <i>alba</i>                 | SILA21            | Nonnative |
| Apiaceae            | Hemlock waterparsnip          | <i>Sium suave</i>                                        | SISU2             | Native    |
| Asteraceae          | Canada goldenrod              | <i>Solidago canadensis</i>                               | SOCA6             | Native    |
| Sparganiaceae       | Narrowleaf bur-reed           | <i>Sparganium angustifolium</i>                          | SPAN2             | Native    |
| Caryophyllaceae     | Northern starwort             | <i>Stellaria calycantha</i>                              | STCA              | Native    |
| Caryophyllaceae     | Common chickweed              | <i>Stellaria media</i>                                   | STME2             | Nonnative |
| Caprifoliaceae      | Common snowberry              | <i>Symphoricarpos albus</i>                              | SYAL              | Native    |
| Asteraceae          | White panicle aster           | <i>Symphotrichum lanceolatum</i> ssp. <i>hesperium</i>   | SYLAH             | Native    |
| Asteraceae          | Larger western mountain aster | <i>Symphotrichum spathulatum</i> var. <i>intermedium</i> | SYSPI             | Native    |
| Asteraceae          | Common tansy                  | <i>Tanacetum vulgare</i>                                 | TAVU              | Nonnative |
| Asteraceae          | Common dandelion              | <i>Taraxacum officinale</i>                              | TAOF              | Nonnative |
| Apiaceae            | Leiberg's umbrellawort        | <i>Tauschia tenuissima</i>                               | TATE3             | Native    |
| Brassicaceae        | Field pennycress              | <i>Thlaspi arvense</i>                                   | THAR5             | Nonnative |
| Asteraceae          | Yellow salsify                | <i>Tragopogon dubius</i>                                 | TRDU              | Nonnative |
| Fabaceae            | Golden clover                 | <i>Trifolium aureum</i>                                  | TRAU2             | Nonnative |
| Fabaceae            | Red clover                    | <i>Trifolium pratense</i>                                | TRPR2             | Nonnative |
| Fabaceae            | White clover                  | <i>Trifolium repens</i>                                  | TRRE3             | Nonnative |
| Parmeliaceae        |                               | <i>Tuckermannopsis chlorophylla</i>                      | TUCH              | Native    |
| Typhaceae           | Broadleaf cattail             | <i>Typha latifolia</i>                                   | TYLA              | Native    |
| Parmeliaceae        |                               | <i>Usnea filipendula</i>                                 | USFI              | Native    |
| Parmeliaceae        |                               | <i>Usnea lapponica</i>                                   | USLA              | Native    |
| Liliaceae           | False hellebore               | <i>Veratrum</i> sp.                                      | VERAT             | Native    |
| Scrophulariaceae    | Skullcap speedwell            | <i>Veronica scutellata</i>                               | VESC2             | Native    |
| Fabaceae            | American vetch                | <i>Vicia americana</i>                                   | VIAM              | Native    |
| Violaceae           | Nuttall's violet              | <i>Viola nuttallii</i>                                   | VINU2             | Native    |
| Asteraceae          | Mule-ears                     | <i>Wyethia amplexicaulis</i>                             | WYAM              | Native    |
| Liliaceae           | Meadow deathcamas             | <i>Zigadenus venenosus</i>                               | ZIVE              | Native    |

<sup>a</sup> Scientific names and classification of plants follow the Integrated Taxonomic Information System (ITIS) (<http://www.itis.gov>).

<sup>b</sup> English common names and alphabetic (alpha) codes of plants follow the National PLANTS Database (USDA, NRCS 2004).

Table 5. Plants that have special conservation status in Idaho and occur in Weippe Prairie.

| Common name            | Scientific name            | State rank | Global rank |
|------------------------|----------------------------|------------|-------------|
| Leiberg's umbrellawort | <i>Tauschia tenuissima</i> | G3         | S3          |

<sup>a</sup> These ranks reflect an assessment of the condition of the species rangewide (Global rank) and statewide (State rank). Rangewide ranks are assigned by NatureServe and statewide ranks for Idaho are assigned by the Idaho Conservation Data Center.

G1 or S1 Critically imperiled (often 5 or fewer populations).

G2 or S2 Imperiled (often 20 or fewer populations) at high risk of extinction or extirpation.

G3 or S3 Vulnerable (often 80 or fewer populations) at moderate risk of extinction or extirpation.

G4 or S4 Apparently secure, but some cause for long-term concern.

G5 or S5 Secure—common, widespread, and abundant.

B Breeding—conservation status refers to the breeding population of the species in the state.

N Nonbreeding—conservation status refers to the non-breeding population of the species in the state.

<sup>b</sup> Listed threatened under the Endangered Species Act.

### Buffalo Eddy 2006–2007

Weeds infested much of Buffalo Eddy. Designated a Class B noxious weed by the Washington State Noxious Weed Control Board (WAC–16–750), the invasive species yellow starthistle (*Centaurea solstitialis*) enveloped Buffalo Eddy. Remnants of native vegetation indicate that the area was originally canyon grasslands (Tisdale 1986), with shrubs in the draws. We encountered four rare plants: Spalding's silene (*Silene spaldingii*), which is listed as threatened under the Endangered Species Act, and three plants tracked by the Washington Natural Heritage Program including sweetscented biscuitroot (*Lomatium serpentinum*), Waha milkvetch (*Astragalus arthurii*), and Nez Perce mariposa lily (*Calochortus macrocarpus* var. *maculosus*).

Table 6. Recorded plant species, Buffalo Eddy, Nez Perce National Historical Park, 2006–2007.

| Family <sup>a</sup> | Common name <sup>b</sup> | Scientific name <sup>a</sup>                         | Code <sup>b</sup> | Nativity  |
|---------------------|--------------------------|------------------------------------------------------|-------------------|-----------|
| Asteraceae          | Common yarrow            | <i>Achillea millefolium</i>                          | ACMI2             | Native    |
| Lamiaceae           | Nettleleaf giant hyssop  | <i>Agastache urticifolia</i>                         | AGUR              | Native    |
| Brassicaceae        | Pale alyssum             | <i>Alyssum alyssoides</i>                            | ALAL3             | Nonnative |
| Rosaceae            | Saskatoon serviceberry   | <i>Amelanchier alnifolia</i>                         | AMAL2             | Native    |
| Boraginaceae        | Tarweed fiddleneck       | <i>Amsinckia lycopsoides</i>                         | AMLY              | Native    |
| Boraginaceae        | Menzies' fiddleneck      | <i>Amsinckia menziesii</i> var. <i>menziesii</i>     | AMMEM2            | Native    |
| Boraginaceae        | Bristly fiddleneck       | <i>Amsinckia tessellata</i>                          | AMTE3             | Native    |
| Apiaceae            | Burr chervil             | <i>Anthriscus caucalis</i>                           | ANCA14            | Nonnative |
| Brassicaceae        | Mouseear cress           | <i>Arabidopsis thaliana</i>                          | ARTH              | Nonnative |
| Asteraceae          | Burdock                  | <i>Arctium minus</i>                                 | ARM12             | Nonnative |
| Caryophyllaceae     | Thymeleaf sandwort       | <i>Arenaria serpyllifolia</i>                        | ARSE2             | Nonnative |
| Asteraceae          | Gray sagewort            | <i>Artemisia ludoviciana</i>                         | ARLU              | Native    |
| Boraginaceae        | German mugwort           | <i>Asperugo procumbens</i>                           | ASPR              | Nonnative |
| Fabaceae            | Waha milkvetch           | <i>Astragalus arthurii</i>                           | ASAR8             | Native    |
| Fabaceae            | Bent milkvetch           | <i>Astragalus inflexus</i>                           | ASIN5             | Native    |
| Asteraceae          | Arrowleaf balsamroot     | <i>Balsamorhiza sagittata</i>                        | BASA3             | Native    |
| Scrophulariaceae    | Red besseya              | <i>Besseyia rubra</i>                                | BERU              | Native    |
| Brachytheciaceae    | Brachythecium moss       | <i>Brachythecium albicans</i>                        | BRSP              | Native    |
| Poaceae             | Rattlesnake brome        | <i>Bromus briziformis</i>                            | BRBR5             | Nonnative |
| Poaceae             | Soft brome               | <i>Bromus hordeaceus</i> ssp. <i>hordeaceus</i>      | BRHOH             | Nonnative |
| Poaceae             | Japanese brome           | <i>Bromus japonicus</i>                              | BRJA              | Nonnative |
| Poaceae             | Ripgut brome             | <i>Bromus rigidus</i>                                | BRRIG             | Nonnative |
| Poaceae             | Sterile brome            | <i>Bromus sterilis</i>                               | BRST2             | Nonnative |
| Poaceae             | Cheatgrass               | <i>Bromus tectorum</i>                               | BRTE              | Nonnative |
| Boraginaceae        | Corn gromwell            | <i>Buglossoides arvensis</i>                         | BUAR3             | Nonnative |
| Liliaceae           | Nez Perce mariposa lily  | <i>Calochortus macrocarpus</i> var. <i>maculosus</i> | CAMAM             | Native    |
| Brassicaceae        | False flax               | <i>Camelina microcarpa</i>                           | CAMI2             | Nonnative |
| Scrophulariaceae    | Indian paintbrush        | <i>Castilleja</i>                                    | CASTI2            | Native    |
| Ulmaceae            | Netleaf hackberry        | <i>Celtis laevigata</i> var. <i>reticulata</i>       | CELAR             | Native    |
| Asteraceae          | Yellow starthistle       | <i>Centaurea solstitialis</i>                        | CESO3             | Nonnative |
| Caryophyllaceae     | Field chickweed          | <i>Cerastium arvense</i>                             | CEAR4             | Native    |

| Family <sup>a</sup> | Common name <sup>b</sup>  | Scientific name <sup>a</sup>                             | Code <sup>b</sup> | Nativity  |
|---------------------|---------------------------|----------------------------------------------------------|-------------------|-----------|
| Asteraceae          | Yellow rabbitbrush        | <i>Chrysothamnus viscidiflorus</i>                       | CHV18             | Native    |
| Asteraceae          | Chicory                   | <i>Cichorium intybus</i>                                 | CIIN              | Nonnative |
| Asteraceae          | Wavyleaf thistle          | <i>Cirsium undulatum</i>                                 | CIUN              | Native    |
| Portulacaceae       | Sand springbeauty         | <i>Claytonia arenicola</i>                               | CLAR3             | Native    |
| Portulacaceae       | Miner's lettuce           | <i>Claytonia perfoliata</i>                              | CLPE              | Native    |
| Ranunculaceae       | Rock clematis             | <i>Clematis columbiana</i>                               | CLCO2             | Native    |
| Polemoniaceae       | Slenderleaf collomia      | <i>Collomia linearis</i>                                 | COLI2             | Native    |
| Asteraceae          | Canada horseweed          | <i>Conyza canadensis</i>                                 | COCA5             | Nonnative |
| Asteraceae          | Slender hawksbeard        | <i>Crepis atribarba</i>                                  | CRAT              | Native    |
| Asteraceae          | Gray hawksbeard           | <i>Crepis intermedia</i>                                 | CRIN4             | Native    |
| Boraginaceae        | Torrey's cryptantha       | <i>Cryptantha torreyana</i>                              | CRT04             | Native    |
| Boraginaceae        | Gypsyflower               | <i>Cynoglossum officinale</i>                            | CYOF              | Nonnative |
| Brassicaceae        | Mountain tansymustard     | <i>Descurainia incana ssp. incisa</i>                    | DEINI             | Native    |
| Poaceae             | Western panicgrass        | <i>Dichanthelium acuminatum</i> var. <i>fasciculatum</i> | DIACF             | Native    |
| Brassicaceae        | Spring draba              | <i>Draba verna</i>                                       | DRVE2             | Nonnative |
| Asteraceae          | Rubber rabbitbrush        | <i>Ericameria nauseosa</i>                               | ERNA10            | Native    |
| Asteraceae          | Longleaf fleabane         | <i>Erigeron corymbosus</i>                               | ERCO5             | Native    |
| Polygonaceae        | Parsnipflower buckwheat   | <i>Eriogonum heracleoides</i>                            | ERHE2             | Native    |
| Polygonaceae        | Snow buckwheat            | <i>Eriogonum niveum</i>                                  | ERNI2             | Native    |
| Geraniaceae         | Filaree                   | <i>Erodium cicutarium</i>                                | ERIC6             | Nonnative |
| Brassicaceae        | Sanddune wallflower       | <i>Erysimum capitatum</i> var. <i>capitatum</i>          | ERCAC             | Native    |
| Poaceae             | Idaho fescue              | <i>Festuca idahoensis</i>                                | FEID              | Native    |
| Poaceae             | Red fescue                | <i>Festuca rubra</i>                                     | FERU2             | Native    |
| Gentianaceae        | Whitestem fraseria        | <i>Frasera albicaulis</i>                                | FRAL2             | Native    |
| Liliaceae           | Yellow fritillary         | <i>Fritillaria pudica</i>                                | FRPU2             | Native    |
| Funariaceae         | Funaria moss              | <i>Funaria hygrometrica</i>                              | FUSP              | Unknown   |
| Rubiaceae           | Stickywilly               | <i>Galium aparine</i>                                    | GAAP2             | Native    |
| Onagraceae          | Velvetweed                | <i>Gaura mollis</i>                                      | GAMO5             | Native    |
| Geraniaceae         | Small geranium            | <i>Geranium pusillum</i>                                 | GEPU2             | Nonnative |
| Rosaceae            | Prairie smoke             | <i>Geum triflorum</i>                                    | GETR              | Native    |
| Fabaceae            | American licorice         | <i>Glycyrrhiza lepidota</i>                              | GLLE3             | Native    |
| Asteraceae          | Broom snakeweed           | <i>Gutierrezia sarothrae</i>                             | GUSA2             | Native    |
| Saxifragaceae       | Roundleaf alumroot        | <i>Heuchera cylindrica</i>                               | HECY2             | Native    |
| Asteraceae          | Houndstongue hawkweed     | <i>Hieracium cynoglossoides</i>                          | HICY              | Native    |
| Rosaceae            | Oceanspray                | <i>Holodiscus discolor</i>                               | HODI              | Native    |
| Caryophyllaceae     | Jagged chickweed          | <i>Holosteum umbellatum</i>                              | HOUM              | Nonnative |
| Brachytheciaceae    | Nevada homalothecium moss | <i>Homalothecium nevadense</i>                           | HONE              | Native    |
| Poaceae             | Foxtail barley            | <i>Hordeum jubatum</i>                                   | HOJU              | Native    |
| Clusiaceae          | Common St. Johnswort      | <i>Hypericum perforatum</i>                              | HYPE              | Nonnative |
| Poaceae             | Prairie Junegrass         | <i>Koeleria macrantha</i>                                | KOMA              | Native    |
| Asteraceae          | Prickly lettuce           | <i>Lactuca serriola</i>                                  | LASE              | Nonnative |
| Brassicaceae        | Peppergrass               | <i>Lepidium virginicum</i>                               | LEVI3             | Native    |

| Family <sup>a</sup> | Common name <sup>b</sup>      | Scientific name <sup>a</sup>                          | Code <sup>b</sup> | Nativity  |
|---------------------|-------------------------------|-------------------------------------------------------|-------------------|-----------|
| Collemataceae       |                               | <i>Leptogium corniculatum</i>                         | LECOR             | Native    |
| Linaceae            | Common flax                   | <i>Linum usitatissimum</i>                            | LIUS              | Nonnative |
| Saxifragaceae       | Bulbous woodland–star         | <i>Lithophragma glabrum</i>                           | LIGL2             | Native    |
| Saxifragaceae       | Smallflower woodland–star     | <i>Lithophragma parviflorum</i>                       | LIPA5             | Native    |
| Asteraceae          | Field cottonrose              | <i>Logfia arvensis</i>                                | LOAR5             | Nonnative |
| Apiaceae            | Wasatch desertparsley         | <i>Lomatium bicolor</i> var. <i>leptocarpum</i>       | LOBIL             | Native    |
| Apiaceae            | Cous biscuitroot              | <i>Lomatium cous</i>                                  | LOCO4             | Native    |
| Apiaceae            | Fernleaf biscuitroot          | <i>Lomatium dissectum</i>                             | LODI              | Native    |
| Apiaceae            | Bigseed biscuitroot           | <i>Lomatium macrocarpum</i>                           | LOMA3             | Native    |
| Apiaceae            | Sweetscented biscuitroot      | <i>Lomatium serpentinum</i>                           | LOSE2             | Native    |
| Apiaceae            | Nineleaf biscuitroot          | <i>Lomatium triternatum</i>                           | LOTR2             | Native    |
| Fabaceae            | False lupine, longspur lupine | <i>Lupinus arbustus</i> ssp. <i>pseudoparviflorus</i> | LUARP             | Native    |
| Fabaceae            | Silky lupine                  | <i>Lupinus sericeus</i>                               | LUSE4             | Native    |
| Fabaceae            | Yellow sweetclover            | <i>Melilotus officinalis</i>                          | MEOF              | Nonnative |
| Moraceae            | White mulberry                | <i>Morus alba</i>                                     | MOAL              | Nonnative |
| Lamiaceae           | Catnip                        | <i>Nepeta cataria</i>                                 | NECA2             | Nonnative |
| Asteraceae          | Scotch cottonthistle          | <i>Onopordum acanthium</i>                            | ONAC              | Nonnative |
| Cactaceae           | Plains pricklypear            | <i>Opuntia polyacantha</i>                            | OPPO              | Native    |
| Orthotrichaceae     | Orthotrichum moss             | <i>Orthotrichum laevigatum</i>                        | ORLA              | Native    |
| Parmeliaceae        |                               | <i>Parmelia hygrophila</i>                            | PAHY              | Native    |
| Scrophulariaceae    | Stickystem penstemon          | <i>Penstemon glandulosus</i>                          | PEGL4             | Native    |
| Scrophulariaceae    | Riggin's penstemon            | <i>Penstemon triphyllus</i>                           | PETR6             | Native    |
| Hydrophyllaceae     | Varileaf phacelia             | <i>Phacelia heterophylla</i>                          | PHHE2             | Native    |
| Hydrophyllaceae     | Threadleaf phacelia           | <i>Phacelia linearis</i>                              | PHLI              | Native    |
| Hydrangeaceae       | Lewis' mock orange            | <i>Philadelphus lewisii</i>                           | PHLE4             | Native    |
| Polemoniaceae       | Snake River phlox             | <i>Phlox colubrina</i>                                | PHCO10            | Native    |
| Polemoniaceae       | Longleaf phlox                | <i>Phlox longifolia</i>                               | PHLO2             | Native    |
| Rosaceae            | Mallow ninebark               | <i>Physocarpus malvaceus</i>                          | PHMA5             | Native    |
| Plantaginaceae      | Woolly plantain               | <i>Plantago patagonica</i>                            | PLPA2             | Native    |
| Valerianaceae       | Longhorn plectritis           | <i>Plectritis macrocera</i>                           | PLMA4             | Native    |
| Poaceae             | Bulbous bluegrass             | <i>Poa bulbosa</i>                                    | POBU              | Nonnative |
| Poaceae             | Cusick's bluegrass            | <i>Poa cusickii</i>                                   | POCU3             | Native    |
| Poaceae             | Kentucky bluegrass            | <i>Poa pratensis</i>                                  | POPR              | Nonnative |
| Poaceae             | Sandberg bluegrass            | <i>Poa secunda</i>                                    | POSE              | Native    |
| Polytrichaceae      | Polytrichum moss              | <i>Polytrichum piliferum</i>                          | POPIL             | Native    |
| Rosaceae            | Chokecherry                   | <i>Prunus virginiana</i>                              | PRV1              | Native    |
| Poaceae             | Bluebunch wheatgrass          | <i>Pseudoroegneria spicata</i>                        | PSSP6             | Native    |
| Anacardiaceae       | Smooth sumac                  | <i>Rhus glabra</i>                                    | RHGL              | Native    |
| Rosaceae            | Woods' rose                   | <i>Rosa woodsii</i>                                   | ROWO              | Native    |
| Rosaceae            | Himalayan blackberry          | <i>Rubus discolor</i>                                 | RUDI2             | Nonnative |
| Rosaceae            | Whitebark raspberry           | <i>Rubus leucodermis</i>                              | RULE              | Native    |
| Polygonaceae        | Curly dock                    | <i>Rumex crispus</i>                                  | RUCR              | Nonnative |

| Family <sup>a</sup> | Common name <sup>b</sup>      | Scientific name <sup>a</sup>              | Code <sup>b</sup> | Nativity  |
|---------------------|-------------------------------|-------------------------------------------|-------------------|-----------|
| Chenopodiaceae      | Russian thistle               | <i>Salsola kali</i>                       | SAKA              | Nonnative |
| Caprifoliaceae      | Blue elderberry               | <i>Sambucus nigra</i> ssp. <i>cerulea</i> | SANIC5            | Native    |
| Crassulaceae        | Leiberg stonecrop             | <i>Sedum leibergii</i>                    | SELE              | Native    |
| Asteraceae          | Lambstongue ragwort           | <i>Senecio integerrimus</i>               | SEIN2             | Native    |
| Caryophyllaceae     | Sleepy silene                 | <i>Silene antirrhina</i>                  | SIAN2             | Native    |
| Caryophyllaceae     | Spalding's silene             | <i>Silene spaldingii</i>                  | SISP2             | Native    |
| Brassicaceae        | Tall tumbledustard            | <i>Sisymbrium altissimum</i>              | SIAL2             | Nonnative |
| Asteraceae          | Missouri goldenrod            | <i>Solidago missouriensis</i>             | SOMI2             | Native    |
| Caryophyllaceae     | Common chickweed              | <i>Stellaria media</i>                    | STME2             | Nonnative |
| Caprifoliaceae      | Common snowberry              | <i>Symphoricarpos albus</i>               | SYAL              | Native    |
| Poaceae             | Medusahead                    | <i>Taeniatherum caput-medusae</i>         | TACA8             | Nonnative |
| Asteraceae          | Common dandelion              | <i>Taraxacum officinale</i>               | TAOF              | Nonnative |
| Brassicaceae        | Cutleaf thelypody             | <i>Thelypodium laciniatum</i>             | THLA              | Native    |
| Poaceae             | Rush wheatgrass               | <i>Thinopyrum ponticum</i>                | THPO7             | Nonnative |
| Brassicaceae        | Field pennycress              | <i>Thlaspi arvense</i>                    | THAR5             | Nonnative |
| Scrophulariaceae    | Manyflower tonella            | <i>Tonella floribunda</i>                 | TOFL              | Native    |
| Pottiaceae          | Tortula moss                  | <i>Tortula ruralis</i>                    | TORU              | Native    |
| Anacardiaceae       | Western poison ivy            | <i>Toxicodendron rydbergii</i>            | TORY              | Native    |
| Asteraceae          | Yellow salsify                | <i>Tragopogon dubius</i>                  | TRDU              | Nonnative |
| Campanulaceae       | Clasping Venus' looking-glass | <i>Triodanis perfoliata</i>               | TRPE4             | Native    |
| Liliaceae           | Largeflower triteleia         | <i>Triteleia grandiflora</i>              | TRGR7             | Native    |
| Urticaceae          | Stinging nettle               | <i>Urtica dioica</i>                      | URDI              | Native    |
| Scrophulariaceae    | Moth mullein                  | <i>Verbascum blattaria</i>                | VEBL              | Nonnative |
| Scrophulariaceae    | Flannel mullein               | <i>Verbascum thapsus</i>                  | VETH              | Nonnative |
| Fabaceae            | Winter vetch                  | <i>Vicia villosa</i>                      | VIVI              | Nonnative |
| Poaceae             | Rat-tail fescue               | <i>Vulpia myuros</i>                      | VUMY              | Nonnative |
| Dryopteridaceae     | Oregon cliff fern             | <i>Woodsia oregana</i>                    | WOOR              | Native    |
| Asteraceae          | Rough cocklebur               | <i>Xanthium strumarium</i>                | XAST              | Native    |

<sup>a</sup> Scientific names and classification of plants follow the Integrated Taxonomic Information System (ITIS) (<http://www.itis.gov>).

<sup>b</sup> English common names and alphabetic (alpha) codes of plants follow the National PLANTS Database (USDA, NRCS 2004).

Table 7. Plants that have special conservation status in Washington and are known to occur in Buffalo Eddy.

| Common Name              | Scientific Name                                      | State Rank | Global Rank | ESA             |
|--------------------------|------------------------------------------------------|------------|-------------|-----------------|
| Waha milkvetch           | <i>Astragalus arthurii</i>                           | S2S3       | G5          |                 |
| Nez Perce mariposa lily  | <i>Calochortus macrocarpus</i> var. <i>maculosus</i> | S1         | G5T2        |                 |
| Sweetscented biscuitroot | <i>Lomatium serpentinum</i>                          | S2         | G4          |                 |
| Spalding's silene        | <i>Silene spaldingii</i>                             | S2         | G2          | LT <sup>b</sup> |

<sup>a</sup> These ranks reflect an assessment of the condition of the species rangewide (Global rank) and statewide (State rank). Rangewide ranks are assigned by NatureServe and statewide ranks for Washington are assigned by the Washington Natural Heritage Program.

G1 or S1 Critically imperiled (often 5 or fewer populations).  
G2 or S2 Imperiled (often 20 or fewer populations) at high risk of extinction or extirpation.  
G3 or S3 Vulnerable (often 80 or fewer populations) at moderate risk of extinction or extirpation.  
G4 or S4 Apparently secure, but some cause for long-term concern.  
G5 or S5 Secure—common, widespread, and abundant.  
B Breeding—conservation status refers to the breeding population of the species in the state.  
N Nonbreeding—conservation status refers to the non-breeding population of the species in the state.

<sup>b</sup>Listed threatened under the Endangered Species Act.



## Discussion

### Vertebrate Sampling

#### **Weippe Prairie**

This study represents the first phase of avian inventories at Weippe Prairie. Noteworthy was the discovery of sandhill crane (*Grus canadensis*) in Weippe Prairie, the northernmost extent of this species' range in Idaho. Distanced for years from the Weippe Prairie, the discovery of three sandhill cranes offers a tangible sign that they might emerge again as breeders. The loud rattling calls and duetting observed in these birds indicates courtship behavior (Tacha et al. 1992). Sandhill cranes form long-term pair bonds and their young may remain with the adults for up to 10 months (Tacha et al. 1992). The presence of a third individual sandhill crane at Weippe Prairie presents the possibility that it could be young from the previous year. However, that would mean that in this case, the young bird remained with the adults for longer than the 9–10 months typically observed in this species. The cranes foraged in close proximity to the domestic cattle that grazed in the open meadow. Researchers cite the maintenance of essential habitats as the primary need for all sandhill crane populations (Tacha et al. 1992).

Other conservationally significant species detected in Weippe Prairie include short-eared owl (*Asio flammeus*) and merlin (*Falco columbarius*). Short-eared owl is an open country, ground-nesting species that feeds primarily on *Microtus* sp. voles (Holt and Leasure 1993). As a ground-nester, the short-eared owl is particularly vulnerable to predation, habitat loss and degradation, and human disturbance (Holt and Leasure 1993). Timing of agricultural activities such as tilling, mowing, and burning can adversely affect this species in agricultural areas (Idaho Department of Fish and Game 2005). The short-eared owl has experienced rangewide population declines and management recommendations include the maintenance of large, continuous tracts of habitat for the owl and its prey (Holt and Leasure 1993) as well as actions that protect, enhance, or restore potentially suitable foraging and breeding habitats (Idaho Department of Fish and Game 2005).

The merlin was detected during the fall and was likely a migrant. This species inhabits semi-open habitats and sometimes nests in small groves of deciduous trees (Sodhi et al. 1993). Merlin was identified as an Idaho species of greatest conservation need because of regional threats and the lack of Idaho-specific population trend data (Idaho Department of Fish and Game 2005). The primary conservation issue for this species is the loss of habitat, which has caused losses of appropriate nest sites as well as a reduction in the prey base (Trimble 1975). Other important conservation issues include the potential effects of DDT (Fyfe et al. 1976; Oliphant and Thompson 1978; Becker and Sieg 1987), West Nile Virus (Idaho Department of Fish and Game 2005), poisoning from avicides directed toward European starling in feedlots, and habitat modification (Cade 1982). Because there are so few breeding merlins in Idaho, management activities designed specifically to benefit this species do not exist (Idaho Department of Fish and Game 2005).

Also of note was the detection of bobolink, a polygynous species that makes extraordinary migrations of up to 20,000 km round-trip between its breeding areas in North America and its wintering areas in South America (Martin and Gavin 1995). This species has experienced rangewide population declines because of changes in land use practices (Martin and Gavin

1995). It has a restricted range in Idaho and researchers believe that the disjunct western populations of this species are relicts from earlier periods of wetter climates, as evidenced by localized distributions in the West (Martin and Gavin 1995). The primary disturbance to nesting is haycropping. Mowing often coincides with the peak nesting period. Researchers recommend that fields can be mowed annually to maintain breeding habitat, but mowing should be delayed until early July or later to minimize impacts to fledglings, especially those that result from late renesting attempts (Martin and Gavin 1995). Natural prairies can also be managed by prescribed burns, but similar to mowing, this should be done after the nesting season or at least several weeks prior to the arrival of adults in the spring (Martin and Gavin 1995).

The presence of brown-headed cowbird at Weippe Prairie indicates potential negative impacts to a suite of songbird species that occur there. Brown-headed cowbird is a brood parasite and its pressure on host populations can be substantial (Lowther 1993). Of the top 17 brown-headed cowbird hosts cited by Lowther (1993), five either breed or are believed to breed in Weippe Prairie including common yellowthroat (*Geothlypis trichas*), red-winged blackbird (*Agelaius phoeniceus*), song sparrow (*Melospiza melodia*), willow flycatcher (*Empidonax traillii*), and yellow warbler (*Dendroica petechia*). In addition, the western meadowlark (*Sturnella neglecta*) is also a host species (Lowther 1993).

Likewise, the discovery of numerous American bullfrogs along the length of Jim Ford Creek, including three age classes (adult, young, tadpole), is of concern regarding native amphibians. We detected only one individual native amphibian at Weippe Prairie and it is plausible that this dearth can be attributed to the presence of the bullfrog. This presents a challenge to managing this site for native species.

To the northeast of Weippe Prairie lies Chapman Wetland. This area is used by shorebirds and waterbirds for migration and potentially explains the presence of long-billed dowitcher (*Limnodromus scolopaceus*) at Weippe Prairie during the September visit. But the exposed mudflats along Jim Ford Creek created shorebird habitat for both solitary sandpiper and greater yellowlegs in July 2007. The presence of Chapman Wetland and the mudflats along Jim Ford Creek increase the potential species diversity at Weippe Prairie.

### **Buffalo Eddy**

Of the 38 bird species detected in Buffalo Eddy between 2006 and 2007, 24 were among the 43 species detected in the 1999 avian inventory (Dixon 2005). Eleven species were added for the site in 2006, and 19 species recorded in 1999 were not recorded in 2006. However, the 1999 inventory was more comprehensive and spanned the course of a year. Three more bird species—spotted sandpiper, great horned owl, and Eastern kingbird—were added in 2007. Combining the two inventories, a total of 62 species have been documented in the site between 1999 and 2007 including 56 birds and six mammals (Table 3). No special status vertebrate species were detected in the current inventory.

Bullock's oriole (*Icterus bullockii*) was documented as a confirmed breeder in Buffalo Eddy in 2006, yet was not detected in 1999. This species is showy and vocal and would not likely be missed, if present. Bullock's oriole regularly breeds along the Clearwater, Salmon, and Snake Rivers, so its presence in Buffalo Eddy is consistent with local distribution. Another species

added in 2006 was the cedar waxwing (*Bombycilla cedrorum*). This species regularly occurs during the breeding season throughout north-central Idaho in both the river canyons as well as more mesic upland habitats. Western kingbird was documented as a confirmed breeder in both 1999 and 2006. This species is a common inhabitant of the arid river canyons and regularly nests on power poles in the area. Although detected in Buffalo Eddy in both 1999 and 2006, American goldfinch was documented as a breeder in 2006 based on the presence of an adult with a fledgling.

Because of Buffalo Eddy's small size (38 ha), encounter rate may be lower for rarer species such as the Cooper's hawk (*Accipiter cooperii*) and golden eagle (*Aquila chrysaetos*). Although not yet documented in Buffalo Eddy, peregrine falcon (*Falco peregrinus*) has been documented to breed in the Snake River canyon just upstream of Buffalo Eddy along the high cliffs. One of the most ubiquitous birds in Buffalo Eddy is the lazuli bunting (*Passerina amoena*), which, like black-headed grosbeak (*Pheucticus melanocephalus*), yellow warbler (*Dendroica petechia*), and yellow-breasted chat (*Icteria virens*), among others, occupies the netleaf hackberry-lined draws. These draws provide important nesting habitat for breeding birds as well as cover and foraging habitat for migrants. Song sparrow (*Melospiza melodia*) occupies the draws as well as the strip of vegetation between the river and the road. Defining the cliffs and rocky areas of the site are canyon wren (*Catherpes mexicanus*) and rock wren (*Salpinctes obsoletus*).

Four nonnative species were detected at Buffalo Eddy including California quail (*Callipepla californica*), chukar (*Alectoris chukar*), gray partridge (*Perdix perdix*), and rock pigeon (*Columba livia*). The effects of these species on the native species of Buffalo Eddy remains unclear. However, similar to Weippe Prairie, potential nest parasitism from the native brown-headed cowbird (*Molothrus ater*) exists at Buffalo Eddy for at least four species known to be cowbird hosts including song sparrow (*Melospiza melodia*), western meadowlark (*Sturnella neglecta*), yellow warbler (*Dendroica petechia*), and yellow-breasted chat (*Icteria virens*) (see Lowther 1993).

## **Vegetation Sampling**

### **Weippe Prairie**

Vegetation of the site has been greatly altered from its natural condition. Aerial photos show sharp transitions between fields and forested habitats, suggesting that fields were originally cleared from forest. The forests adjoining nearby fields are of Douglas-fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), and lodgepole pine (*Pinus contorta*). The higher relief areas in the site were probably forested, and the lower-lying areas were probably wetland meadows. Small camas (*Camassia quamash*), sedges (*Carex* spp.), rushes (*Juncus* spp.), native grasses (e.g., rough bentgrass [*Agrostis scabra*]), and a diversity of native forbs (e.g., nineleaf biscuitroot [*Lomatium triternatum*], slender cinquefoil [*Potentilla gracilis*], Cusick's Indian paintbrush [*Castilleja cusickii*], common yarrow [*Achillea millefolium*], littleflower penstemon [*Penstemon procerus*] and others) still occur in some of these areas. Small camas is abundant, even where pasture grasses dominate. Black hawthorn (*Crataegus douglasii*) thickets are common, especially near waterways.

Leiberg's umbrellawort (*Tauschia tenuissima*) was mapped in the Idaho Conservation Data Center database as covering a larger area of the park site in 1989. However, this observation corresponded to a visit on 5 May 1989, when the plants were in full bloom. In the present inventory, we documented this species on 22 May 2006, when the plants were in fruit. Because both the leaves and fruit of Leiberg's umbrellawort are linear, an earlier survey (when the white flowers are present) would facilitate accurate mapping of the current extent of the occurrence. In 1989, cultivation and grazing were listed as threats to this species.

Ditches that appear manufactured occur throughout the park site, and were probably dug to drain wet ground for conversion to pasture (Fig. 3). Many of these support native wetland species, but others are infested with reed canarygrass (*Phalaris arundinacea*).



Figure 3. Ditch with native sedges (*Carex* sp.).

Both the 80 acres (32 ha) cut for hay and the grazed remainder of the park site are dominated by non-native pasture grasses such as creeping bentgrass (*Agrostis stolonifera*), timothy (*Phleum pratense*) and meadow foxtail (*Alopecurus pratensis*). Native plants are confined primarily to the ponds, swales, creek and ditch edges, and fencelines. Some native plants, such as poverty rush (*Juncus tenuis*), were widespread.



Figure 4. Photograph of the landscape at Weippe Prairie showing grazed vegetation taken on 7 August 2006.

Orange hawkweed (*Hieracium aurantiacum*) and Canada thistle (*Cirsium arvense*) may still be controllable if treatment is initiated soon. The patches are not yet widespread (Fig. 5). Recommendations for management through chemical application are available from the Idaho Weed Resources Web site at <http://www.uidaho.edu/weeds/FRA/FRA.htm> (accessed 3 July 2007). Regarding herbicide use in wetlands, we are not aware of a list of approved herbicides for Idaho. However, a current list for Montana aquatic areas is available at (<http://agr.state.mt.us/weedpest/aquatics.asp>). Idaho rules for herbicide application would apply and would need to be consulted by applicators (IDFG, C. Murphy, Restoration Program Leader, personal communication, 3 July 2007). White willow (*Salix alba*) is another nonnative plant that can be extremely invasive. It occurs along a ditch south of the park sign, and should be considered for removal.



Figure 5. Landscape at Weippe Prairie showing orange hawkweed patch.

Jim Ford Creek is deeply incised, with headcutting upstream. On 23 October 2006, a foam covered the surface of the creek, which indicates a high organic load that could be either natural or unnatural (Fig. 6). A likely explanation for the foam is that abundant organics in a reducing situation produce a foam of mostly bacteria with some algae. It is unlikely that the algae present could produce enough oxygen to support an aerobic environment (IDFG, W. Poole, Staff Biologist, personal communication, 16 April 2007).



Figure 6. Foam on Jim Ford Creek, 23 October 2006.

### **Buffalo Eddy**

Topography determined the distribution of the general types of vegetation found. Different suites of plants occurred on ridgetops and southeast-facing slopes, gentle slopes, northerly slopes, and draws.

Gentle slopes: Yellow starthistle (*Centaurea solstitialis*), common chickweed (*Stellaria media*), and burr chervil (*Anthriscus caucalis*), infested the gentle slopes (Fig. 7). Winter vetch (*Vicia villosa*), cheatgrass (*Bromus tectorum*), common St. Johnswort (*Hypericum perforatum*), and tall tumblemustard (*Sisymbrium altissimum*) were also common. Few native species persist in these areas. They were probably heavily grazed in the past.



Figure 7. Weed infestation on gentle slope. The gray vegetation is yellow starthistle skeletons from the previous year. The green vegetation patches in the foreground are mats of burr chervil and common chickweed. The rust-brown skeletons are common St. Johnswort, and the tan horizontal strip near the center is tall tumblemustard stalks.

Ridgetops and southeast-facing slopes: Remnants of native vegetation indicate that the original communities on southeast aspects and rocky ridgetops were dominated by bluebunch wheatgrass (*Pseudoroegneria spicata*). A relatively pristine bluebunch wheatgrass stand on a ridge in the southeast corner of the park (Fig. 8) supports three rare plants: Waha milkvetch, sweetscented biscuitroot, and Nez Perce mariposa lily. Other native plants in the remnant included wavyleaf thistle (*Cirsium undulatum*), broom snakeweed (*Gutierrezia sarothrae*), common yarrow (*Achillea millefolium*), bigseed biscuitroot (*Lomatium macrocarpum*), largeflower triteleia (*Triteleia grandiflora*), and plains pricklypear (*Opuntia polyacantha*).



Figure 8. Waha milkvetch habitat, dominated by bluebunch wheatgrass. The tall plant on the ridgetop is Scotch cottonthistle (*Onopordum acanthium*).

Northerly aspects: Historically, the more north-facing aspects were probably Idaho fescue (*Festuca idahoensis*) grasslands, with prairie Junegrass (*Koeleria macrantha*), Cusick's bluegrass (*Poa cusickii*), and a diversity of forbs. Presently, burr chervil and other weeds infest the most northwest to northeast aspects (Fig. 9).



Figure 9. Northeast-facing hillside. Native bunchgrasses and phlox (*Phlox* sp.) persist, but a tangle of burr chervil and common chickweed (green vegetation) infests the interspaces.

Several small patches of native Idaho fescue grasslands occur throughout the park. The patches vary in composition. Prairie Junegrass dominates some, forbs such as whitestem fraseria (*Frasera albicaulis*), red besseya (*Besseya rubra*), longleaf fleabane (*Erigeron corymbosus*), prairie smoke (*Geum triflorum*), and houndstongue hawkweed (*Hieracium cynoglossoides*) characterize

others. In one forb-rich remnant of Idaho fescue grassland, we encountered a small population of Spalding's silene (Fig. 10).



Figure 10. Spalding's silene.

Draws: The draws are shrubby, with netleaf hackberry (*Celtis laevigata* var. *reticulata*), western poison ivy (*Toxicodendron rydbergii*), Saskatoon serviceberry (*Amelanchier alnifolia*), blue elderberry (*Sambucus nigra* ssp. *cerulea*), Lewis' mock orange (*Philadelphus lewisii*), and others. The rare plant sweetscented biscuitroot (Fig. 11) grows on some intrusive, granite-or quartzite-like rocks in at least one draw. Yellow starthistle, burr chervil, and cheatgrass grow in the moss (*Brachythecium albicans* and *Homalothecium nevadense*) on the rocks, and non-native Himalayan blackberry (*Rubus discolor*) has invaded the draws.



Figure 11. Sweetscented biscuitroot (center with yellow flowers), burr chervil (fern-like leaves in upper right), and yellow starthistle (plant above the left sweetscented biscuitroot umbel).

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## Appendix A. Checklist of anticipated vertebrate species in Weippe Prairie.

| Family           | Common name           | Scientific name                  | Park status      | Nativity  |
|------------------|-----------------------|----------------------------------|------------------|-----------|
| Accipitridae     | Cooper's hawk         | <i>Accipiter cooperii</i>        | Probably Present | Native    |
| Accipitridae     | Sharp-shinned hawk    | <i>Accipiter striatus</i>        | Probably Present | Native    |
| Scolopacidae     | Spotted sandpiper     | <i>Actitis macularius</i>        | Probably Present | Native    |
| Icteridae        | Red-winged blackbird  | <i>Agelaius phoeniceus</i>       | Present in Park  | Native    |
| Ambystomatidae   | Long-toed salamander  | <i>Ambystoma macrodactylum</i>   | Probably Present | Native    |
| Anatidae         | Mallard               | <i>Anas platyrhynchos</i>        | Present in Park  | Native    |
| Motacillidae     | American pipit        | <i>Anthus rubescens</i>          | Present in Park  | Native    |
| Ardeidae         | Great blue heron      | <i>Ardea Herodias</i>            | Present in Park  | Native    |
| Strigidae        | Short-eared owl       | <i>Asio flammeus</i>             | Present in Park  | Native    |
| Bombycillidae    | Cedar waxwing         | <i>Bombycilla cedrorum</i>       | Present in Park  | Native    |
| Bovidae          | Domestic cattle       | <i>Bos taurus</i>                | Present in Park  | Nonnative |
| Strigidae        | Great horned owl      | <i>Bubo virginianus</i>          | Probably Present | Native    |
| Bufonidae        | Western toad          | <i>Bufo boreas</i>               | Probably Present | Native    |
| Accipitridae     | Red-tailed hawk       | <i>Buteo jamaicensis</i>         | Probably Present | Native    |
| Canidae          | Coyote                | <i>Canis latrans</i>             | Present in Park  | Native    |
| Fringillidae     | American goldfinch    | <i>Carduelis tristis</i>         | Present in Park  | Native    |
| Cathartidae      | Turkey vulture        | <i>Cathartes aura</i>            | Present in Park  | Native    |
| Cervidae         | Elk                   | <i>Cervus elaphus</i>            | Probably Present | Native    |
| Charadriidae     | Killdeer              | <i>Charadrius vociferus</i>      | Present in Park  | Native    |
| Boidae           | Rubber boa            | <i>Charina bottae</i>            | Probably Present | Native    |
| Caprimulgidae    | Common nighthawk      | <i>Chordeiles minor</i>          | Probably Present | Native    |
| Accipitridae     | Northern harrier      | <i>Circus cyaneus</i>            | Present in Park  | Native    |
| Picidae          | Northern flicker      | <i>Colaptes auratus</i>          | Present in Park  | Native    |
| Corvidae         | American Crow         | <i>Corvus brachyrhynchos</i>     | Present in Park  | Native    |
| Corvidae         | Common raven          | <i>Corvus corax</i>              | Present in Park  | Native    |
| Parulidae        | Yellow-rumped warbler | <i>Dendroica coronata</i>        | Present in Park  | Native    |
| Parulidae        | Yellow warbler        | <i>Dendroica petechia</i>        | Present in Park  | Native    |
| Icteridae        | Bobolink              | <i>Dolichonyx oryzivorus</i>     | Present in Park  | Native    |
| Tyrannidae       | Willow flycatcher     | <i>Empidonax traillii</i>        | Present in Park  | Native    |
| Vespertilionidae | Big brown bat         | <i>Eptesicus fuscus</i>          | Probably Present | Native    |
| Alaudidae        | Horned lark           | <i>Eremophila alpestris</i>      | Present in Park  | Native    |
| Icteridae        | Brewer's blackbird    | <i>Euphagus cyanocephalus</i>    | Present in Park  | Native    |
| Falconidae       | Merlin                | <i>Falco columbarius</i>         | Present in Park  | Native    |
| Falconidae       | American kestrel      | <i>Falco sparverius</i>          | Probably Present | Native    |
| Scolopacidae     | Wilson's snipe        | <i>Gallinago delicata</i>        | Present in Park  | Native    |
| Parulidae        | Common yellowthroat   | <i>Geothlypis trichas</i>        | Present in Park  | Native    |
| Gruidae          | Sandhill crane        | <i>Grus canadensis</i>           | Present in Park  | Native    |
| Hirundinidae     | Barn swallow          | <i>Hirundo rustica</i>           | Present in Park  | Native    |
| Vespertilionidae | Silver-haired bat     | <i>Lasionycteris noctivagans</i> | Probably Present | Native    |
| Vespertilionidae | Hoary bat             | <i>Lasiurus cinereus</i>         | Probably Present | Native    |
| Scolopacidae     | Long-billed dowitcher | <i>Limnodromus scolopaceus</i>   | Present in Park  | Native    |
| Mustelidae       | Northern river otter  | <i>Lontra canadensis</i>         | Present in Park  | Native    |
| Emberizidae      | Song sparrow          | <i>Melospiza melodia</i>         | Present in Park  | Native    |
| Mephitidae       | Striped skunk         | <i>Mephitis mephitis</i>         | Probably Present | Native    |
| Muridae          | Long-tailed vole      | <i>Microtus longicaudus</i>      | Probably Present | Native    |
| Muridae          | Meadow vole           | <i>Microtus pennsylvanicus</i>   | Probably Present | Native    |
| Muridae          | Water vole            | <i>Microtus richardsoni</i>      | Present in Park  | Native    |
| Icteridae        | Brown-headed cowbird  | <i>Molothrus ater</i>            | Present in Park  | Native    |
| Mustelidae       | Long-tailed weasel    | <i>Mustela frenata</i>           | Probably Present | Native    |
| Vespertilionidae | Long-eared myotis     | <i>Myotis evotis</i>             | Probably Present | Native    |
| Vespertilionidae | Little brown myotis   | <i>Myotis lucifugus</i>          | Probably Present | Native    |
| Vespertilionidae | Long-legged myotis    | <i>Myotis volans</i>             | Probably Present | Native    |
| Vespertilionidae | Yuma myotis           | <i>Myotis yumanensis</i>         | Probably Present | Native    |

| Family       | Common name                      | Scientific name                   | Park status      | Nativity  |
|--------------|----------------------------------|-----------------------------------|------------------|-----------|
| Cervidae     | Mule deer, white-tailed deer     | <i>Odocoileus</i>                 | Present in Park  | Native    |
| Muridae      | Muskrat                          | <i>Ondatra zibethicus</i>         | Probably Present | Native    |
| Emberizidae  | Savannah sparrow                 | <i>Passerculus sandwichensis</i>  | Present in Park  | Native    |
| Muridae      | Deer mouse                       | <i>Peromyscus maniculatus</i>     | Probably Present | Native    |
| Hirundinidae | Cliff swallow                    | <i>Petrochelidon pyrrhonota</i>   | Present in Park  | Native    |
| Phasianidae  | Ring-necked pheasant             | <i>Phasianus colchicus</i>        | Present in Park  | Nonnative |
| Corvidae     | Black-billed magpie              | <i>Pica hudsonia</i>              | Present in Park  | Native    |
| Procyonidae  | Northern raccoon                 | <i>Procyon lotor</i>              | Present in Park  | Native    |
| Hylidae      | Pacific treefrog                 | <i>Pseudacris regilla</i>         | Present in Park  | Native    |
| Ranidae      | American bullfrog                | <i>Rana catesbeiana</i>           | Present in Park  | Nonnative |
| Ranidae      | Columbia spotted frog            | <i>Rana luteiventris</i>          | Probably Present | Native    |
| Soricidae    | American pygmy shrew             | <i>Sorex hoyi</i>                 | Probably Present | Native    |
| Soricidae    | Dusky shrew, montane shrew       | <i>Sorex monticolus</i>           | Probably Present | Native    |
| Soricidae    | American water shrew             | <i>Sorex palustris</i>            | Probably Present | Native    |
| Soricidae    | Vagrant shrew                    | <i>Sorex vagrans</i>              | Probably Present | Native    |
| Sciuridae    | Columbian ground squirrel        | <i>Spermophilus columbianus</i>   | Probably Present | Native    |
| Hirundinidae | Northern rough-winged swallow    | <i>Stelgidopteryx serripennis</i> | Present in Park  | Native    |
| Icteridae    | Western meadowlark               | <i>Sturnella neglecta</i>         | Present in Park  | Native    |
| Sturnidae    | European starling                | <i>Sturnus vulgaris</i>           | Present in Park  | Nonnative |
| Leporidae    | Mountain cottontail              | <i>Sylvilagus nuttallii</i>       | Probably Present | Native    |
| Hirundinidae | Tree swallow                     | <i>Tachycineta bicolor</i>        | Present in Park  | Native    |
| Colubridae   | Western terrestrial garter snake | <i>Thamnophis elegans</i>         | Probably Present | Native    |
| Colubridae   | Common garter snake              | <i>Thamnophis sirtalis</i>        | Present in Park  | Native    |
| Geomyidae    | Northern pocket gopher           | <i>Thomomys talpoides</i>         | Present in Park  | Native    |
| Scolopacidae | Greater yellowlegs               | <i>Tringa melanoleuca</i>         | Present in Park  | Native    |
| Scolopacidae | Solitary sandpiper               | <i>Tringa solitaria</i>           | Present in Park  | Native    |
| Turdidae     | American robin                   | <i>Turdus migratorius</i>         | Present in Park  | Native    |
| Tyrannidae   | Eastern kingbird                 | <i>Tyrannus tyrannus</i>          | Present in Park  | Native    |
| Canidae      | Red fox                          | <i>Vulpes vulpes</i>              | Probably Present | Native    |
| Dipodidae    | Western jumping mouse            | <i>Zapus princeps</i>             | Present in Park  | Native    |
| Columbidae   | Mourning dove                    | <i>Zenaida macroura</i>           | Present in Park  | Native    |
| Emberizidae  | White-crowned sparrow            | <i>Zonotrichia leucophrys</i>     | Present in Park  | Native    |

## Appendix B. Checklist of anticipated vertebrate species in Buffalo Eddy.

| Family           | Common name              | Scientific name                  | Park status      | Nativity  |
|------------------|--------------------------|----------------------------------|------------------|-----------|
| Accipitridae     | Cooper's hawk            | <i>Accipiter cooperii</i>        | Present in Park  | Native    |
| Accipitridae     | Sharp-shinned hawk       | <i>Accipiter striatus</i>        | Probably Present | Native    |
| Scolopacidae     | Spotted sandpiper        | <i>Actitis macularius</i>        | Present in Park  | Native    |
| Icteridae        | Red-winged blackbird     | <i>Agelaius phoeniceus</i>       | Present in Park  | Native    |
| Phasianidae      | Chukar                   | <i>Alectoris chukar</i>          | Present in Park  | Nonnative |
| Ambystomatidae   | Long-toed salamander     | <i>Ambystoma macrodactylum</i>   | Probably Present | Native    |
| Ambystomatidae   | Tiger salamander         | <i>Ambystoma tigrinum</i>        | Probably Present | Native    |
| Vespertilionidae | Pallid bat               | <i>Antrozous pallidus</i>        | Probably Present | Native    |
| Accipitridae     | Golden eagle             | <i>Aquila chrysaetos</i>         | Present in Park  | Native    |
| Ardeidae         | Great blue heron         | <i>Ardea Herodias</i>            | Probably Present | Native    |
| Strigidae        | Short-eared owl          | <i>Asio flammeus</i>             | Probably Present | Native    |
| Bombycillidae    | Cedar waxwing            | <i>Bombycilla cedrorum</i>       | Present in Park  | Native    |
| Anatidae         | Canada goose             | <i>Branta Canadensis</i>         | Present in Park  | Native    |
| Strigidae        | Great horned owl         | <i>Bubo virginianus</i>          | Present in Park  | Native    |
| Bufo             | Western toad             | <i>Bufo boreas</i>               | Probably Present | Native    |
| Accipitridae     | Red-tailed hawk          | <i>Buteo jamaicensis</i>         | Present in Park  | Native    |
| Odontophoridae   | California quail         | <i>Callipepla californica</i>    | Present in Park  | Nonnative |
| Canidae          | Coyote                   | <i>Canis latrans</i>             | Probably Present | Native    |
| Fringillidae     | American goldfinch       | <i>Carduelis tristis</i>         | Present in Park  | Native    |
| Fringillidae     | House finch              | <i>Carpodacus mexicanus</i>      | Present in Park  | Native    |
| Cathartidae      | Turkey vulture           | <i>Cathartes aura</i>            | Probably Present | Native    |
| Troglodytidae    | Canyon wren              | <i>Catherpes mexicanus</i>       | Present in Park  | Native    |
| Alcedinidae      | Belted kingfisher        | <i>Ceryle alcyon</i>             | Present in Park  | Native    |
| Charadriidae     | Killdeer                 | <i>Charadrius vociferus</i>      | Present in Park  | Native    |
| Boidae           | Rubber boa               | <i>Charina bottae</i>            | Probably Present | Native    |
| Caprimulgidae    | Common nighthawk         | <i>Chordeiles minor</i>          | Present in Park  | Native    |
| Accipitridae     | Northern harrier         | <i>Circus cyaneus</i>            | Present in Park  | Native    |
| Picidae          | Northern flicker         | <i>Colaptes auratus</i>          | Present in Park  | Native    |
| Colubridae       | Racer                    | <i>Coluber constrictor</i>       | Probably Present | Native    |
| Columbidae       | Rock pigeon              | <i>Columba livia</i>             | Present in Park  | Nonnative |
| Tyrannidae       | Western wood-pewee       | <i>Contopus sordidulus</i>       | Present in Park  | Native    |
| Corvidae         | American crow            | <i>Corvus brachyrhynchos</i>     | Present in Park  | Native    |
| Corvidae         | Common raven             | <i>Corvus corax</i>              | Present in Park  | Native    |
| Vespertilionidae | Townsend's big-eared bat | <i>Corynorhinus townsendii</i>   | Encroaching      | Native    |
| Viperidae        | Western rattlesnake      | <i>Crotalus oreganus</i>         | Probably Present | Native    |
| Parulidae        | Yellow-rumped warbler    | <i>Dendroica coronata</i>        | Present in Park  | Native    |
| Parulidae        | Yellow warbler           | <i>Dendroica petechia</i>        | Present in Park  | Native    |
| Colubridae       | Ringneck snake           | <i>Diadophis punctatus</i>       | Probably Present | Native    |
| Tyrannidae       | Willow flycatcher        | <i>Empidonax traillii</i>        | Present in Park  | Native    |
| Vespertilionidae | Big brown bat            | <i>Eptesicus fuscus</i>          | Probably Present | Native    |
| Alaudidae        | Horned lark              | <i>Eremophila alpestris</i>      | Probably Present | Native    |
| Scincidae        | Western skink            | <i>Eumeces skiltonianus</i>      | Probably Present | Native    |
| Falconidae       | American kestrel         | <i>Falco sparverius</i>          | Present in Park  | Native    |
| Accipitridae     | Bald eagle               | <i>Haliaeetus leucocephalus</i>  | Probably Present | Native    |
| Hirundinidae     | Barn swallow             | <i>Hirundo rustica</i>           | Probably Present | Native    |
| Colubridae       | Nightsnake               | <i>Hypsiglena torquata</i>       | Probably Present | Native    |
| Parulidae        | Yellow-breasted chat     | <i>Icteria virens</i>            | Present in Park  | Native    |
| Icteridae        | Bullock's oriole         | <i>Icterus bullockii</i>         | Present in Park  | Native    |
| Emberizidae      | Dark-eyed junco          | <i>Junco hyemalis</i>            | Present in Park  | Native    |
| Laridae          | Gulls                    | <i>Larus</i>                     | Present in Park  | Native    |
| Vespertilionidae | Silver-haired bat        | <i>Lasiorycteris noctivagans</i> | Probably Present | Native    |
| Vespertilionidae | Hoary bat                | <i>Lasiurus cinereus</i>         | Probably Present | Native    |
| Felidae          | Bobcat                   | <i>Lynx rufus</i>                | Probably Present | Native    |

| Family           | Common name                      | Scientific name                  | Park status      | Nativity  |
|------------------|----------------------------------|----------------------------------|------------------|-----------|
| Strigidae        | Western screech-owl              | <i>Megascops kennicottii</i>     | Present in Park  | Native    |
| Emberizidae      | Song sparrow                     | <i>Melospiza melodia</i>         | Present in Park  | Native    |
| Mephitidae       | Striped skunk                    | <i>Mephitis mephitis</i>         | Present in Park  | Native    |
| Anatidae         | Common merganser                 | <i>Mergus merganser</i>          | Present in Park  | Native    |
| Muridae          | Montane vole                     | <i>Microtus montanus</i>         | Present in Park  | Native    |
| Icteridae        | Brown-headed cowbird             | <i>Molothrus ater</i>            | Present in Park  | Native    |
| Mustelidae       | Long-tailed weasel               | <i>Mustela frenata</i>           | Probably Present | Native    |
| Mustelidae       | American mink                    | <i>Mustela vison</i>             | Probably Present | Native    |
| Vespertilionidae | Western small-footed bat         | <i>Myotis ciliolabrum</i>        | Probably Present | Native    |
| Vespertilionidae | Long-eared myotis                | <i>Myotis evotis</i>             | Probably Present | Native    |
| Vespertilionidae | Little brown myotis              | <i>Myotis lucifugus</i>          | Probably Present | Native    |
| Vespertilionidae | Fringed myotis                   | <i>Myotis thysanodes</i>         | Probably Present | Native    |
| Vespertilionidae | Yuma myotis                      | <i>Myotis yumanensis</i>         | Probably Present | Native    |
| Muridae          | Bushy-tailed woodrat             | <i>Neotoma cinerea</i>           | Present in Park  | Native    |
| Cervidae         | Mule deer                        | <i>Odocoileus hemionus</i>       | Present in Park  | Native    |
| Parulidae        | MacGillivray's Warbler           | <i>Oporornis tolmiei</i>         | Present in Park  | Native    |
| Bovidae          | Bighorn sheep                    | <i>Ovis canadensis</i>           | Probably Present | Native    |
| Cardinalidae     | Lazuli bunting                   | <i>Passerina amoena</i>          | Present in Park  | Native    |
| Phasianidae      | Gray partridge                   | <i>Perdix perdix</i>             | Present in Park  | Nonnative |
| Heteromyidae     | Great basin pocket mouse         | <i>Perognathus parvus</i>        | Probably Present | Native    |
| Muridae          | Deer mouse                       | <i>Peromyscus maniculatus</i>    | Probably Present | Native    |
| Hirundinidae     | Cliff swallow                    | <i>Petrochelidon pyrrhonota</i>  | Present in Park  | Native    |
| Caprimulgidae    | Common poorwill                  | <i>Phalaenoptilus nuttallii</i>  | Probably Present | Native    |
| Cardinalidae     | Black-headed grosbeak            | <i>Pheucticus melanocephalus</i> | Present in Park  | Native    |
| Phrynosomatidae  | Pygmy short-horned lizard        | <i>Phrynosoma douglasii</i>      | Probably Present | Native    |
| Corvidae         | Black-billed magpie              | <i>Pica hudsonia</i>             | Present in Park  | Native    |
| Emberizidae      | Spotted towhee                   | <i>Pipilo maculatus</i>          | Present in Park  | Native    |
| Vespertilionidae | Western pipistrelle              | <i>Pipistrellus hesperus</i>     | Probably Present | Native    |
| Thraupidae       | Western tanager                  | <i>Piranga ludoviciana</i>       | Probably Present | Native    |
| Colubridae       | Gopher snake                     | <i>Pituophis catenifer</i>       | Probably Present | Native    |
| Paridae          | Black-capped chickadee           | <i>Poecile atricapillus</i>      | Present in Park  | Native    |
| Procyonidae      | Northern raccoon                 | <i>Procyon lotor</i>             | Present in Park  | Native    |
| Hylidae          | Pacific treefrog                 | <i>Pseudacris regilla</i>        | Probably Present | Native    |
| Felidae          | Mountain lion                    | <i>Puma concolor</i>             | Probably Present | Native    |
| Ranidae          | American bullfrog                | <i>Rana catesbeiana</i>          | Probably Present | Nonnative |
| Ranidae          | Columbia spotted frog            | <i>Rana luteiventris</i>         | Probably Present | Native    |
| Regulidae        | Ruby-crowned kinglet             | <i>Regulus calendula</i>         | Present in Park  | Native    |
| Regulidae        | Golden-crowned kinglet           | <i>Regulus satrapa</i>           | Present in Park  | Native    |
| Muridae          | Western harvest mouse            | <i>Reithrodontomys megalotis</i> | Probably Present | Native    |
| Troglodytidae    | Rock wren                        | <i>Salpinctes obsoletus</i>      | Present in Park  | Native    |
| Tyrannidae       | Say's phoebe                     | <i>Sayornis saya</i>             | Present in Park  | Native    |
| Phrynosomatidae  | Western fence lizard             | <i>Sceloporus occidentalis</i>   | Probably Present | Native    |
| Soricidae        | Merriam's shrew                  | <i>Sorex merriami</i>            | Probably Present | Native    |
| Soricidae        | Vagrant shrew                    | <i>Sorex vagrans</i>             | Probably Present | Native    |
| Scaphiopodidae   | Great basin spadefoot            | <i>Spea intermontana</i>         | Probably Present | Native    |
| Sciuridae        | Columbian ground squirrel        | <i>Spermophilus columbianus</i>  | Probably Present | Native    |
| Mephitidae       | Spotted skunk                    | <i>Spilogale putorius</i>        | Probably Present | Native    |
| Icteridae        | Western meadowlark               | <i>Sturnella neglecta</i>        | Present in Park  | Native    |
| Leporidae        | Mountain cottontail              | <i>Sylvilagus nuttallii</i>      | Present in Park  | Native    |
| Hirundinidae     | Violet-green swallow             | <i>Tachycineta thalassina</i>    | Present in Park  | Native    |
| Mustelidae       | American badger                  | <i>Taxidea taxus</i>             | Probably Present | Native    |
| Colubridae       | Western terrestrial garter snake | <i>Thamnophis elegans</i>        | Probably Present | Native    |
| Colubridae       | Common garter snake              | <i>Thamnophis sirtalis</i>       | Probably Present | Native    |
| Geomyidae        | Northern pocket gopher           | <i>Thomomys talpoides</i>        | Probably Present | Native    |
| Troglodytidae    | Bewick's wren                    | <i>Thryomanes bewickii</i>       | Present in Park  | Native    |
| Troglodytidae    | Winter wren                      | <i>Troglodytes troglodytes</i>   | Present in Park  | Native    |

| Family      | Common name           | Scientific name               | Park status     | Nativity |
|-------------|-----------------------|-------------------------------|-----------------|----------|
| Turdidae    | American robin        | <i>Turdus migratorius</i>     | Present in Park | Native   |
| Tyrannidae  | Eastern kingbird      | <i>Tyrannus tyrannus</i>      | Present in Park | Native   |
| Tyrannidae  | Western kingbird      | <i>Tyrannus verticalis</i>    | Present in Park | Native   |
| Columbidae  | Mourning dove         | <i>Zenaida macroura</i>       | Present in Park | Native   |
| Emberizidae | White-crowned sparrow | <i>Zonotrichia leucophrys</i> | Present in Park | Native   |
| Trochilidae | Hummingbirds          |                               | Present in Park | Native   |

Appendix C. UTM coordinates for observed rare plants, orange hawkweed, confirmed bird nests, and special status vertebrate species, Nez Perce National Historical Park, 2006–2007.

| WAYPOINT | CODE  | SITE         | DATE      | EASTING | NORTHING | TYPE |
|----------|-------|--------------|-----------|---------|----------|------|
| 5        | ASAR8 | Buffalo Eddy | 4/22/2006 | 504969  | 5112921  |      |
| 6        | ASAR8 | Buffalo Eddy | 4/22/2006 | 505076  | 5112998  |      |
| 7        | ASAR8 | Buffalo Eddy | 4/22/2006 | 505076  | 5112998  |      |
| 172      | ASAR8 | Buffalo Eddy | 5/30/2006 | 505077  | 5113004  |      |
| 709      | ASAR8 | Buffalo Eddy |           | 505074  | 5113060  |      |
| 745      | ASAR8 | Buffalo Eddy | 5/11/2007 | 505086  | 5113121  |      |
| 746      | ASAR8 | Buffalo Eddy | 5/11/2007 | 505072  | 5113060  |      |
| 750      | ASAR8 | Buffalo Eddy | 5/11/2007 | 505137  | 5113043  |      |
| 789      | ASAR8 | Buffalo Eddy | 5/11/2007 | 505064  | 5113062  |      |
| 791      | ASAR8 | Buffalo Eddy | 5/11/2007 | 505068  | 5113059  |      |
| 792      | ASAR8 | Buffalo Eddy | 5/11/2007 | 505073  | 5113060  |      |
| 796      | ASAR8 | Buffalo Eddy | 5/11/2007 | 505079  | 5113052  |      |
| 798      | ASAR8 | Buffalo Eddy | 5/11/2007 | 505082  | 5113048  |      |
| 817      | ASAR8 | Buffalo Eddy | 5/11/2007 | 504942  | 5113249  |      |
| 865      | ASAR8 | Buffalo Eddy | 5/29/2007 | 505073  | 5112998  |      |
| 0        | CAMAM | Buffalo Eddy | 6/23/2006 | 504814  | 5113248  |      |
| 6        | CAMAM | Buffalo Eddy | 4/22/2006 | 505076  | 5112998  |      |
| 172      | CAMAM | Buffalo Eddy | 5/30/2006 | 505077  | 5113004  |      |
| 710      | CAMAM | Buffalo Eddy | 6/23/2006 | 504865  | 5112965  |      |
| 711      | CAMAM | Buffalo Eddy | 6/23/2006 | 504981  | 5112950  |      |
| 712      | CAMAM | Buffalo Eddy | 5/30/2006 | 504702  | 5113340  |      |
| 787      | CAMAM | Buffalo Eddy | 5/11/2007 | 505061  | 5113066  |      |
| 788      | CAMAM | Buffalo Eddy | 5/11/2007 | 505064  | 5113062  |      |
| 789      | CAMAM | Buffalo Eddy | 5/11/2007 | 505064  | 5113062  |      |
| 791      | CAMAM | Buffalo Eddy | 5/11/2007 | 505068  | 5113059  |      |
| 801      | CAMAM | Buffalo Eddy | 5/11/2007 | 505081  | 5113028  |      |
| 802      | CAMAM | Buffalo Eddy | 5/11/2007 | 505077  | 5113022  |      |
| 803      | CAMAM | Buffalo Eddy | 5/11/2007 | 505067  | 5113019  |      |
| 805      | CAMAM | Buffalo Eddy | 5/11/2007 | 505070  | 5113005  |      |
| 809      | CAMAM | Buffalo Eddy | 5/11/2007 | 505054  | 5112967  |      |
| 864      | CAMAM | Buffalo Eddy | 5/29/2007 | 505088  | 5112972  |      |
| 879      | CAMAM | Buffalo Eddy | 5/29/2007 | 504437  | 5113556  |      |
| 1        | LOSE2 | Buffalo Eddy | 4/22/2006 | 504890  | 5113318  |      |
| 2        | LOSE2 | Buffalo Eddy | 4/22/2006 | 504885  | 5113313  |      |
| 158      | LOSE2 | Buffalo Eddy | 5/30/2006 | 504878  | 5113319  |      |
| 775      | LOSE2 | Buffalo Eddy | 5/11/2007 | 505084  | 5113290  |      |
| 776      | LOSE2 | Buffalo Eddy | 5/11/2007 | 505080  | 5113276  |      |
| 777      | LOSE2 | Buffalo Eddy | 5/11/2007 | 505077  | 5113296  |      |
| 169      | SISP2 | Buffalo Eddy | 5/30/2006 | 504425  | 5113604  |      |
| 170      | SISP2 | Buffalo Eddy | 5/30/2006 | 504430  | 5113594  |      |
| 867      | SISP2 | Buffalo Eddy | 5/29/2007 | 504426  | 5113602  |      |
| 868      | SISP2 | Buffalo Eddy | 5/29/2007 | 504424  | 5113601  |      |
| 869      | SISP2 | Buffalo Eddy | 5/29/2007 | 504426  | 5113602  |      |
| 870      | SISP2 | Buffalo Eddy | 5/29/2007 | 504422  | 5113603  |      |
| 871      | SISP2 | Buffalo Eddy | 5/29/2007 | 504426  | 5113596  |      |
| 873      | SISP2 | Buffalo Eddy | 5/29/2007 | 504430  | 5113594  |      |

| WAYPOINT | CODE  | SITE           | DATE       | EASTING | NORTHING | TYPE     |
|----------|-------|----------------|------------|---------|----------|----------|
| 874      | SISP2 | Buffalo Eddy   | 5/29/2007  | 504414  | 5113599  |          |
| 875      | SISP2 | Buffalo Eddy   | 5/29/2007  | 504413  | 5113594  |          |
| 876      | SISP2 | Buffalo Eddy   | 5/29/2007  | 504411  | 5113595  |          |
| 877      | SISP2 | Buffalo Eddy   | 5/29/2007  | 504422  | 5113602  |          |
| 878      | SISP2 | Buffalo Eddy   | 5/29/2007  | 504422  | 5113600  |          |
| 83       | TATE3 | Weippe Prairie | 5/22/2006  | 582804  | 5133486  |          |
| 84       | TATE3 | Weippe Prairie | 5/22/2006  | 582772  | 5133471  |          |
| 85       | TATE3 | Weippe Prairie | 5/22/2006  | 582746  | 5133469  |          |
| 86       | TATE3 | Weippe Prairie | 5/22/2006  | 582647  | 5133505  |          |
| 87       | TATE3 | Weippe Prairie | 5/22/2006  | 582623  | 5133501  |          |
| 88       | TATE3 | Weippe Prairie | 5/22/2006  | 582491  | 5133260  |          |
| 89       | TATE3 | Weippe Prairie | 5/22/2006  | 582588  | 5133376  |          |
| 90       | TATE3 | Weippe Prairie | 5/22/2006  | 582600  | 5133401  |          |
| 187      | TATE3 | Weippe Prairie | 6/8/2006   | 583282  | 5133954  |          |
| 188      | TATE3 | Weippe Prairie | 6/8/2006   | 583258  | 5133961  |          |
| 189      | TATE3 | Weippe Prairie | 6/8/2006   | 583258  | 5133962  |          |
| 439      | TATE3 | Weippe Prairie | 10/23/2006 | 582646  | 5133404  |          |
| 440      | TATE3 | Weippe Prairie | 10/23/2006 | 582740  | 5133507  |          |
| 441      | TATE3 | Weippe Prairie | 10/23/2006 | 582755  | 5133508  |          |
| 442      | TATE3 | Weippe Prairie | 10/23/2006 | 582801  | 5133508  |          |
| 185      | HIAU  | Weippe Prairie | 6/8/2006   | 583332  | 5133945  |          |
| 186      | HIAU  | Weippe Prairie | 6/8/2006   | 583289  | 5133954  |          |
| 191      | HIAU  | Weippe Prairie | 6/8/2006   | 583184  | 5134048  |          |
| 193      | HIAU  | Weippe Prairie | 6/8/2006   | 583081  | 5134111  |          |
| 194      | HIAU  | Weippe Prairie | 6/8/2006   | 582992  | 5134170  |          |
| 196      | HIAU  | Weippe Prairie | 6/8/2006   | 582977  | 5134245  |          |
| 197      | HIAU  | Weippe Prairie | 6/8/2006   | 582851  | 5134377  |          |
| 199      | HIAU  | Weippe Prairie | 6/8/2006   | 582897  | 5134308  |          |
|          | SEOW  | Weippe Prairie | 6/22/2006  | 582627  | 5134459  | Sighting |
|          | SACR  | Weippe Prairie | 6/22/2006  | 582853  | 5134548  | Sighting |
|          | SACR  | Weippe Prairie | 6/22/2006  | 582498  | 5134710  | Sighting |
|          | WEKI  | Buffalo Eddy   | 6/23/2006  | 505070  | 5113261  | Nest     |
|          | BUOR  | Buffalo Eddy   | 6/23/2006  | 504894  | 5113341  | Nest     |
|          | WEKI  | Buffalo Eddy   | 6/23/2006  | 504898  | 5113358  | Nest     |

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**National Park Service  
U.S. Department of the Interior**

**National Resource Program Center**



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