

# 2009 Annual Report

## Idaho Bird Observatory Fall Migration Monitoring of Raptors and Songbirds, Boise Ridge, Idaho



Juvenile Broad-winged Hawk  
(*Buteo platypterus*)

Prepared by:  
Idaho Bird Observatory  
Department of Biology  
Boise State University  
Boise, ID 83725



**IDAHO BIRD OBSERVATORY**

**Fall Migration Monitoring of Raptors and Songbirds, Boise Ridge, Idaho**

**Annual Report, Fall 2009**



**Prepared By**

**Gregory S. Kaltenecker  
Jay D. Carlisle  
Jon Kaufmann**

**Preston Alden  
David Rankin  
Sean Roedl**

**Jacklyn Slawson  
Marc J. Bechard**

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## Abstract

The Idaho Bird Observatory (IBO) is a Boise State University Academic Research Program. The IBO's mission is to contribute to the conservation of Western migratory landbirds through cooperative research and public education. The IBO's longest-running research and education effort is a fall migration project located on the Boise Ridge. The Boise Ridge is one of only a few known sites where great numbers of diurnal raptors, songbirds, and forest owls concentrate during fall migration. This site presents a unique opportunity to study the migration biology of many different kinds of birds in one locality. Studies have identified important habitats used by migrants, breeding and wintering areas, and have contributed to long-term population monitoring. The site offers a unique opportunity for wildlife viewing. Hundreds of visitors each year travel to IBO research sites to view songbirds, raptors, and forest owls. We have established a community volunteer program to provide the public with opportunities to participate in IBO programs. All standardized migration monitoring projects continued during fall 2009.

During fall 2009, we counted migrating raptors on 65 days for a total of 474 hours. We counted a record 8,239 migrant raptors for a passage rate of 17.4 raptors per hour, well above the 15-year average of 13.0 raptors per hour. Counts of Sharp-shinned Hawks, Red-tailed Hawks, Cooper's Hawks, Turkey Vultures, Northern Harriers, Swainson's Hawks, Osprey, Merlins, Ferruginous Hawks, Broad-winged Hawks, and Peregrine Falcons were all well above long-term averages. However, counts of Golden Eagles and Northern Goshawks were below long-term averages. Overall, counts of migrant raptors at Lucky Peak during 2009 were the highest ever recorded during 15 years of standardized monitoring.

We banded a total of 1,223 diurnal raptors in 2009 at two banding stations during 110 station-days of operation, for a capture rate of 11.1 raptors per station-day. The most commonly-banded raptors were Sharp-shinned Hawks, Cooper's Hawks, American Kestrels, Merlins, and Red-tailed Hawks. To date, we have received a total of 105 band encounters from raptors banded on the Boise Ridge. Three general patterns are evident from studying Idaho Bird Observatory band encounters: 1) mid-winter recoveries of Sharp-shinned and Cooper's Hawks come from western Mexico in the states of Sinaloa, Colima, and farther south; 2) mid-winter recoveries of Red-tailed Hawks come from California's Central Valley; and 3) spring and summer recoveries of Sharp-shinned and Cooper's Hawks come from as far north as central British Columbia.

In songbird mist nets, we captured 5,748 landbirds of 61 species during 4,364 mist-net hours for a capture rate of 1.317 birds per mist-net hour. The most commonly-captured species included Dark-eyed Junco, Western Tanager, Ruby-Crowned Kinglet, White-crowned Sparrow, Dusky Flycatcher, Spotted Towhee, MacGillivray's Warbler, Yellow-rumped (Audubon's) Warbler, Nashville Warbler, and Yellow Warbler. Record-high captures were set for seven species including Western Tanager, Cassin's Vireo, Lazuli Bunting, Swainson's Thrush, Black-chinned Hummingbird, Song Sparrow, and Savannah Sparrow.

Rarities banded included Hermit Warbler, Indigo Bunting, Green-tailed Towhee, Gray Flycatcher, Yellow-breasted Chat, American Redstart, Rose-breasted Grosbeak, Least Flycatcher, White-breasted Nuthatch, and Varied Thrush.

During fall 2009 we mist netted for forest owls on 55 nights for a total of 1,014 station-hours. We banded a total of 182 owls including 27 Flammulated Owls, 152 Northern Saw-whet Owls, 2 Long-eared Owls, and 1 Western Screech Owl.

A record 23 groups including over 450 participants scheduled visits to Lucky Peak during 2009. Groups included Golden Eagle Audubon Society, Idaho Department of Fish and Game Project Wild, Foothills School, Anser Charter School, the Environmental Resource Center, The Boys and Girls Club of Ada County, and several local Scouting groups. The majority of these visits occurred during September and early October.

In 2009, 35 different volunteers contributed 952 days, totaling approximately 7,956 hours of volunteer service to assist with IBO projects. The estimated cash value of this volunteer time and volunteer vehicle contributions was \$223,463.20.

Ongoing graduate research projects associated with IBO during fall 2009 included a study of stress response in raptors and a study of observer bias and detectability of raptors associated with hawk migration counts.

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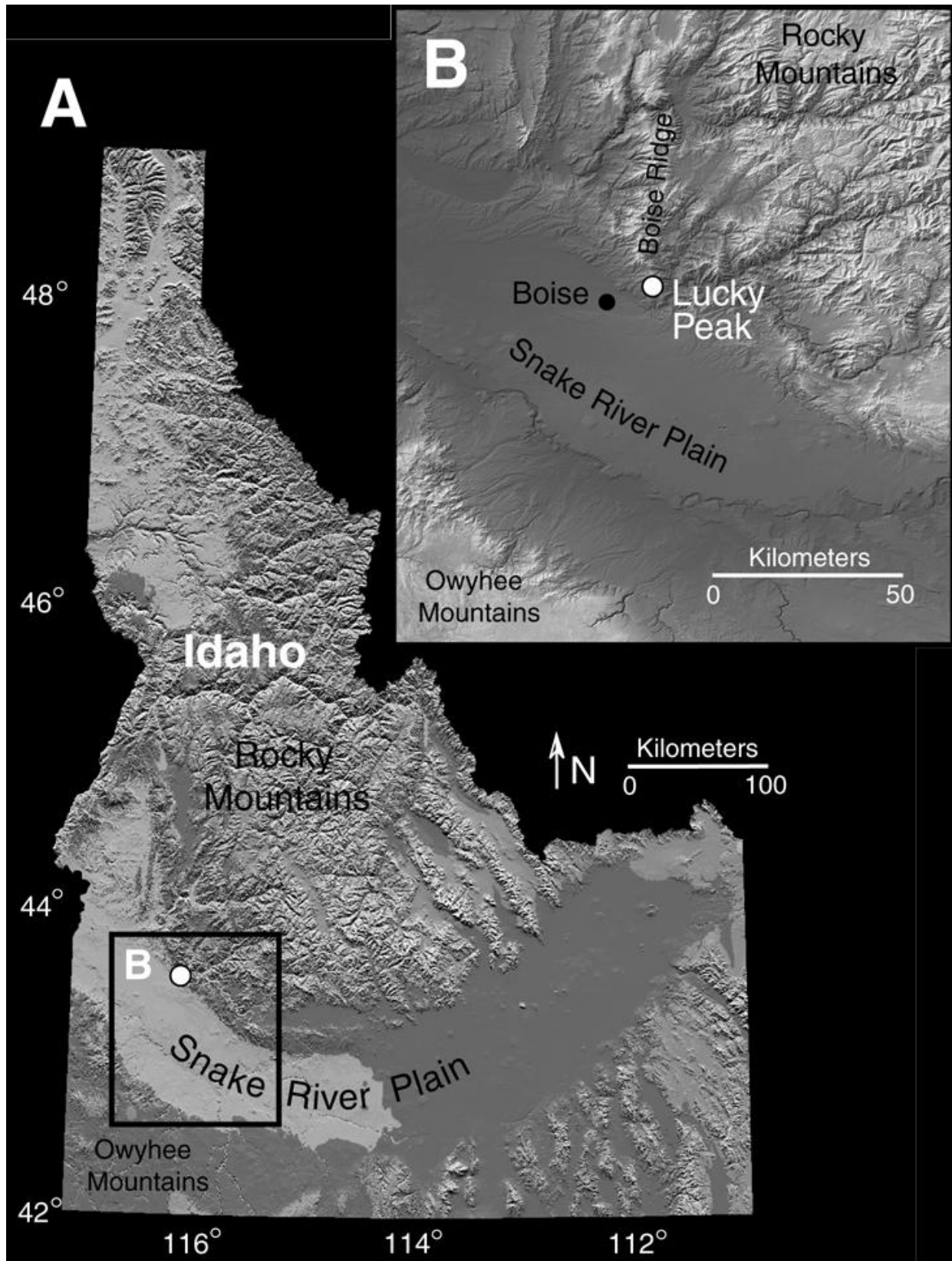
## Introduction

The Boise Ridge Project (Idaho Bird Observatory) began in 1992 when a volunteer pilot study identified several potential raptor migration monitoring sites in southwest Idaho. During 1993, searches continued at additional sites in southwest Idaho, including the Boise Ridge. A substantial raptor migration was identified at Lucky Peak, the southernmost peak on the ridge. A long-term project was established at Lucky Peak to annually count the number of migrating raptors during fall to provide reliable population trend information on western species. Long-term raptor banding projects were also established to identify migration routes, wintering areas, breeding areas, and mortality factors of western migratory raptors. In 1997, a long-term songbird monitoring project was initiated that consisted of songbird mist netting and count surveying. In 1998, a forest owl monitoring and banding project was initiated that targets Northern Saw-whet (*Aegolius acadicus*) and Flammulated (*Otus flammeolus*) Owls. The main goal of the Idaho Bird Observatory's (IBO) Boise Ridge Project is to continue long-term research activities designed to gather important information about western migratory bird species. High priority also is given to promoting public wildlife viewing, environmental education, and community volunteer programs.

The Boise Ridge is a series of north-south trending peaks and foothills located in the Boise Mountains in southwest Idaho (Fig. 1). The ridge establishes the northern boundary of the Snake River Plain, and is the southernmost extension of the central Idaho mountains. The upper slopes of the ridge are dominated by mixed-conifer forest consisting mostly of Douglas-fir (*Pseudotsuga menziesii*) and some ponderosa pine (*Pinus ponderosa*) with an understory of mountain ninebark (*Physocarpus malvaceus*). Mountain shrub communities occupy forest openings and slopes just below treeline, and are dominated by bittercherry (*Prunus emarginata*), chokecherry (*Prunus virginiana*) and buckbrush (*Ceanothus velutinus*), but also contain serviceberry (*Amelanchier anifolia*), elderberry (*Sambucus* spp.), currant (*Ribes* spp.), mountain ash (*Sorbus* spp.), and willow (*Salix* spp.). These shrub communities grade into mid-elevation shrubsteppe supporting mountain big sagebrush (*Artemisia tridentata* spp. *vaseyana*), bitterbrush (*Purshia tridentata*), and rabbitbrush (*Chrysothamnus* spp.) with an understory of native bunchgrasses, primarily bluebunch wheatgrass (*Pseudoregnaria spicata*), threeawn (*Aristida longiseta*), and Sandberg's bluegrass (*Poa secunda*). Vegetation degradation due to fire and overgrazing have resulted in conversion of many areas to monocultures of exotic annual grasses and forbs, primarily medusahead (*Taeniatherum caputmedusae*), cheatgrass (*Bromus tectorum*), and rush skeletonweed (*Chondrilla juncea*).

During 2009, monitoring and banding of migrant raptors, owls, and songbirds was conducted at Lucky Peak, located 12 km east of Boise, Ada County (T3N, R3E, Sec. 11; ownership Idaho Dept. of Fish and Game). Lucky Peak is located on the Boise River Wildlife Management Area, which is maintained primarily for big game winter range. Raptor counts were conducted from the summit of the peak on an exposed southwest-facing slope near the radio antennas (elevation 1845 m). Vegetation on near the observation site was predominantly shrubsteppe, but was located near the edge of treeline and in close proximity to mountain shrubfields. Lucky Peak is the southernmost timbered peak on the Boise Ridge. Raptor banding was conducted at one site on Lucky Peak on an open hillside below the raptor observation point. Vegetation at the raptor banding site was dominated by shrubsteppe, but the banding site was within 50 m of treeline.

Figure 1. Location of Boise Ridge, Idaho (A), and Lucky Peak migration research site (B).



Songbird mist netting was conducted at Lucky Peak near the summit in mountain shrub habitats. Owl mist netting was conducted at Lucky Peak at two locations: the Camp banding station was located near the main campsite in coniferous forest habitat, while the Ridge banding station was located approximately 200 m northeast of the main campsite in coniferous forest habitat, approximately 100 m east of the main Lucky Peak/Shaw Mountain Road.

Banding of migrant raptors also was conducted at Boise Peak, another peak on the Boise Ridge, located approximately 15 km northeast of Boise, Boise County (T4N, R3E, Sec. 10; ownership U.S. Forest Service). Boise Peak is located approximately 10 km north of Lucky Peak and 8 km south of Shafer Butte. The banding site on Boise Peak was located on the mountain's exposed west slope (elevation 1989 m). Vegetation immediately near the Boise Peak banding site was shrubsteppe, but the site was situated in a large opening surrounded by mixed-conifer forest and mountain shrub habitats. Unlike Lucky Peak, Boise Peak was located in more solid mixed-conifer habitat.

This report is a consolidated synopsis of IBO migration project results. For each fall project, including hawk watch, raptor banding, songbird mist netting, owl banding, and public education and outreach, a brief description of standardized methods is given. Results are presented in tabular form showing 2009 totals compared to past years. Results from other IBO projects, including breeding bird studies, will be presented in separate reports to satisfy specific grant requirements for those projects. More detailed information about IBO cooperators, donors, other grants and projects, and future plans will be presented in the next issue of our program newsletter: *Boise Ridge Notes*.

## Methods

### Hawk Watch

Monitoring of migrant raptors during fall has been conducted at Lucky Peak since 1994. The 1994 season was considered a pilot year during which methods were standardized and a protocol was developed for future seasons. Only one experienced observer conducted hawk counts in 1994, counting for a total of 342 hours. Beginning with the 1995 fall, observation procedures were standardized with regard to number of observers, dates of operation, daily count times, scanning procedures, hawk identification criteria, and data recording procedures.

During fall 2009, raptor counts were conducted on 65 days from 25 August through 31 October. Daily counts generally began at 1000 hours and continued throughout the day until raptor flights ceased, usually between 1700 and 1900 hours. Observations were conducted daily by at least two qualified observers. During 2009, a three-year graduate study of detectability and bias in raptor migration counts was initiated at Lucky Peak. On at least four days per week, a second crew of two trained observers conducted a simultaneous count at the Lucky Peak watch site. The primary observer team conducted the standardized migration count employing methods similar to past seasons, while secondary observers recorded all raptors missed by the primary observers but detected by the secondary observers.

In 2002, the Idaho Bird Observatory adopted standardized raptor counting methods used by HawkWatch International Inc., so that hawk count data may be more easily integrated with counts from other western sites during analyses of regional population trends. We continued these standardized methods again in 2009. Data recorded included species, hour of passage for each migrant, and where applicable, age, sex, and/or color morph. For unidentified raptors, an attempt was made to identify them to genus (e.g., unidentified Buteo, unidentified Accipiter, etc.). Weather conditions were recorded every hour on the half hour and at the start and end of each day. Weather variables recorded included wind speed and direction, ambient temperature, percent cloud cover, predominant cloud types, maximum visibility, and an assessment of thermal lift. Wind speed was recorded with a *Skymaster* hand-held weather station or estimated using the Beaufort wind scale, and wind direction was recorded in degrees. Thermal lift was rated as poor, fair, good, or excellent based on subjective assessments of wind speed, solar intensity, and migrant behavior. Each hour we recorded the mean number of observers and rated visitor disturbance on a scale from zero to three. We also recorded the predominant direction, altitude, and distance of the flight from the observation point each hour.

### Raptor Banding

Raptor banding was conducted at both Lucky and Boise Peaks during fall 2009 at two different banding stations: Lucky West and Boise Peak. Preparation of trapping and banding equipment began during August 2009. Blinds were set up at Lucky Peak beginning on 22 August, and at Boise Peak beginning on 28 August. Banding began at Lucky Peak on 26 August and at Boise Peak on 31 August. During fall 2009, raptor banding occurred at Lucky West a total of 61 days, and 49 days at Boise Peak. At both banding stations, raptor banding occurred between 1000 and 2000 hours over a wide variety of weather conditions. The average trap day was 6 hours in duration. Raptors were lured into mist nets, bow nets, and dho-gazas using Rock Doves (Columba livia), Ringed Turtle-Doves (Streptopelia risoria), and House Sparrows (Passer domesticus). Once captured, raptors were fitted with aluminum leg bands provided by the

U.S.G.S. Bird Banding Lab. After banding, species, age, sex (if possible), and several morphometric features including wing chord, length of longest tail feather, weight, eye color, presence of ectoparasites, crop size, and trap/release time were recorded. Banding and processing generally took less than 10 minutes per raptor.

A graduate study of blood stress hormones was ongoing at the Lucky Peak banding station during 2009, and blood samples were taken from many of the raptors captured for banding.

### Songbird Mist Netting

A full-time songbird mist-netting project was initiated at Lucky Peak during 1997 to identify the species composition, abundance, and timing of songbird migration on the Boise Ridge during fall. In 1997, a station consisting of eight standard 12 m x 2.5 m x 36 mm mesh songbird mist nets was established in mountain shrub habitats near the summit of Lucky Peak. Nets were located opportunistically throughout the habitat in areas where bird movements were concentrated by the vegetation and topography in order to increase capture efficiency (Ralph et al. 1993). During 1997, mist netting at Lucky Peak began on 12 August, and continued through 21 October. Mist netting was conducted daily, except during periods of inclement weather. Nets were opened at sunrise, and netting continued for approximately five hours each morning. Songbird mist netting continued at the Lucky Peak site during the 1998 fall, and nets were placed in the exact locations that were used during 1997. Two additional nets were added to the Lucky Peak site in 1998, increasing the total number of standard 12 m songbird mist nets at this site to ten. Duration of mist netting for the next three years was 5 August - 15 October 1998, 31 July - 15 October 1999, and 18 July - 16 October 2000. During 2001 - 2009, mist netting has occurred from 16 July - 15 October, and this will continue to be the standard protocol for future seasons. Net locations and methods were identical among all seasons.

During 1997, the Lucky Peak mist-netting station was operated by at least two qualified personnel at all times. During 1998 - 2009, the Lucky Peak mist-netting station was operated by at least three qualified personnel at all times. Nets were checked and cleared throughout the morning at 20 - 40 minute intervals. Captured songbirds were placed individually in cloth retaining bags and taken immediately to a centralized banding station for processing. Each newly-captured bird was first identified to species and fitted with an individually-numbered standard aluminum leg band provided by the U.S.G.S. Bird Banding Lab. Subsequently, a series of morphometric measurements and categorizations were made to determine age, sex, and body condition including length of unflattened wing chord, mass, fat score, muscle score, body molt, and flight feather molt and wear. All determinations were based on Desante and Burton (1997), Pyle et al. (1997), and Hamilton (2002). Age was determined by degree of skull ossification, and sex was determined, when possible, by plumage, wing chord, and presence of a brooding patch. During the 1997 fall, mass was determined using a Pesola hand scale, but electronic balances have been used since 1998. Subcutaneous fat scores were determined based on a classification by Helms and Drury (1960) with modifications by the Institute for Bird Populations-MAPS Program (Desante and Burton 1997). Flight feather molt was determined by examining wing and tail for growing feathers, and was classified as symmetric, adventitious, juvenile, or none. Both body molt and flight feather wear were rated on a numeric scale. For recaptured individuals, their band number, mass, and body condition (fat and muscle scores) were recorded upon recapture to estimate daily weight gain or loss and duration of stopover at Lucky Peak.

### Owl Banding

Banding of forest owls, primarily Flammulated and Northern Saw-whet Owls, has been conducted at Lucky Peak since 1998. Exploratory efforts and methods varied during 1998 - 2000, but a standardized yearly protocol was established during fall 2001. In 2009, owl banding occurred at two stations daily from 28 August through 28 October. The Camp station, located within the conifer stand near the main campsite, consisted of two 18 m x 3.2 m x 60 mm mesh nets and three 12 m x 3.2 m x 60 mm mesh nets for a total mist net area of 230.4 m<sup>2</sup>. The Ridge station, located east of the main Lucky Peak/Shaw Mountain Road approximately 250 m north of the main campsite, consisted of two 18 m x 3.2 m x 60 mm mesh nets and four 12 m x 3.2 m x 60 mm mesh nets for a total mist net area of 268.8 m<sup>2</sup>.

To attract owls into mist nets, at each station we used an audio lure consisting of a compact disc player and remote speakers modified from Erdman and Brinker (1997). Audio lures broadcast species-specific vocalizations producing sound levels of approximately 80 - 85 dB at 2 m. We broadcast “hooting” calls to attract Flammulated Owls and male “solicitation” calls to attract Northern Saw-whet Owls into stations. In order to maximize captures by species, we alternated species-specific calls broadcast based on timing of migration of each individual species (i.e., Flammulated Owls migrate earlier in the season than do Northern Saw-whet Owls). At the Camp Station, we broadcast Flammulated Owl “hooting” calls from 29 August through 15 September, a mix of Flammulated Owl “hooting” and Northern Saw-whet Owl “solicitation” calls from 15 - 30 September, and Northern Saw-whet Owl “solicitation” calls from 1 - 28 October. At the Ridge Station, we broadcast Flammulated Owl “hooting” calls from 29 August through 30 September, and Northern Saw-whet Owl “solicitation” calls from 1 - 28 October.

Throughout the fall, mist nets were opened 30 min after sunset and closed 30 min before sunrise. Depending on weather and capture volume, mist nets were checked every 30 to 60 min. We closed nets during periods of inclement weather including rain, wet snow, or winds greater than 20 mph. Temperature, cloud cover, and wind speed and direction were recorded nightly at opening and closing. Once captured, owls were fitted with aluminum leg bands provided by the U.S.G.S. Bird Banding Lab. A series of morphometric measurements including unflattened wing chord, tail length, mass, body molt, flight feather molt and wear, and capture and release times were recorded. Body condition was assessed by visibly scoring muscle mass and fat storage according to Desante and Burton (1997) and Hamilton (2006). We aged Flammulated Owls by retention of juvenile plumage as described by DeLong (2004). Shape, number of spots, and color variation of primaries were recorded in an effort to further understand ageing and sexing criteria for Flammulated Owls through continued study. Age of Northern Saw-whet Owls was determined by examining molt, shape, wear, and coloration of primary and secondary feathers according to Pyle et al. (1997). Northern Saw-whet Owls were sexed according to Brinker (2000).

### Public Education and Outreach

Each fall, IBO pursues public education and outreach in three basic ways including group visits to Lucky Peak, community-volunteer programs, and student-involvement programs. Throughout the year, we present slide shows to local groups and schools to inform audiences about IBO and to organize group visits to the research site during fall. Many groups visit Lucky Peak during fall to observe banding or counting activities. Group visits are scheduled on most weekend days

and many weekdays throughout September and early October during the peak of the fall migration. Groups generally meet near state Highway 21 at a predetermined time and car pool to the Lucky Peak research site. Group visits are scheduled so that they do not overlap, and are generally led by IBO crew members who inform group members about the various research and monitoring activities.

IBO maintains a volunteer involvement program which gives members of the local community the opportunity to assist with field projects during fall. Volunteers assist with bird banding, counts, set-up, construction and maintenance of equipment, sign making, data entry, and other needed tasks. This program is coordinated through Idaho Department of Fish and Game, Southwest Region Volunteer/Reservist Program, and all volunteer hours are documented by either IBO or IDFG. Volunteers are classified as Biologists, Biological Technicians, or Bio-Aides based on volunteer job duty, education, and experience (Appendix B). Value of this volunteer time is calculated based on the established Idaho Department of Fish and Game pay grade schedule, and for each grade, the “Policy” hourly pay rate is used (mid-range within each pay grade), and an additional 45% is then added to the hourly rate to represent the cost of benefits (Mary Dudley, IDFG Volunteer Coordinator, pers. comm.). Vehicles are often provided by Idaho Department of Fish and Game which allow community volunteers to commute to and from Lucky Peak daily during fall. However, volunteer personal vehicles are also used, and the value of this volunteer contribution is calculated using the standard Idaho state mileage rate for use of personal vehicles.

Currently, two graduate Master’s research projects and three undergraduate research projects are ongoing which are associated with IBO monitoring activities. IBO works closely with the Department of Biology and Raptor Research Center of Boise State University to provide opportunities for graduate and undergraduate research and training. IBO provides countless opportunities for graduate and undergraduate involvement through organized courses, directed research, internships, or volunteer programs. Students learn field techniques including bird identification, capture, handling, and banding, as well as counting and other monitoring procedures. Students also assist with data entry, compilation, and analysis. Vehicles provided by the Raptor Research Center of Boise State University allow students to commute to and from Lucky Peak daily during fall. The vast majority of IBO fall field projects are accomplished by volunteer interns, Boise State University students, or community volunteers.

## Results

### Hawk Watch

We counted migrating raptors on 65 days during 2009, observing for a total of 474 hours. Counting effort in 2009 was slightly higher than the average yearly effort over the past 15 seasons (Table 1), which can be attributed to consistent weather throughout most of the fall. During the fall 2009 season, we curtailed counts on only two days due to bad weather (Appendix A). Count totals from 1995 to 2009 can be directly compared because methods were similar during all years. During fall 2009, we counted a record 8,239 migrant raptors for a passage rate of 17.4 raptors per hour, well above the 15-year average of 13.0 raptors per hour. We compared 2009 counts to 15-year averages and found that counts of Sharp-shinned Hawks (*Accipiter striatus*), Red-tailed Hawks (*Buteo jamaicensis*), Cooper's Hawks (*A. cooperii*), Turkey Vultures (*Cathartes aura*), Northern Harriers (*Circus cyaneus*), Swainson's Hawks (*B. Swainsonii*), Osprey (*Pandion haliaetus*), Merlins (*F. columbarius*), Ferruginous Hawks (*B. regalis*), Broad-winged Hawks (*B. platypterus*), and Peregrine Falcons (*F. peregrinus*) were all well-above long-term averages (Table 2). However, counts of Golden Eagles (*Aquila crysaetos*) and Northern Goshawks (*A. gentilis*) were below long-term averages (Table 2). Overall, counts of migrant raptors at Lucky Peak during 2009 were the highest ever recorded during 15 years of standardized monitoring.

The Idaho Bird Observatory contributed long-term raptor migration count data collected at Lucky Peak from 1995 through 2005 to the Raptor Population Index project (<http://rpi-project.org/>). This effort resulted in an assessment of raptor population trends in western North America based on autumn counts from 10 different western watchsites (Smith et al. 2008). General trends were identified for 16 common western raptor species using, in part, data collected from the Boise Ridge. The majority of species showed stable or variable trends, however, a few showed decreasing population trends based on autumn counts. Notably, counts of Northern Goshawks, Golden Eagles, American Kestrels, and Prairie Falcons were decreasing at most western watch sites from the 1980's through 2005 (Smith et al. 2008).

### Raptor Banding

We banded a total of 1,223 diurnal raptors in 2009 at two banding stations during 110 station-days of operation, for a capture rate of 11.1 raptors per station-day (Table 3). A total of 797 raptors (65.2% of total) were banded at the Lucky West banding station and 426 raptors (34.8% of total) were banded at the Boise Peak banding station (Table 3). We calculated long-term averages for banding capture totals for each raptor species, and in 2009 we banded more Sharp-shinned Hawks, Cooper's Hawks, American Kestrels, Merlins, and Peregrine Falcons, and fewer Northern Goshawks and Red-tailed Hawks compared to long-term averages (Tables 4, 5). In 2009, the most commonly-banded raptors were Sharp-shinned Hawks ( $N = 674$ ), Cooper's Hawks ( $N = 276$ ), American Kestrels ( $N = 184$ ), Merlins ( $N = 43$ ), and Red-tailed Hawks ( $N = 26$ ; Table 4). To date, we have received a total of 105 band encounters from raptors banded on the Boise Ridge. Many banded raptors have been encountered from the Boise area, but other recoveries have come from western Mexico, Baja California, southern California, Washington, and British Columbia (Table 6; Fig. 2). Three general patterns are evident from studying Idaho Bird Observatory band encounters: 1) mid-winter recoveries of Sharp-shinned and Cooper's Hawks come from western Mexico in the state of Sinaloa, Colima, and farther south; 2) mid-

**Table 1. Raptors observed at Lucky Peak during standardized fall raptor migration counts, 1994 - 2009; Idaho Bird Observatory.**

<b>SPECIES</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<i>Obs. Hours</i>	<b>342</b>	<b>466</b>	<b>473</b>	<b>499</b>	<b>496</b>	<b>482</b>	<b>412</b>	<b>448</b>	<b>499</b>	<b>497</b>	<b>412</b>	<b>474</b>	<b>429</b>	<b>453</b>	<b>492</b>	<b>474</b>
American Kestrel	734	916	1,413	1,535	1,585	1,365	1,156	1,163	1,503	1,285	786	930	593	581	821	1,177
Sharp-shinned Hawk	719	573	1,209	1,246	1,962	1,365	1,189	1,095	1,055	1,063	940	1,512	925	947	914	1,801
Red-tailed Hawk	758	517	568	940	993	909	1,187	1,039	1,351	1,223	989	1,459	735	1,059	760	1,355
Cooper's Hawk	421	320	889	668	1,415	617	630	633	725	674	817	1,471	534	494	532	1,137
Turkey Vulture	291	414	334	679	1,151	694	647	1,679	986	1,807	1,236	1,319	1,130	1,189	2,069	1,705
Northern Harrier	148	144	250	237	353	295	185	191	195	199	128	438	219	135	170	310
Golden Eagle	86	68	30	60	47	55	52	40	67	53	38	65	24	35	72	30
Swainson's Hawk	40	28	113	53	153	72	27	74	72	110	27	63	60	41	93	150
Northern Goshawk	39	24	65	47	44	52	79	22	41	25	22	43	28	76	12	29
Osprey	33	35	46	63	103	35	61	78	52	82	61	75	47	55	54	104
Merlin	20	14	34	36	30	23	22	19	28	48	29	67	33	28	32	63
Prairie Falcon	12	5	8	12	12	14	9	11	13	9	12	8	19	1	6	9
Ferruginous Hawk	6	1	4	3	2	4	0	2	6	3	2	3	0	4	0	7
Broad-winged Hawk	4	9	7	11	33	17	15	31	20	10	17	27	18	20	28	76
Bald Eagle	2	2	2	8	0	3	2	7	13	7	6	9	6	3	7	6
Peregrine Falcon	0	7	7	11	6	3	3	1	3	7	16	16	10	12	6	17
Rough-legged Hawk	0	1	6	11	2	6	7	3	6	9	5	2	5	7	8	7
Red-shouldered Hawk	0	0	0	2	1	0	0	1	1	2	1	0	0	1	1	0
Gyr Falcon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Unidentified Accip.	203	301	87	93	160	145	342	405	161	146	83	49	73	84	139	161
Unidentified Buteo	79	70	15	59	29	60	87	78	46	44	16	35	19	14	57	69
Unidentified Falcon	12	14	4	6	9	4	8	10	8	6	5	7	11	5	3	3
Unidentified Raptor	150	193	36	56	121	111	177	137	102	60	9	7	23	23	58	23
Unidentified Eagle	0	0	1	0	0	0	0	1	0	1	0	0	0	0	1	0
<b>TOTAL</b>	<b>3,572</b>	<b>3,656</b>	<b>5,128</b>	<b>5,836</b>	<b>8,212</b>	<b>5,894</b>	<b>5,900</b>	<b>6,720</b>	<b>6,454</b>	<b>6,873</b>	<b>5,245</b>	<b>7,605</b>	<b>4,512</b>	<b>4,814</b>	<b>5,844</b>	<b>8,239</b>

**Table 2. Raptor Migration Counts at Lucky Peak, fall 2009 results compared to long-term averages (1995 - 2009); Idaho Bird Observatory.**

<b>SPECIES</b>	<b>LONG-TERM AVERAGE (1995-2009)</b>	<b>2009 TOTALS</b>	<b>% CHANGE</b>	<b>COMPARISON TO LONG-TERM AVERAGE (LTA)</b>
<i>Obs. Hours</i>	<b>467.1</b>	<b>474</b>	<b>+1.5</b>	<b>Above LTA</b>
American Kestrel	1,120.6	1,177	+5.0	Above LTA
Sharp-shinned Hawk	1,186.4	1,801	+51.8	Above LTA
Red-tailed Hawk	1,005.6	1,355	+34.7	Above LTA
Cooper's Hawk	770.4	1,137	+47.6	Above LTA
Turkey Vulture	1,135.9	1,705	+50.1	Above LTA
Northern Harrier	229.9	310	+34.8	Above LTA
Golden Eagle	49.1	30	-38.9	Below LTA
Swainson's Hawk	75.7	150	+98.1	Above LTA
Northern Goshawk	40.6	29	-28.6	Below LTA
Osprey	63.4	104	+64.0	Above LTA
Merlin	33.7	63	+86.8	Above LTA
Prairie Falcon	9.9	9	-8.8	Below LTA
Ferruginous Hawk	2.7	7	+156.1	Above LTA
Broad-winged Hawk	22.6	76	+236.3	Above LTA
Bald Eagle	5.4	6	+11.1	Above LTA
Peregrine Falcon	8.3	17	+104.0	Above LTA
Rough-legged Hawk	5.7	7	+23.5	Above LTA
Red-shouldered Hawk	0.7	0	-100.0	Below LTA
<b>TOTALS</b>	<b>6,062.1</b>	<b>8,239</b>	<b>+35.9</b>	<b>Above LTA</b>

**Table 3. Raptors banded on the Boise Ridge by station, fall 2009; Idaho Bird Observatory.**

<b>SPECIES</b>	<b>WEST</b>	<b>BOISE</b>	<b>TOTAL</b>
<i>Station-Days</i>	<i>55</i>	<i>50</i>	<i>105</i>
Sharp-shinned Hawk	387	287	674
Cooper's Hawk	197	79	276
American Kestrel	166	18	184
Northern Goshawk	7	3	10
Red-tailed Hawk	13	13	26
Merlin	19	24	43
Prairie Falcon	2	0	2
Northern Harrier	0	0	0
Broad-winged Hawk	1	0	1
Peregrine Falcon	4	2	6
Golden Eagle	1	0	1
Swainson's Hawk	0	0	0
Red-shouldered Hawk	0	0	0
Ferruginous Hawk	0	0	0
Rough-legged Hawk	0	0	0
Gyr Falcon	0	0	0
<b>TOTAL</b>	<b>797</b>	<b>426</b>	<b>1,223</b>

**Table 4. Long-term-average raptor captures on the Boise Ridge compared to 2009 season; Idaho Bird Observatory.**

<b>SPECIES</b>	<b>LONG-TERM AVERAGE (1993-2009)</b>	<b>2009 CAPTURE TOTALS</b>
Sharp-shinned Hawk	498	674
Cooper's Hawk	192	276
American Kestrel	160	184
Northern Goshawk	26	10
Red-tailed Hawk	32	26
Merlin	18	43
Prairie Falcon	3	2
Northern Harrier	4	0
Broad-winged Hawk	0	1
Peregrine Falcon	2	6
Golden Eagle	1	1
Swainson's Hawk	0	0
Red-shouldered Hawk	0	0
Ferruginous Hawk	0	1
Rough-legged Hawk	0	0
Gyr Falcon	0	0
<b>TOTAL</b>	<b>939</b>	<b>1,223</b>

**Table 5. Raptors banded during fall migration on the Boise Ridge, 1993 - 2009; Idaho Bird Observatory.**

<b>SPECIES</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>TOTAL</b>
Sharp-shinned Hawk	136	432	309	424	529	804	583	433	578	617	656	525	451	470	524	353	674	<b>8,498</b>
Cooper's Hawk	44	155	103	208	201	286	222	133	228	272	214	201	249	161	202	123	276	<b>3,278</b>
American Kestrel	23	75	24	79	133	174	249	151	258	341	360	214	116	114	94	108	184	<b>2,697</b>
Northern Goshawk	20	35	26	33	16	36	24	38	10	31	26	36	13	14	39	6	10	<b>413</b>
Red-tailed Hawk	13	34	27	39	58	18	52	24	37	54	23	19	9	28	45	24	26	<b>530</b>
Merlin	6	12	9	19	21	20	16	12	14	26	44	18	15	28	13	18	43	<b>334</b>
Prairie Falcon	1	7	0	3	3	4	4	3	5	4	4	6	2	3	1	0	2	<b>52</b>
Northern Harrier	0	4	4	1	13	1	9	3	5	6	2	1	1	5	5	3	0	<b>63</b>
Broad-winged Hawk	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	3	1	<b>6</b>
Peregrine Falcon	0	1	0	2	2	2	1	1	2	2	4	6	4	4	1	3	6	<b>41</b>
Golden Eagle	0	0	1	1	3	1	4	1	2	3	0	1	1	4	0	1	1	<b>24</b>
Swainson's Hawk	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	<b>3</b>
Red-shouldered Hawk	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	<b>1</b>
Ferruginous Hawk	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	<b>2</b>
Rough-legged Hawk	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	<b>1</b>
Gyr Falcon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	<b>1</b>
<b>TOTAL</b>	<b>243</b>	<b>755</b>	<b>504</b>	<b>810</b>	<b>980</b>	<b>1,346</b>	<b>1,166</b>	<b>799</b>	<b>1,140</b>	<b>1,356</b>	<b>1,334</b>	<b>1,028</b>	<b>861</b>	<b>831</b>	<b>925</b>	<b>643</b>	<b>1,223</b>	<b>15,944</b>

**Table 6. Band encounters from raptors banded on the Boise Ridge, 1993 - 2009; Idaho Bird Observatory.**

Encounter Number	Band Number	Species/Sex	Age When Banded	Date Banded	Date Encountered	Location	Status	Bander/Site
1	0877-97425	RTHAU	AHY	09/01/93	02/17/02	Orange Grove, CA.	Found dead	GK, B.P.
2	1807-43564	RTHAU	AHY	09/03/93	08/14/97	Escondido, CA.	Killed by auto	KB, B.P.
3	2003-16204	SSHAF	HY	09/03/93	12/99/93	Badiraquato, Sinaloa, MX.	Shot	GK, B.P.
4	2003-16215	SSHAF	HY	09/07/93	10/05/97	Wendover, NV <sup>a</sup>	Captured, released	KB, B.P.
5	2003-16228	SSHAF	AHY	09/14/93	05/15/95	Boise, ID.	Found dead	KB, B.P.
6	1705-06547	COHAF	AHY	09/18/93	05/23/97	Prince George, B.C., Canada	Found dead	GK, B.P.
7	2003-48948	SSHAF	AHY	10/01/93	05/03/95	Pendleton, OR.	Found injured, rehabbed	KB, B.P.
8	2003-66701	AMKEF	U	08/26/94	06/10/95	Merced, CA.	Nesting in box	EN, L.P.
9	2003-66745	SSHAF	HY	09/05/94	01/16/95	Guamuchil, Sinaloa, MX.	Shot	EN, L.P.
10	2003-66798	SSHAF	HY	09/08/94	11/19/94	Tolleson, AZ.	Found dead	KB, L.P.
11	2003-66770	SSHAF	HY	09/13/94	10/07/98	Wendover, NV. <sup>a</sup>	Captured, released	GK, L.P.
12	1705-27801	COHAF	HY	09/16/94	12/21/94	Llano Grande, Sinaloa, MX.	Found injured, died	RO, L.P.
13	1807-56604	RTHAU	HY	09/20/94	09/30/94	Nyssa, OR.	Found dead	RO, L.P.
14	1453-72932	SSHAF	AHY	09/30/94	01/20/98	Topolobampo, Sinaloa, MX.	Unknown	EJH, B.P.
15	1493-34409	SSHAF	HY	10/08/94	11/13/94	Caldwell, ID.	Hit window, died	ET, L.P.
16	1142-36186	SSHAM	HY	10/08/94	03/17/95	Tujunga, CA.	Found dead	KB, B.P.
17	1705-27832	COHAF	AHY	10/04/95	09/19/98	Wendover, NV. <sup>a</sup>	Captured, released	MV, L.P.
18	1493-34460	SSHAF	HY	08/30/96	09/04/96	Wendover, NV. <sup>a</sup>	Captured, released	GK, L.P.
19	1152-01634	SSHAM	HY	09/04/96	09/10/96	Wendover, NV. <sup>a</sup>	Captured, released	RO, B.P.
20	1493-34482	AMKEF	U	09/04/96	01/22/97	Boise, ID.	Found dead	GK, L.P.
21	1387-82518	RTHAU	HY	09/08/96	01/21/97	Los Barriles, BCS, MX.	Shot	MV, L.P.
22	2003-80416	SSHAF	HY	09/12/96	09/21/98	Wendover, NV. <sup>a</sup>	Captured, released	GK, L.P.
23	2003-80472	SSHAF	HY	09/27/96	Fall 96	Nampa, ID.	Found dead	GK, L.P.
24	0935-23328	COHAF	AHY	10/05/96	02/20/97	Las Lomas Tero, CA.	Found injured, died	TB, L.P.
25	2003-80709	SSHAF	AHY	10/05/96	10/26/99	Lamont, WA.	Found dead	TB, L.P.
26	1807-70401	RTHAU	HY	09/06/97	06/16/00	Gilroy, CA.	Hit by car, rehabbed	TB, L.P.
27	1204-48495	COHAM	HY	09/21/97	04/18/03	Kamloops, B.C., Canada	Found dead	LH, L.P.

<sup>a</sup> Captured for banding at HWI Goshute Mtn. research site and released unharmed.

**Table 6. (Continued)**

<b>Encounter Number</b>	<b>Band Number</b>	<b>Species/Sex</b>	<b>Age When Banded</b>	<b>Date Banded</b>	<b>Date Encountered</b>	<b>Location</b>	<b>Status</b>	<b>Bander/Site</b>
28	0935-23341	COHAF	HY	09/22/97	10/12/98	Mazate de los Lopez, Sinaloa, MX	Shot	GK, L.P.
29	1807-56625	RTHAU	HY	09/22/97	12/16/97	Robie Creek, ID.	Captured, released	RO, B.P.
30	1043-98543	SSHAF	HY	09/30/97	01/06/98	Orderville, UT.	Found dead	RO, B.P.
31	1523-60811	SSHAF	HY	09/12/98	09/16/00	Wendover, NV. <sup>a</sup>	Captured, released	GK, L.P.
32	1523-60842	SSHAF	HY	09/15/98	11/20/98	Prescott, AZ.	Found dead	GK, L.P.
33	0735-38759	COHAF	HY	09/27/98	09/27/02	Wendover, NV. <sup>a</sup>	Captured, released	GK, L.P.
34	935-23070	COHAF	HY	10/01/98	10/09/98	Wendover, NV. <sup>a</sup>	Captured, released	RO, B.P.
35	1162-35087	SSHAM	HY	10/03/98	05/99/99	Chico, CA.	Found dead	LF/MH, B.P.
36	735-38772	COHAF	AHY	10/06/98	10/09/98	Wendover, NV. <sup>a</sup>	Captured, released	JC, L.P.
37	1523-60421	SSHAF	AHY	10/07/98	10/14/02	Wendover, NV. <sup>a</sup>	Captured, released	RO, B.P.
38	1523-60484	SSHAF	HY	09/14/99	01/13/00	Apple Valley, CA.	Found dead	GK, B.P.
39	1523-60492	SSHAF	AHY	09/16/99	7/15/01	Waipsburg, WA.	Found injured, captive	LF, B.P.
40	1523-95552	AMKEM	U	09/17/99	02/99/04	Spanaway, WA.	Found dead	RP, L.P.
41	1353-59034	SSHAF	HY	09/23/99	04/22/01	Williams Lake, B.C., Canada	Hit window, died	LF, B.P.
42	1523-95680	MERLM	HY	10/02/99	05/06/00	Blackfoot River, MT.	Found dead	GK, L.P.
43	1523-94409	SSHAF	HY	10/10/99	03/31/01	Boise, ID.	Hit window, died	GK, L.P.
44	1162-35350	SSHAM	AHY	10/18/99	10/20/00	Wendover, NV. <sup>a</sup>	Captured, released	LF, B.P.
45	1807-56700	PRFAF	AHY	09/08/00	11/16/01	Overland Park, KS.	Found injured, captive	TB, L.P.
46	1523-94018	AMKEF	U	09/13/00	07/24/01	Palouse, WA	Found injured, captive	TB, B.P.
47	2206-37292	PRFAM	HY	10/19/00	12/99/00	Malheur River, OR.	Found dead	LF, B.P.
48	0995-11198	COHAF	HY	09/07/01	09/13/01	Wendover, NV. <sup>a</sup>	Captured, released	JJ, L.P.
49	0995-11277	COHAF	HY	09/09/01	12/15/01	Colima, MX.	Found dead	LF/MH, B.P.
50	1523-94459	SSHAF	HY	09/10/01	01/12/02	Flagstaff, AZ.	Found dead	LF, B.P.
51	1807-83840	RTHAU	HY	09/13/01	02/23/02	Hollister, CA.	Found dead	AR, L.P.
52	0804-04618	COHAM	HY	09/17/01	09/20/01	Wendover, NV. <sup>a</sup>	Captured, released	RB, L.P.
53	1523-95399	AMKEM	U	09/18/01	02/15/03	Snake River, WA	Found dead	LF, B.P.
54	1523-94496	SSHAF	HY	09/18/01	02/15/03	Boise, ID.	Found dead	TB, B.P.

<sup>a</sup> Captured for banding at HWI Goshute Mtn. research site and released unharmed.

**Table 6. (Continued)**

<b>Encounter Number</b>	<b>Band Number</b>	<b>Species/Sex</b>	<b>Age When Banded</b>	<b>Date Banded</b>	<b>Date Encountered</b>	<b>Location</b>	<b>Status</b>	<b>Bander/Site</b>
55	1807-71133	RTHAU	ASY	09/24/01	01/21/03	Fremont, CA.	Found dead	LF, B.P.
56	1353-15284	NSWOU	AHY	10/02/01	12/15/03	Hagerman, ID.	Found dead	TD, L.P.
57	1593-00484	SSHAF	HY	10/08/01	03/22/03	Boise, ID.	Found dead	TB, L.P.
58	1387-82594	RTHAU	HY	08/26/02	12/22/02	Point San Pedro, CA.	Found dead	DW, L.P.
59	0995-11038	COHAF	HY	09/11/02	06/30/08	Elko, NV.	Found dead	DW, L.P.
60	0995-11040	COHAF	HY	09/12/02	10/18/03	Boise, ID.	Hit by car, dead	KH, L.P.
61	1202-24983	SSHAM	HY	10/02/02	10/19/04	Wendover, NV <sup>a</sup>	Captured, released	GK, B.P.
62	1807-71140	PRFAF	HY	10/04/02	10/23/02	Boise, ID.	Found dead	MH, B.P.
63	1563-09512	SSHAF	SY	10/06/02	10/10/07	Chelan, WA <sup>a</sup>	Captured, released	LF/MH B.P.
64	1593-00332	SSHAF	ASY	10/09/02	06/19/06	Paulden, AZ.	Found dead	AS, L.P.
65	1202-24995	SSHAM	HY	10/10/02	12/17/04	Willamina, OR.	Found dead	LF, B.P.
66	1593-32035	SSHAF	AHY	10/11/02	12/27/02	Pond, CA.	Found dead	DW, L.P.
67	1563-09539	SSHAF	AHY	10/12/02	01/11/03	Goodyear, AZ.	Found dead	LF, B.P.
68	1202-86202	SSHAM	AHY	10/13/02	12/17/08	Dayton, NV.	Found dead	LF, B.P.
69	1177-02609	RTHAU	HY	10/14/02	01/26/05	Wasco, CA.	Found dead	DW, B.P.
70	1563-09551	SSHAF	HY	08/30/03	09/19/04	Wendover, NV. <sup>a</sup>	Captured, released	LF, B.P.
71	1593-32082	SSHAF	HY	09/03/03	05/09/04	Golden, B.C., Canada	Found dead	DW, L.P.
72	1593-61628	SSHAF	HY	09/14/03	09/23/05	Wendover, NV. <sup>a</sup>	Captured, released	RB, L.P.
73	1563-09600	SSHAF	HY	09/16/03	04/26/05	Nelson, B.C., Canada	Flew into object, dead	GK, B.P.
74	1593-57010	SSHAF	HY	09/18/03	04/22/08	Couer d'Alene, ID.	Found injured, dead	LF, B.P.
75	1035-04636	COHAF	HY	09/23/03	09/25/04	Snowbank Mtn., ID.	Captured, released	RB, L.P.
76	1593-57047	SSHAF	HY	09/28/03	02/04/06	Priest River, ID.	Found dead	LF, B.P.
77	1177-02917	RTHAU	HY	08/30/04	01/26/05	Mountain House, CA.	Found dead	DW, L.P.
78	1202-86330	SSHAM	HY	09/06/04	09/30/05	Wendover, NV. <sup>a</sup>	Captured, released	DW, L.P.
79	1035-04734	COHAF	HY	09/08/04	01/05/05	Culiacan, Sinaloa, MX.	Shot	KH, L.P.
80	1807-71166	RTHAU	ASY	09/09/04	03/27/07	Paso Robles, CA.	Found dead	LF, B.P.
81	1035-04691	COHAF	HY	09/10/04	05/21/08	El Manzanillo, Jalisco, MX.	Found dead	KD, L.P.
82	0629-50853	GOEAU	HY	09/24/04	12/19/04	Melba, ID.	Found dead	DW, L.P.
83	1593-00397	SSHAF	HY	09/24/04	10/17/04	Boise, ID.	Found dead	JC, L.P.

<sup>a</sup> Captured for banding at HWI Goshute Mtn. research site and released unharmed.

**Table 6. (Continued)**

<b>Encounter Number</b>	<b>Band Number</b>	<b>Species/Sex</b>	<b>Age When Banded</b>	<b>Date Banded</b>	<b>Date Encountered</b>	<b>Location</b>	<b>Status</b>	<b>Bander/Site</b>
84	1593-78288	SSHAF	HY	10/03/04	01/12/05	Bruneau, ID.	Found dead	GK, L.P.
85	1035-04834	COHAF	HY	08/28/05	09/25/07	Wendover, NV. <sup>a</sup>	Captured, released	SA, L.P.
86	1593-78327	SSHAF	HY	09/05/05	03/99/06	Bacubirito, Sinaloa, MX.	Shot	EH, L.P.
87	1035-04917	COHAF	HY	09/11/05	11/99/06	San Miguel, Sinaloa, MX.	Found dead	GK, B.P.
88	1593-32175	SSHAF	AHY	09/26/05	04/16/06	Emmett, ID.	Captured, released	DW, B.P.
89	1593-78473	MERLM	HY	10/04/05	10/30/05	Boise, ID.	Found dead	DW, L.P.
90	1593-33192	SSHAF	HY	10/07/05	10/21/05	Las Vegas, NV.	Found dead	KH, B.P.
91	1593-32194	SSHAF	ASY	10/07/05	04/09/06	Richland, WA.	Found dead	KH, B.P.
92	1353-15637	NSWOU	HY	10/10/05	10/26/05	Boise, ID.	Found dead	TW, L.P.
93	1035-04791	COHAF	HY	09/09/06	12/07/06	Marana, AZ.	Found dead	JC, L.P.
94	1035-04958	COHAF	HY	09/15/06	01/21/07	Playa Blanca, Guerrero, MX.	Shot	LF, B.P.
95	0804-04595	MERLF	HY	09/23/06	12/27/07	Boise, ID.	Found dead	MH, B.P.
96	1593-32282	SSHAF	HY	09/24/06	11/27/06	Glenwood, NM.	Struck object, dead	LF, B.P.
97	1623-01125	SSHAF	AHY	10/06/06	02/04/07	Hampton, VA.	Captured, released	LF, B.P.
98	1623-01258	SSHAF	HY	08/29/07	11/04/07	Tuscon, AZ.	Found dead	KH, L.P.
99	1623-01267	SSHAF	HY	09/01/07	05/24/08	Republic, WA.	Found injured, dead	JC, L.P.
100	0844-75219	COHAM	HY	09/20/07	10/12/07	Hiko, NV.	Found dead	GK, L.P.
101	1045-17528	COHAF	HY	09/23/07	10/11/07	Ely, NV.	Found dead	MH, B.P.
102	1177-02831	RTHAU	AHY	10/06/07	02/11/08	Paulden, AZ.	Found dead	EH, L.P.
103	1623-01047	SSHAF	HY	10/07/07	11/03/07	Boise, ID.	Found dead	LF, B.P.
104	1045-17698	COHAF	HY	09/08/08	10/99/09	San Joaquin, Sinaloa, MX.	Found injured, dead	JC, L.P.
105	1593-78078	SSHAF	HY	09/09/08	05/20/09	Donnelly, ID.	Found dead	JC, L.P.

<sup>a</sup> Captured for banding at HWI Goshute Mtn. research site and released unharmed.

Figure 2. Locations of band encounters from raptors banded on the Boise Ridge, 1993-2009; Idaho Bird Observatory.



winter recoveries of Red-tailed Hawks come from California's Central Valley; and 3) spring and summer recoveries of Sharp-shinned and Cooper's Hawks come from as far north as central British Columbia.

The Idaho Bird Observatory also contributed long-term raptor banding data collected on the Boise Ridge from 1993 through 2005 to the Raptor Population Index project (<http://rpi-project.org/>). This effort compiled raptor band recovery data from 6 western sites and findings include an analysis of regional band recovery patterns by season (Goodrich and Smith 2008). Western migratory raptors typically move north and south annually, staying within one of three general "flyways", including (from west to east) a Pacific, Intermountain, and Rocky Mountain (Goodrich and Smith 2008). The Boise Ridge is located within the Intermountain "flyway", and raptors banded by the IBO during autumn generally exhibit the same migratory patterns as raptors banded at other Intermountain sites (Goodrich and Smith 2008).

### Songbird Mist Netting

In 2009, we captured 5,748 birds of 61 species during 4,364 mist-net hours (Table 7). To date, 2009 marks the 5th highest season total and capture rate (1.317 birds per mist-net hour) since the project began in 1997. During the 2009 autumn, the ten most commonly-captured species included Dark-eyed Junco (Junco hyemalis; N = 799), Western Tanager (Piranga ludoviciana); N = 697), Ruby-Crowned Kinglet (Regulus calendula; N = 638), White-crowned Sparrow (Zonotrichia leucophrys; N = 495), Dusky Flycatcher (Empidonax oberholseri; N = 322), Spotted Towhee (Pipilo maculatus; N = 285), MacGillivray's Warbler (Oporornis tolmiei; N = 283), Yellow-rumped (Audubon's) Warbler (Dendroica coronata; N = 226), Nashville Warbler (Vermivora ruficapilla; N = 195), and Yellow Warbler (Dendroica petechia; N = 192).

Record-high captures were set in 2009 for the seven species shown below:

- Western Tanager (N = 697; previous high of 569 in 2006)
- Cassin's Vireo (Vireo cassinii; N = 131; previous high of 117 in 2007)
- Lazuli Bunting (Passerina amoena; N = 91; previous high of 85 in 2006)
- Swainson's Thrush (Catharus ustulatus; N = 45; previous high of 26 in 2007)
- Black-chinned Hummingbird (Archilochus alexandri; N = 16; previous high of 9 in 2008)
- Song Sparrow (Melospiza melodia; N = 9; previous high of 6 in 2006 and 2007)
- Savannah Sparrow (Passerculus sandwichensis; N = 4; previous high of 3 in 2005)

In addition, we banded 22 "Western" Flycatchers (Empidonax difficilis), tying the previous season-high capture total set in 2006 (Table 7). Of note, while not reflected in the season's capture totals, a tremendous migration of American Robins (Turdus migratorius) occurred during late fall 2009. Hawk counters recorded an estimated 2,250 American Robins passing over Lucky Peak in just one day during late October. In contrast, after a record-high capture of 10 individuals in 2007, notably absent during both 2008 and 2009 was the Northern Pygmy-owl (Glaucidium gnoma; Table 7).

**Table 7. Capture results from songbird mist netting at Lucky Peak during fall migration, 1997 - 2009; Idaho Bird Observatory. Species names in *bold italics* (i.e. *Yellow Bellied sapsucker*) are rare in Idaho and are listed as review species by the Idaho Bird Records Committee.**

<b>SPECIES</b>	<b>1997<sup>A</sup></b>	<b>1998<sup>B</sup></b>	<b>1999<sup>C</sup></b>	<b>2000<sup>D</sup></b>	<b>2001<sup>E</sup></b>	<b>2002<sup>E</sup></b>	<b>2003<sup>E</sup></b>	<b>2004<sup>E</sup></b>	<b>2005<sup>E</sup></b>	<b>2006<sup>E</sup></b>	<b>2007<sup>E</sup></b>	<b>2008<sup>E</sup></b>	<b>2009<sup>E</sup></b>	<b>TOTAL</b>
Sharp-shinned Hawk	2	5	3	3	0	1	4	1	4	0	2	4	9	<b>38</b>
Cooper's Hawk	0	2	0	0	0	0	0	0	0	0	0	0	0	<b>2</b>
American Kestrel	0	0	0	0	0	0	0	0	0	0	0	0	1	<b>1</b>
Ruffed Grouse	0	0	1	0	0	0	0	0	0	0	0	0	0	<b>1</b>
California Quail	0	0	0	0	0	2	1	7	0	0	1	0	1	<b>12</b>
Northern Pygmy-Owl	1	2	1	5	2	1	1	1	2	4	10	0	0	<b>30</b>
Black-chinned Hummingbird	0	4	2	2	4	2	2	8	4	4	2	9	16	<b>59</b>
Calliope Hummingbird	7	12	9	23	31	56	26	60	19	19	17	41	55	<b>375</b>
Rufous Hummingbird	6	7	2	10	19	15	15	36	23	12	11	16	17	<b>189</b>
Broad-tailed Hummingbird	0	0	0	0	0	0	0	0	0	1	0	2	0	<b>3</b>
Red-naped Sapsucker	3	8	0	2	1	0	0	2	2	1	0	1	0	<b>20</b>
<i>Yellow-bellied Sapsucker</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>
Downy Woodpecker	0	0	1	1	1	1	4	0	0	0	2	0	0	<b>10</b>
Hairy Woodpecker	0	2	0	0	0	1	1	0	1	1	1	0	1	<b>8</b>
Northern Flicker	2	0	0	1	1	7	2	2	2	1	3	2	0	<b>23</b>
Olive-sided Flycatcher	0	1	0	0	0	3	3	0	0	0	0	0	0	<b>7</b>
Western Wood-Pewee	3	12	2	16	10	16	8	6	16	11	11	5	6	<b>122</b>
Willow Flycatcher	0	1	4	1	1	2	3	3	3	1	1	2	0	<b>22</b>
<i>Least Flycatcher</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>2</i>
Hammond's Flycatcher	78	72	43	71	131	103	116	144	79	162	113	66	107	<b>1,285</b>
Gray Flycatcher	1	1	2	2	2	4	1	2	5	0	1	2	1	<b>24</b>
Dusky Flycatcher	83	205	283	326	221	330	326	271	284	364	357	254	322	<b>3,626</b>
"Western" Flycatcher	12	4	10	8	13	12	16	15	12	22	11	7	22	<b>164</b>
Cassin's Vireo	55	64	114	72	66	70	34	66	61	80	117	111	131	<b>1,041</b>
<i>Blue-headed Vireo</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>2</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>4</i>
Red-eyed Vireo	0	0	1	0	1	0	0	1	0	0	0	0	0	<b>3</b>
Warbling Vireo	48	131	179	174	133	138	115	147	124	193	216	90	154	<b>1,842</b>

**Table 7. (continued)**

<b>SPECIES</b>	<b>1997<sup>A</sup></b>	<b>1998<sup>B</sup></b>	<b>1999<sup>C</sup></b>	<b>2000<sup>D</sup></b>	<b>2001<sup>E</sup></b>	<b>2002<sup>E</sup></b>	<b>2003<sup>E</sup></b>	<b>2004<sup>E</sup></b>	<b>2005<sup>E</sup></b>	<b>2006<sup>E</sup></b>	<b>2007<sup>E</sup></b>	<b>2008<sup>E</sup></b>	<b>2009<sup>E</sup></b>	<b>TOTAL</b>
Steller's Jay	1	2	0	1	3	1	2	1	1	0	4	0	1	<b>17</b>
Blue Jay	0	1	0	0	0	0	0	0	0	0	0	0	0	<b>1</b>
Black-capped Chickadee	6	15	13	66	22	4	21	4	2	3	23	3	19	<b>201</b>
Mountain Chickadee	30	15	37	46	144	35	206	19	25	26	73	25	102	<b>783</b>
Chestnut-backed Chickadee	0	0	0	1	0	0	0	4	0	0	0	0	0	<b>5</b>
Bushtit	0	0	0	1	0	0	5	0	0	0	0	0	0	<b>6</b>
Red-breasted Nuthatch	14	20	38	21	292	15	78	90	18	71	58	120	136	<b>971</b>
White-breasted Nuthatch	0	0	0	0	0	0	0	1	0	0	0	0	1	<b>2</b>
Brown Creeper	0	25	0	5	14	3	7	10	7	3	9	2	2	<b>87</b>
Rock Wren	0	0	0	1	0	0	1	0	0	0	1	0	0	<b>3</b>
Canyon Wren	0	0	0	2	0	0	2	2	1	3	0	0	0	<b>10</b>
House Wren	2	19	3	9	10	19	15	7	37	26	12	17	24	<b>200</b>
Winter Wren	0	2	0	0	1	0	0	0	1	2	0	0	0	<b>6</b>
Bewick's Wren	0	0	0	0	0	0	1	0	0	0	0	0	0	<b>1</b>
Golden-crowned Kinglet	60	65	66	91	80	51	40	13	56	46	24	35	11	<b>638</b>
Ruby-crowned Kinglet	1,017	1,051	697	1,674	1,028	1,316	852	1,503	1,363	1,535	788	797	638	<b>14,259</b>
Blue-gray Gnatcatcher	0	0	0	0	0	1	0	0	0	0	0	0	0	<b>1</b>
Townsend's Solitaire	55	67	14	125	8	13	7	9	40	46	16	18	10	<b>428</b>
Swainson's Thrush	10	17	8	14	15	4	13	16	13	20	26	11	45	<b>212</b>
Hermit Thrush	45	42	22	32	14	21	34	42	34	60	45	26	42	<b>459</b>
American Robin	55	15	5	51	7	2	27	14	17	34	15	9	42	<b>293</b>
Varied Thrush	0	0	0	0	0	0	0	0	0	0	0	1	1	<b>2</b>
Sage Thrasher	0	0	0	0	0	0	1	0	1	0	0	0	0	<b>2</b>
Cedar Waxwing	8	2	0	1	1	0	8	0	3	15	1	4	2	<b>45</b>
<i>Tennessee Warbler</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>	<b>5</b>
Orange-crowned Warbler	97	123	107	272	341	188	126	115	153	139	141	193	92	<b>2,087</b>
Nashville Warbler	53	95	144	257	256	170	111	85	259	153	134	254	195	<b>2,166</b>
Yellow Warbler	7	37	62	161	186	175	103	81	143	181	290	221	192	<b>1,839</b>
<i>Chestnut-sided Warbler</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<b>2</b>

**Table 7. (continued)**

<b>SPECIES</b>	<b>1997<sup>A</sup></b>	<b>1998<sup>B</sup></b>	<b>1999<sup>C</sup></b>	<b>2000<sup>D</sup></b>	<b>2001<sup>E</sup></b>	<b>2002<sup>E</sup></b>	<b>2003<sup>E</sup></b>	<b>2004<sup>E</sup></b>	<b>2005<sup>E</sup></b>	<b>2006<sup>E</sup></b>	<b>2007<sup>E</sup></b>	<b>2008<sup>E</sup></b>	<b>2009<sup>E</sup></b>	<b>TOTAL</b>
<i>Magnolia Warbler</i>	0	0	0	0	0	1	0	0	0	0	0	1	0	2
<i>Black-throated Blue Warbler</i>	1	0	0	0	0	0	0	1	0	0	0	0	0	2
"Audubon's" Warbler	31	58	220	336	297	241	268	123	314	295	283	619	226	<b>3,311</b>
"Myrtle" Warbler	0	0	2	1	1	0	0	1	0	0	0	9	0	<b>14</b>
Unid. Yellow-rumped Warbler	0	0	0	3	1	0	0	1	2	1	1	4	0	<b>13</b>
Townsend's Warbler	24	36	42	114	138	51	22	54	68	78	88	52	38	<b>805</b>
<i>Hermit Warbler</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	<b>1</b>
<i>Blackburnian Warbler</i>	0	0	0	0	1	0	0	0	1	0	0	1	0	<b>3</b>
Black-throated Gray Warbler	0	0	0	0	0	0	0	0	0	0	1	0	0	<b>1</b>
<i>Bay-breasted Warbler</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	<b>1</b>
<i>Palm Warbler</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	<b>1</b>
<i>Blackpoll Warbler</i>	0	2	0	0	1	1	0	0	0	0	1	0	0	<b>5</b>
Black-and-White Warbler	0	0	0	1	0	0	0	0	0	0	0	0	0	<b>1</b>
MacGillivray's Warbler	61	189	235	296	380	335	224	232	255	310	285	274	283	<b>3,359</b>
Wilson's Warbler	40	63	64	54	78	56	36	59	38	78	71	85	56	<b>778</b>
Northern Waterthrush	0	0	1	0	0	0	0	0	0	0	0	0	0	<b>1</b>
American Redstart	0	0	1	0	1	2	0	0	0	0	1	1	1	<b>7</b>
Yellow-breasted Chat	0	0	0	0	0	0	1	1	0	0	0	0	1	<b>3</b>
Western Tanager	36	70	88	177	134	109	380	166	297	569	201	253	697	<b>3,177</b>
Spotted Towhee	186	205	224	146	196	117	243	291	167	289	238	187	285	<b>2,744</b>
Green-tailed Towhee	0	0	0	0	0	0	0	2	0	1	1	0	1	<b>5</b>
American Tree Sparrow	0	1	0	0	0	0	0	0	0	0	0	0	0	<b>1</b>
Brewer's Sparrow	2	6	19	58	37	13	19	24	6	41	87	27	18	<b>357</b>
Chipping Sparrow	48	98	105	221	158	115	162	368	180	244	165	245	162	<b>2,271</b>
Vesper Sparrow	0	8	3	1	8	2	5	2	3	7	5	2	6	<b>52</b>
Savannah Sparrow	0	1	1	0	0	1	0	0	3	1	0	2	4	<b>13</b>
Fox Sparrow	9	19	6	10	11	4	10	5	10	10	13	3	5	<b>115</b>
Song Sparrow	0	0	0	2	2	0	1	5	2	6	6	4	9	<b>37</b>
Lincoln's Sparrow	1	3	1	4	2	0	0	2	0	4	2	2	1	<b>22</b>

Table 7. (continued)

<b>SPECIES</b>	<b>1997<sup>A</sup></b>	<b>1998<sup>B</sup></b>	<b>1999<sup>C</sup></b>	<b>2000<sup>D</sup></b>	<b>2001<sup>E</sup></b>	<b>2002<sup>E</sup></b>	<b>2003<sup>E</sup></b>	<b>2004<sup>E</sup></b>	<b>2005<sup>E</sup></b>	<b>2006<sup>E</sup></b>	<b>2007<sup>E</sup></b>	<b>2008<sup>E</sup></b>	<b>2009<sup>E</sup></b>	<b>TOTAL</b>
White-crowned Sparrow	215	255	389	161	443	199	516	414	492	1,070	406	458	495	<b>5,513</b>
Golden-crowned Sparrow	1	4	0	1	4	1	5	1	2	15	4	2	2	<b>42</b>
“Oregon” (Dark-eyed) Junco	803	816	310	536	351	279	277	813	585	915	1,070	332	763	<b>7,850</b>
“Pink-sided” Junco	0	0	0	0	0	0	0	5	2	3	6	0	3	<b>19</b>
“Slate-colored” Junco	0	0	0	0	0	1	0	1	4	0	0	0	2	<b>8</b>
Unid. Dark-eyed Junco	-	-	-	-	-	-	-	6	25	8	35	2	31	<b>107</b>
Black-headed Grosbeak	4	20	18	28	56	28	89	73	76	60	74	49	64	<b>639</b>
<i>Rose-breasted Grosbeak</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>	<b>2</b>
Lazuli Bunting	5	42	81	59	40	20	28	26	31	85	79	80	91	<b>667</b>
<i>Indigo Bunting</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>	<b>1</b>
Brown-headed Cowbird	0	0	0	0	0	0	1	0	1	2	0	1	0	<b>5</b>
Bullock’s Oriole	1	1	1	2	10	0	16	3	1	14	9	4	1	<b>63</b>
Cassin’s Finch	12	4	1	3	13	2	15	58	8	13	35	7	45	<b>216</b>
Red Crossbill	0	0	0	0	2	0	4	0	0	1	0	0	0	<b>7</b>
Pine Siskin	37	17	19	10	219	36	86	393	107	86	67	107	52	<b>1,236</b>
American Goldfinch	0	0	0	0	0	0	0	0	2	0	0	0	2	<b>4</b>
Evening Grosbeak	0	0	0	7	0	0	0	0	0	0	0	0	0	<b>7</b>
<b>TOTAL CAPTURES</b>	<b>3,284</b>	<b>4,064</b>	<b>3,705</b>	<b>5,781</b>	<b>5,647</b>	<b>4,400</b>	<b>4,748</b>	<b>5,902</b>	<b>5,499</b>	<b>7,448</b>	<b>5,770</b>	<b>5,162</b>	<b>5,748</b>	<b>67,158</b>
<b>TOTAL NET HOURS</b>	<b>2,657</b>	<b>3,240</b>	<b>3,607</b>	<b>4,174</b>	<b>4,454</b>	<b>4,422</b>	<b>4,302</b>	<b>4,279</b>	<b>4,217</b>	<b>4,367</b>	<b>4,116</b>	<b>4,440</b>	<b>4,364</b>	<b>52,639</b>
<b>CAPTURE RATE</b> (Captures per net hour)	<b>1.236</b>	<b>1.254</b>	<b>1.027</b>	<b>1.385</b>	<b>1.267</b>	<b>0.995</b>	<b>1.104</b>	<b>1.384</b>	<b>1.304</b>	<b>1.706</b>	<b>1.402</b>	<b>1.163</b>	<b>1.317</b>	<b>1.276</b>
<b># OF SPECIES</b>	<b>49</b>	<b>57</b>	<b>51</b>	<b>60</b>	<b>61</b>	<b>60</b>	<b>62</b>	<b>60</b>	<b>60</b>	<b>57</b>	<b>58</b>	<b>56</b>	<b>61</b>	<b>100</b>

<sup>A</sup> Start Date = August 13; End Date = October 21

<sup>B</sup> Start Date = August 5; End Date = October 15

<sup>C</sup> Start Date = July 31; End Date = October 15

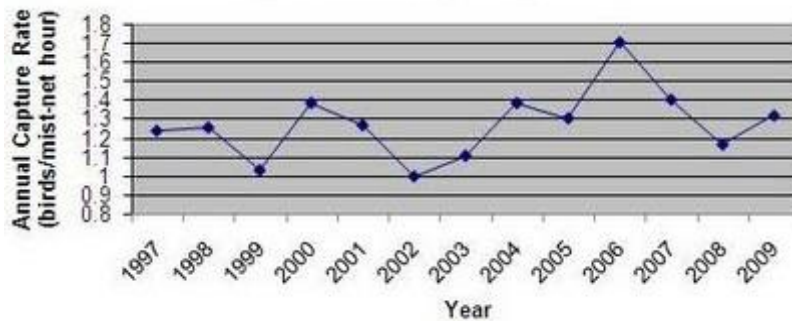
<sup>D</sup> Start Date = July 18; End Date = October 15

<sup>E</sup> Start Date = July 16; End Date = October 15

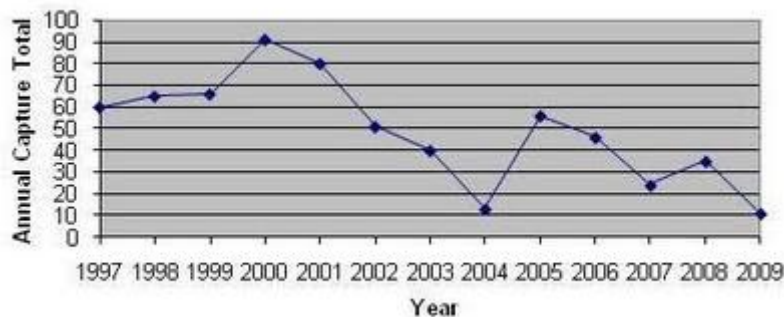
We captured three new species in songbird mist nets at Lucky Peak during 2009, including a Hermit Warbler (*Dendroica occidentalis*) on 6 August, an American Kestrel on 21 August (a common migrant at the site that had never been caught in the songbird nets), and an Indigo Bunting (*Passerina cyanea*) on 12 September (Table 7). Other rarities banded during 2009 included a Green-tailed Towhee (*Pipilo chlorurus*) on 29 July, a Gray Flycatcher (*Empidonax wrightii*) on 2 August, a Yellow-breasted Chat (*Icteria virens*) on 20 August, an American Redstart (*Setophaga ruticilla*) on 27 August, a Rose-breasted Grosbeak (*Pheucticus ludovicianus*) on 9 September, a Least Flycatcher (*Empidonax minimus*) on 15 September, a White-breasted Nuthatch (*Sitta carolinensis*) on 26 September, and a Varied Thrush (*Ixoreus naevius*) on 29 September (Table 7).

While captures of most species in 2009 were comparable to previous seasons (Table 7, 8), suggesting stable numbers with some cyclic and/or inter-annual variation, this marked the 3<sup>rd</sup> consecutive fall during which we captured fewer than 800 Ruby-crowned Kinglets (Table 7). In addition, Golden-crowned Kinglet (*Regulus satrapa*) numbers have declined over the past several seasons, indicating a possible downward trend in populations of this species that use the Boise Ridge as a stopover site during autumn migration (Table 9). While Golden-crowned Kinglets are present almost daily in September and October of each season, we captured only 11 in 2009 (the lowest season capture total since we began the project in 1997). More study is needed to determine population status and trends of these species.

**Table 8. Annual variation in capture rates of all songbirds at Lucky Peak, 1997 - 2009; Idaho Bird Observatory.**



**Table 9. Annual variation in autumn captures of Golden-crowned Kinglets at Lucky Peak, 1997 - 2009; Idaho Bird Observatory.**



### Owl Banding

During fall 2009 we mist netted for forest owls on 55 nights for a total of 1,014 station-hours using an average mist-net area of 485 m<sup>2</sup> per night (Table 10). A total of 182 owls were banded, including 27 Flammulated Owls, 152 Northern Saw-whet Owls, 2 Long-eared Owls (Asio otus), and 1 Western Screech Owl (Megascops kennicottii; Table 10). None of the Flammulated Owls were sexed, but 23 were aged as hatch-year birds based on retained juvenal body plumage and/or uniform fault bars in retrices (DeLong 2004).

Of the Northern Saw-whet Owls captured, all but one could be aged based on plumage characteristics: 134 (88%) were aged as hatch-year birds; seven (5%) were aged as second-year birds; seven (5%) were aged as after-second-year birds; three (2%) were aged as after-hatching-year birds; and for one, age could not be determined. Morphometric overlap kept us from sexing 44 Northern Saw-whet Owls (29%), and of those successfully sexed, 96 (63%) were females and 12 (7%) were males. In addition to owls, eight northern flying squirrels (Glaucomys sabrinus) were caught as well as two Silver-haired Bats (Lasionycteris noctivagans).

### Public Education and Outreach

During 2009, IBO made several public or professional presentations including the Western Field Ornithologists annual conference, Western Working Group Partner's in Flight, American Ornithologist's Union, Idaho Chapter of The Wildlife Society, Golden Eagle Audubon Society, Idaho Public Television *Dialog for Kids* Program, Bald Eagle Days and International Migratory Bird Day, the Foothills Learning Center, and Boise State University students and staff. More groups visited Lucky Peak during 2009 than during previous seasons. A total of 23 groups, including over 450 participants, scheduled visits to Lucky Peak during 2009 to observe songbird mist netting, raptor counts, and raptor banding (Table 11). Groups included Golden Eagle Audubon Society, Idaho Department of Fish and Game Project Wild, Foothills School, Anser Charter School, the Environmental Resource Center, The Boys and Girls Club of Ada County, and several local Scouting groups (Table 11). The majority of these visits occurred during September and early October.

Idaho Bird Observatory volunteer programs continued during fall 2009. Twenty different volunteers contributed 582 days, totaling approximately 5,363 hours of volunteer service to assist with data entry, set-up, equipment fabrication or repair, songbird mist-netting, hawk watch, raptor banding, and owl mist netting (Mary Dudley, IDFG Volunteer Coordinator; Unpubl. Data; Table 12; Appendix C). In addition, a total of 15 different Boise State students contributed 370 days totaling 2,593 hours of volunteer service. Students drove Boise State vehicles 2,993 miles, while volunteers drove IDFG vehicles 932 miles and personal vehicles 13,026 miles on IBO-related projects. The estimated cash value of this volunteer time, including mileage, was \$223,463.20 (Mary Dudley, IDFG Volunteer Coordinator; Unpubl. Data; Table 12; Appendix C).

Ongoing graduate research projects associated with IBO during fall 2009 included a study of stress response in raptors and a study of observer bias and detectability of raptors associated with hawk migration counts.

**Table 10. Owls banded during fall migration at Lucky Peak, 1999 - 2009; Idaho Bird Observatory.**

<b>SPECIES</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>TOTAL</b>
Dates of Operation	<i>5 Aug.-27 Oct.</i>	<i>15 Aug.-27 Oct.</i>	<i>29 Aug.-28 Oct.</i>	<i>28 Aug.-28 Oct.</i>	<i>28 Aug.-28 Oct.</i>	<i>28 Aug.-28 Oct.</i>	<i>28 Aug.-26 Oct.</i>	<i>22 Sep.-28 Oct.</i>	<i>29 Aug.-28 Oct.</i>	<i>28 Aug.-28 Oct.</i>	<i>28 Aug.-28 Oct.</i>	
Northern Saw-whet Owl	848	140	159	67	165	63	65	105	120	175	152	<b>2,059</b>
Flammulated Owl	51	7	17	12	17	16	10	2	6	66	27	<b>231</b>
Boreal Owl	2	2	0	0	0	0	0	0	0	0	0	<b>4</b>
Northern Pygmy-owl	1	0	0	0	0	0	0	1	0	0	0	<b>2</b>
Long-eared Owl	0	0	1	0	0	0	0	0	0	2	2	<b>5</b>
Western Screech-owl	0	0	0	1	2	0	0	1	0	0	1	<b>5</b>
<b>TOTAL CAPTURES</b>	<b>902</b>	<b>149</b>	<b>177</b>	<b>80</b>	<b>184</b>	<b>79</b>	<b>75</b>	<b>109</b>	<b>126</b>	<b>243</b>	<b>182</b>	<b>1,881</b>
<b>STATION HOURS</b>	<b>1,279</b>	<b>1,096</b>	<b>1,031</b>	<b>1,295</b>	<b>1,343</b>	<b>886</b>	<b>1,185</b>	<b>719</b>	<b>1,178</b>	<b>1,206</b>	<b>1,014</b>	<b>10,012</b>

**Table 11. Scheduled group visits to Lucky Peak, fall 2009; Idaho Bird Observatory.**

<b>DATE</b>	<b>GROUP/VISITOR</b>	<b>APPROX. # OF VISITORS</b>
15 August	Golden Eagle Audubon Soc. (Songbird)	20
22 August	Boise H.S. Reunion Class of '69	12
28-29 August	Paul Tucker-Elks Boy Scout Group	10
10 September	Western Field Ornithologist's	25
11 September	Western Field Ornithologist's	14
12 September	Western Field Ornithologist's	30
12 September	Project WILD Teachers	30
15 September	Cherry Gulch School (Emmett)	15
17 September	Cherry Gulch School (Emmett)	15
18 September	Jeremy Summers-Boy Scout Group	12
19 September	Boise State Vert. Nat. Hist. Students	30
19 September	Arts West School (Boise)	6
19 September	Golden Eagle Audubon Soc. (Raptors)	25
21 September	Sage School (Sun Valley)	30
23 September	Anser Charter School (Boise)	30
24-25 September	Foothills School (Boise)	30
26 September	Golden Eagle Audubon Soc. (Raptors)	25
26-28 September	Env. Res. Center (Ketchum)	10
29 September	College of Idaho Biology Students	12
29-30 September	Foothills School (Boise)	30
3 October	Boise State Biol. 191 Students	25
10 October	Golden Eagle Audubon Society (Owls)	10
12 October	Boys and Girls Club Officers	10
	<b>TOTAL</b>	<b>456</b>

**Table 12. Summary of volunteer and partner contributions to Boise Ridge Project, fall 2009; Idaho Bird Observatory.**

<b>CONTRIBUTION</b>	<b>VOLUNTEERS</b>	<b>DAYS</b>	<b>HOURS</b>	<b>MILES</b>	<b>GRADE/RATE</b>	<b>VALUE</b>
<b>Project Volunteers</b>						
Labor	4	135	1277		Biologist @ \$37.45/hour	\$47,823.65
Labor	14	444	4062		Technician @ \$23.00/hour	\$93,426.00
Labor	2	3	24		Bio-Aide @ \$15.27/hour	\$366.48
<b>Volunteer Subtotal</b>	<b>20</b>	<b>582</b>	<b>5,363</b>			<b>\$141,616.13</b>
<b>Boise State Students</b>						
Labor	2	142	1200		Biologist @ \$37.45/hour	\$44,940.00
Labor	7	170	1025		Technician @ \$23.00/hour	\$23,575.00
Labor	6	58	368		Bio-Aide @ \$15.27/hour	\$5,619.36
<b>Student Subtotal</b>	<b>15</b>	<b>370</b>	<b>2,593</b>			<b>\$74,134.36</b>
<b>Vehicle Mileage</b>						
BSU Vehicles				2,993	\$0.455/mile	\$1,361.82
IDFG Vehicles				932	\$0.455/mile	\$424.06
Personal Vehicles				13,026	\$0.455/mile	\$5,926.83
				<b>Vehicle Subtotal</b>		<b>\$7,712.71</b>
<b>TOTAL</b>	<b>35</b>	<b>952</b>	<b>7,956</b>	<b>16,951</b>		<b>\$223,463.20</b>

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**Appendix A - Daily raptor counts from Lucky Peak, fall 2009; Idaho Bird Observatory.  
August 2009**

<b>DATE</b>	<b>HRS</b>	<b>SS</b>	<b>CH</b>	<b>NG</b>	<b>UA</b>	<b>RT</b>	<b>SW</b>	<b>FH</b>	<b>BW</b>	<b>RL</b>	<b>RS</b>	<b>UB</b>	<b>AK</b>	<b>PR</b>	<b>PG</b>	<b>ML</b>	<b>UF</b>	<b>GE</b>	<b>BE</b>	<b>UE</b>	<b>NH</b>	<b>OS</b>	<b>TV</b>	<b>UR</b>	<b>TOTAL</b>
8/25/2009	6.5	0	5	0	1	1	2	0	0	0	0	1	3	0	0	0	0	0	0	0	2	0	2	0	<b>17</b>
8/26/2009	5.5	6	2	1	2	7	2	0	0	0	0	1	6	0	1	0	0	0	0	0	2	4	5	0	<b>39</b>
8/27/2009	6.5	0	4	0	1	7	1	0	0	0	0	0	7	0	0	0	0	0	0	0	3	0	2	0	<b>25</b>
8/28/2009	5.5	5	3	0	0	6	4	0	0	0	0	1	4	0	1	0	0	0	0	0	1	0	4	0	<b>29</b>
8/29/2009	6.5	2	10	0	4	32	4	0	0	0	0	3	13	0	1	0	0	0	0	0	1	0	0	1	<b>71</b>
8/30/2009	6	7	7	0	3	10	4	0	0	0	0	4	12	0	0	0	0	1	0	0	2	5	3	0	<b>58</b>
8/31/2009	5.5	21	9	0	5	6	3	0	0	0	0	0	11	0	0	0	0	1	0	0	2	0	0	0	<b>58</b>
<b>AUG TOTAL</b>	<b>42</b>	<b>41</b>	<b>40</b>	<b>1</b>	<b>16</b>	<b>69</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>56</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>9</b>	<b>16</b>	<b>1</b>	<b>297</b>

**Appendix A (continued)**  
**September 2009**

<b>DATE</b>	<b>HRS</b>	<b>SS</b>	<b>CH</b>	<b>NG</b>	<b>UA</b>	<b>RT</b>	<b>SH</b>	<b>FH</b>	<b>BW</b>	<b>RL</b>	<b>RS</b>	<b>UB</b>	<b>AK</b>	<b>PR</b>	<b>PG</b>	<b>ML</b>	<b>UF</b>	<b>GE</b>	<b>BE</b>	<b>UE</b>	<b>NH</b>	<b>OS</b>	<b>TV</b>	<b>UR</b>	<b>TOTAL</b>
9/1/2009	7	7	11	0	0	12	8	0	0	0	0	0	3	0	0	0	0	0	0	0	2	2	3	0	<b>48</b>
9/2/2009	8.5	16	16	0	0	20	14	1	0	0	0	1	17	1	0	0	0	0	0	0	2	2	2	0	<b>92</b>
9/3/2009	9	22	11	0	2	16	8	0	0	0	0	4	54	0	2	0	0	1	0	0	4	0	9	0	<b>133</b>
9/4/2009	8	27	26	0	9	19	4	0	0	0	0	0	22	0	0	0	0	0	0	0	1	3	4	0	<b>115</b>
9/5/2009	7.5	27	13	0	3	7	7	0	0	0	0	1	29	0	0	0	0	0	0	0	4	2	3	0	<b>96</b>
9/6/2009	7.5	35	13	0	1	10	1	0	0	0	0	0	13	0	0	0	0	0	0	0	5	4	0	0	<b>82</b>
9/7/2009	8.5	31	24	0	5	21	0	0	0	0	0	5	19	0	0	1	0	0	0	0	8	1	0	0	<b>115</b>
9/8/2009	7.5	54	32	0	2	12	2	0	1	0	0	1	11	0	0	0	1	0	0	0	2	1	3	0	<b>122</b>
9/9/2009	8	72	35	0	5	13	0	0	0	0	0	1	6	0	0	0	0	0	0	0	15	2	2	0	<b>151</b>
9/10/2009	9	46	54	0	1	22	13	0	0	0	0	3	69	0	0	0	0	0	0	0	8	1	12	0	<b>229</b>
9/11/2009	9	63	53	0	6	21	4	0	0	0	0	1	44	0	0	1	0	0	0	0	16	6	13	0	<b>228</b>
9/12/2009	8.5	67	58	0	4	19	14	0	0	0	0	2	63	0	2	1	0	0	0	0	7	1	35	0	<b>273</b>
9/13/2009	8	37	34	0	4	15	4	1	0	0	0	0	33	1	0	0	0	0	0	0	2	2	14	0	<b>147</b>
9/14/2009	8	33	14	0	1	3	0	0	0	0	0	1	14	0	1	1	0	0	0	0	1	0	0	0	<b>69</b>
9/15/2009	8.5	73	44	0	11	27	8	1	0	0	0	1	84	1	0	3	0	0	0	0	9	4	54	0	<b>320</b>
9/16/2009	8	50	33	0	2	15	3	0	5	0	0	4	18	0	0	3	0	2	0	0	5	5	16	1	<b>162</b>
9/17/2009	8	49	43	0	4	25	2	0	3	0	0	1	106	0	1	1	0	1	0	0	11	4	30	0	<b>281</b>
9/18/2009	8	61	74	0	8	28	5	0	8	0	0	1	30	0	0	2	0	5	0	0	13	11	69	3	<b>318</b>
9/19/2009	8	24	23	0	2	8	3	0	2	0	0	1	37	2	0	0	0	0	0	0	6	1	31	0	<b>140</b>
9/20/2009	8.5	34	33	0	6	23	2	0	0	0	0	1	30	0	1	0	0	0	0	0	2	2	18	4	<b>156</b>
9/21/2009	8.5	39	34	0	5	17	4	0	31	0	0	4	20	0	0	0	0	0	0	0	2	6	125	1	<b>288</b>
9/22/2009	8.5	43	47	0	7	29	4	0	13	0	0	6	68	0	1	1	0	0	0	0	4	6	249	2	<b>480</b>
9/23/2009	7.5	69	73	0	6	32	10	0	8	0	0	0	23	0	1	0	0	1	0	0	9	2	187	0	<b>421</b>
9/24/2009	8.5	33	48	1	4	20	3	0	1	0	0	1	57	0	1	4	0	0	0	0	1	1	147	0	<b>322</b>
9/25/2009	8	22	37	0	1	15	3	0	3	0	0	3	38	0	0	2	0	0	0	0	7	0	87	2	<b>220</b>
9/26/2009	8	29	26	0	2	18	2	0	0	0	0	2	48	0	0	0	0	1	0	0	8	4	11	2	<b>153</b>
9/27/2009	8.5	22	37	0	8	35	2	1	1	0	0	3	50	0	1	1	0	0	0	0	9	6	47	1	<b>224</b>
9/28/2009	7	16	7	0	0	10	0	0	0	0	0	0	16	0	0	0	1	0	0	0	9	0	29	0	<b>88</b>
9/29/2009	7	5	4	0	0	9	0	0	0	0	0	0	2	0	0	0	0	1	0	0	5	1	1	0	<b>28</b>
9/30/2009	7	26	9	1	4	15	0	0	0	0	0	2	6	1	0	0	0	1	0	0	2	0	89	1	<b>157</b>
<b>SEPT TOTAL</b>	<b>241.5</b>	<b>1132</b>	<b>966</b>	<b>2</b>	<b>113</b>	<b>536</b>	<b>130</b>	<b>4</b>	<b>76</b>	<b>0</b>	<b>0</b>	<b>50</b>	<b>1030</b>	<b>6</b>	<b>11</b>	<b>21</b>	<b>2</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>179</b>	<b>80</b>	<b>1290</b>	<b>17</b>	<b>5658</b>

**Appendix A (continued)**  
**October 2009**

DATE	HRS	SS	CH	NG	UA	RT	SH	FH	BW	RL	RS	UB	AK	PR	PG	ML	UF	GE	BE	UE	NH	OS	TV	UR	TOTAL
10/1/2009	7.5	42	20	0	5	18	0	0	0	0	0	3	6	0	1	0	0	0	0	0	2	1	7	0	105
10/2/2009	8.5	38	28	0	7	17	0	0	0	0	0	0	9	0	0	2	0	3	0	0	4	2	340	0	450
10/3/2009	7	13	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
10/4/2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/5/2009	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
10/6/2009	8	80	14	2	2	54	0	0	0	0	0	0	3	0	0	1	0	2	1	0	7	2	48	0	216
10/7/2009	8.5	92	15	2	1	52	0	1	0	0	0	3	19	1	0	6	0	2	0	0	10	2	1	0	207
10/8/2009	8.5	46	10	2	5	21	0	0	0	0	0	0	38	0	1	5	0	1	0	0	7	2	2	1	141
10/9/2009	7	25	2	0	0	13	0	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0	0	0	47
10/10/2009	7	3	0	0	0	6	0	0	0	0	0	0	0	0	0	4	0	2	0	0	1	0	0	0	16
10/11/2009	7	36	5	0	1	56	0	0	0	0	0	0	2	0	0	3	0	1	0	0	8	2	0	0	114
10/12/2009	7	12	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	17
10/13/2009	6	9	1	1	0	4	0	0	0	0	0	0	0	0	0	2	0	0	1	0	1	0	0	0	19
10/14/2009	7	8	0	3	0	1	0	0	0	0	0	0	0	0	0	1	0	2	2	0	1	0	0	0	18
10/15/2009	7.5	39	5	0	1	10	0	0	0	0	0	0	1	0	0	1	0	0	0	0	3	0	0	0	60
10/16/2009	7.5	63	10	2	1	90	0	0	0	1	0	0	6	0	0	1	0	0	0	0	12	1	1	0	188
10/17/2009	7	9	4	0	2	37	0	1	0	0	0	0	1	0	0	0	1	0	0	0	5	0	0	0	60
10/18/2009	7.5	38	4	0	0	69	0	0	0	3	0	0	0	0	0	2	0	0	1	0	6	0	0	0	123
10/19/2009	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	4
10/20/2009	8	21	3	0	1	97	0	0	0	0	0	2	0	1	0	0	0	0	0	0	19	0	0	2	146
10/21/2009	7	5	1	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	12
10/22/2009	7.5	12	5	3	0	21	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4	2	0	0	48
10/23/2009	6.5	7	0	4	0	27	0	0	0	1	0	0	0	0	0	2	0	1	0	0	5	1	0	0	48
10/24/2009	7	8	1	4	0	19	0	0	0	1	0	0	0	1	0	1	0	0	0	0	4	0	0	0	39
10/25/2009	7	11	2	2	4	114	0	1	0	0	0	0	0	0	1	1	0	1	1	0	9	0	0	1	148
10/26/2009	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/27/2009	2.75	3	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	7
10/28/2009	6.5	4	0	0	1	14	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0	0	1	24
10/29/2009	3	1	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	7
10/30/2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/31/2009	5.75	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<b>OCT TOTAL</b>	<b>190.5</b>	<b>628</b>	<b>131</b>	<b>26</b>	<b>32</b>	<b>750</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>9</b>	<b>91</b>	<b>3</b>	<b>3</b>	<b>42</b>	<b>1</b>	<b>15</b>	<b>6</b>	<b>0</b>	<b>118</b>	<b>15</b>	<b>399</b>	<b>5</b>	<b>2284</b>
<b>SEASON TOTAL</b>	<b>474</b>	<b>1801</b>	<b>1137</b>	<b>29</b>	<b>161</b>	<b>1355</b>	<b>150</b>	<b>7</b>	<b>76</b>	<b>7</b>	<b>0</b>	<b>69</b>	<b>1177</b>	<b>9</b>	<b>17</b>	<b>63</b>	<b>3</b>	<b>30</b>	<b>6</b>	<b>0</b>	<b>310</b>	<b>104</b>	<b>1705</b>	<b>23</b>	<b>8239</b>

## **Appendix B – Description of volunteer duties by classification grade; Idaho Bird Observatory.**

**Biologist:** Volunteer typically with at least a B.S. in Biology or related field and/or 3 years or more experience specific to IBO projects. Duties may include any or all of the following: assistance with project planning, fund raising or grant writing, equipment preparation, project set up and take down, supervision and training of one or more volunteers, interaction with the general public, data collection, data entry, data summary and analysis, preparation of reports and manuscripts, and public or professional presentations.

**Biological Technician:** Volunteer typically with at least a B.S. in Biology or related field (students may be in progress) that contributes a significant number of days/hours of volunteer labor during a particular field season. Duties typically include: equipment preparation, project set up and take down, interaction with the general public, data collection, data entry, data summary, and preparation of reports.

**Bio-Aide:** A part-time volunteer, often with no training or education in Biology or related field, that assists with manual labor associated with equipment preparation, project set up or take down, or site maintenance. Volunteers placed in this classification grade are often new to the project and may also assist with data collection under supervision of a Biological Technician- or Biologist-level volunteer or paid staff.

**Appendix C – Detailed summary of volunteer contributions to the Idaho Bird Observatory, Boise Ridge Migration Project, fall 2009.**

**2009 Full-time Volunteer Crew**

<b>Name</b>	<b># Days</b>	<b># Hours</b>	<b>Grade/Rate</b>	<b>\$ Value</b>
Caroline Poli	48	480	Biologist @ \$37.45/Hour	\$17,976.00
LeRoy Fink	48	480	Biologist @ \$37.45/Hour	\$17,976.00
<b>Biologist Grade Subtotal</b>	<b>96</b>	<b>960</b>		<b>\$35,952.00</b>
Stephanie Coates	65	520	Technician @ \$23.00/Hour	\$11,960.00
Jon Kauffman	54	540	Technician @ \$23.00/Hour	\$12,420.00
Preston Alden	54	540	Technician @ \$23.00/Hour	\$12,420.00
David Rankin	54	540	Technician @ \$23.00/Hour	\$12,420.00
Sean Roedl	54	540	Technician @ \$23.00/Hour	\$12,420.00
Jacklyn Slawson	54	540	Technician @ \$23.00/Hour	\$12,420.00
Nathan Banfield	48	384	Technician @ \$23.00/Hour	\$8,832.00
Jack Stenger	12	96	Technician @ \$23.00/Hour	\$2,208.00
Anna Sample	6	48	Technician @ \$23.00/Hour	\$1,104.00
<b>Technician Grade Subtotal</b>	<b>401</b>	<b>3748</b>		<b>\$86,204.00</b>
<b>TOTAL</b>	<b>497</b>	<b>4708</b>		<b>\$122,156.00</b>

**2009 Part-time Volunteers**

<b>Name</b>	<b># Days</b>	<b># Hours</b>	<b>Grade/Rate</b>	<b>\$ Value</b>
Gary Robinson	20	160	Biologist @ \$37.45/Hour	\$5,992.00
Dave Wike	19	157	Biologist @ \$37.45/Hour	\$5,879.65
<b>Biologist Grade Subtotal</b>	<b>39</b>	<b>317</b>		<b>\$11,871.65</b>
Randy Lancaster	15	90	Technician @ \$23.00/Hour	\$2,070.00
Carol Wike	14	120	Technician @ \$23.00/Hour	\$2,760.00
Melody Monbleau	6	48	Technician @ \$23.00/Hour	\$1,104.00
Deniz Aygen	4	24	Technician @ \$23.00/Hour	\$552.00
Eric Hallingstad	4	32	Technician @ \$23.00/Hour	\$736.00
<b>Technician Grade Subtotal</b>	<b>43</b>	<b>314</b>		<b>\$7,222.00</b>
Shaugn Coughran	2	16	Bio-Aid @ \$15.27/Hour	\$244.32
David Cain	1	8	Bio-Aid @ \$15.27/Hour	\$122.16
<b>Bio-Aid Grade Subtotal</b>	<b>3</b>	<b>24</b>		<b>\$366.48</b>
<b>TOTAL</b>	<b>85</b>	<b>655</b>		<b>\$19,460.13</b>

### Appendix C (continued)

#### 2009 Boise State University Student Volunteer Hours

Name	# Days	# Hours	Grade/Rate	\$ Value
Matt Stuber	96	960	Biologist @ \$37.45/Hour	\$35,952.00
Robert Miller	46	240	Biologist @ \$37.45/Hour	\$8,988.00
<b>Biologist Grade Subtotal</b>	<b>142</b>	<b>1,200</b>		<b>\$44,940.00</b>
Heidi Ware	74	422	Technician @ \$23.00/Hour	\$9,706.00
Eric Nolte	40	283	Technician @ \$23.00/Hour	\$6,509.00
John O'Keefe	25	125	Technician @ \$23.00/Hour	\$2,875.00
Micah Scholer	11	60	Technician @ \$23.00/Hour	\$1,380.00
Erin Strasser	10	55	Technician @ \$23.00/Hour	\$1,265.00
Steve Alsup	5	40	Technician @ \$23.00/Hour	\$920.00
Lyndsay Reynolds	5	40	Technician @ \$23.00/Hour	\$920.00
<b>Technician Grade Subtotal</b>	<b>170</b>	<b>1,025</b>		<b>\$23,575.00</b>
Michelle Laskowski	14	84	Bio-Aid @ \$15.27/Hour	\$1,282.68
Jeremiah Pate	12	96	Bio-Aid @ \$15.27/Hour	\$1,465.92
Katie Sorenson	12	60	Bio-Aid @ \$15.27/Hour	\$916.20
Jesse Handy	10	60	Bio-Aid @ \$15.27/Hour	\$916.20
Michael McCormick	8	56	Bio-Aid @ \$15.27/Hour	\$855.12
Mike Freeman	2	12	Bio-Aid @ \$15.27/Hour	\$183.24
<b>Bio-Aide Grade Subtotal</b>	<b>58</b>	<b>368</b>		<b>\$5,619.36</b>
<b>TOTAL</b>	<b>370</b>	<b>2,593</b>		<b>\$74,134.36</b>

#### 2009 Vehicle Contributions to IBO Boise Ridge Project

Vehicle Type	Number of Miles	Rate <sup>A</sup>	\$ Value
Boise State University Raptor Research Center	2,993	\$0.455/mile	\$1,361.82
Idaho Dept. Fish and Game	932	\$0.455/mile	\$424.06
<b>Subtotal</b>	<b>3,925</b>		<b>\$1,785.88</b>
<b>Volunteer Personal Vehicles</b>			
Leroy Fink	2310	\$0.455/mile	\$1,051.05
Robert Miller	1840	\$0.455/mile	\$837.20
Jay Carlisle	1800	\$0.455/mile	\$819.00
Greg Kaltenecker	1800	\$0.455/mile	\$819.00
Gary Robinson	1600	\$0.455/mile	\$728.00
Heidi Ware	1280	\$0.455/mile	\$582.40
Matt Stuber	1200	\$0.455/mile	\$546.00
Randy Lancaster	600	\$0.455/mile	\$273.00
Dave and Carol Wike	296	\$0.455/mile	\$134.68
Lindsay Reynolds	210	\$0.455/mile	\$95.55
Daleesa Cole	90	\$0.455/mile	\$40.95
<b>Volunteer Mileage Subtotal</b>	<b>13,026</b>		<b>\$5,926.83</b>
<b>TOTAL</b>	<b>16,951</b>		<b>\$7,712.71</b>

<sup>A</sup> Idaho state mileage reimbursement rate for use of personal vehicles