

**ANNUAL PROGRESS REPORT**  
**Birds and Burns Network**  
**The Nature Conservancy and Fremont/Winema National Forest, Oregon**

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**Purpose:** This project is part of the Joint Fires Sciences Program (Proposal # 01-1-3-25, Saab, Kotliar, Block) investigating the effects of prescribed fire strategies to restore wildlife habitat in ponderosa pine forests of the interior west ([www.rmrs.nau.edu/birdsnburns](http://www.rmrs.nau.edu/birdsnburns)).

**Partners:** Partners include the U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Silver Lake Ranger District of the Fremont/Winema National Forest and The Fremont/Winema Resource Advisory Committee and The Nature Conservancy.

**Preliminary Results:** Four study units are located about 80 miles northeast of Klamath Falls, Oregon in the Klamath Basin. Two units, Treatment North (TN) and Treatment South (TS), are proposed for mechanical and prescribed fire treatments. Each of these units is paired with a control unit (Control North [CN] and Control South [CS]) where no mechanical or prescribed fire treatments will occur. Elevations within the study area range from 1520 to 2000 m, with most of the areas between 1520 and 1680 m. Precipitation in 2004 was 50.5 cm, whereas the average over the past five years has been 42.2 cm. All of the study units are classified as Ponderosa Pine Plant Associations and ponderosa pine (*Pinus ponderosa*) is the dominate overstory vegetation. Lodgepole pine (*Pinus contorta* var. *latifolia*) and white fir (*Abies concolor*) make up a part of the overstory vegetation at microsites. Mountain mahogany (*Cercocarpus ledifolius*) occurs in TN, but rarely in any of the other units. The understory vegetation varies. Some areas have little if any understory vegetation; others have groundcover of shrubs and grasses. The most common shrubs are bitterbrush (*Purshia tridentata*) and Greenleaf Manzanita (*Arcostaphylos patula*). Idaho Fescue (*Festuca idahoensis*) provides sparse grass cover. Three of the units (CN, CS, and TS) are adjacent to Sycan Marsh, a 14,000 ha wetland. There are no noxious weeds in the study units, however non-native thistles occurs in some adjacent areas.

In 2002, the vegetation was surveyed and data recorded on hand held data loggers at 80 random points, 20 in each study unit and at each of the 48 nest trees. In 2003, the vegetation was only surveyed at the 59 nest trees. Photo points were established at 40 of the random points and illustrate the vegetation condition before and after mechanical harvest. Vegetation surveys in 2002 and 2003 were pre-treatment data. Mechanical harvest occurred in TN and TS from winter through early summer 2004. In 2004, vegetation was surveyed in the two treatment units at 40 random points. In addition, the vegetation was also surveyed at 58 nest point locations. A summary of the vegetation assessment for the Oregon Sites in addition to the entire study area can be obtained at the Birds and Burn website.

Point count surveys were conducted at all 80 random sites. The point counts were divided into three canopy cover strata, 40 in areas with < 25% canopy closure, 20 in the areas with 26 – 40% closure and 20 in areas with > 45% canopy closure. Sixty-two different bird species were detected during bird surveys with a total of 1,199 detections (Appendix 2). In 2003 there were 56

species, with over 2,000 detections. We found a reduction in the total number of detections, but perhaps more interesting is the significant change in the top ten species. We detected Mountain Chickadees most often (140) with Yellow-rumped warblers second at 138 detections, a decrease from 248 in 2003. Hammond's flycatcher went from 73 detections in 2003 to 10 in 2004. Brown-headed cowbirds increased to 59 detections in 2004. Appendix 2 lists all species detected in order of the number of detections.

To aid in finding woodpecker nests, we established a total of 40 transects systematically placed 200 m apart on the four study sites. This included using a play-back device to increase the probability of encountering a woodpecker. Transects where woodpeckers were detected were repeatedly visited until the nest was found.

We monitored a total of 58 nests during the 2004 field season (Table 1). Nests were occupied by Williamson's and Red-breasted Sapsuckers, Pygmy nuthatches, Hairy, White-headed and Black-backed woodpeckers, and one mountain bluebird nests found in TS. Nineteen nests were found on the TS unit, 18 in CN, 13 in TN and eight in CS. In 2003 58 nests were also found, but in 2004 the number of successful nests was 49 as compared to 47 in 2003. Nesting success was overall higher in 2004 (91%) as compared to 2003 with only 81%. Williamson's sapsuckers and Hairy Woodpeckers had higher nesting success in 2003 than in 2004.

Pygmy nuthatches, white-headed woodpeckers, black-backed woodpeckers and mountain bluebirds all had 100 % nesting success. Although the number of nests for Pygmy nuthatches was 11 with the other species having only one or two nests. In general, nesting success for the pygmy nuthatch is believed to be associated with the higher level of parental care, being provided by aunts and uncles as well as the immediate parents. Northern Flickers have had the most nests each year and produced the most young. In 2004 Flickers produced 53 young from 12 nests (Table 2), 42% of all the young produced. TS had five successful flicker nests that produced 22 young for an average of 4.4 young per nest. Only CS had a higher level of production with 5.5 young per nest. Northern flickers in the southern sites produced on average more young per nest ( $4.71 \pm 1.60$ ) than were produced at the northern sites ( $1.67 \pm 0.58$ ). Differences in productivity for Williamson's sapsuckers were also found between the northern ( $1.14 \pm 1.07$ ) and southern units ( $3.00 \pm 0.71$ ). Hairy woodpeckers had higher productivity in the northern units ( $2.33 \pm 0.58$ ) as opposed to the southern units with ( $1.80 \pm 0.84$ ). While it appears that there may be differences in the levels of productivity between units or treatments, we found no statistical differences between these treatments.

The number of young fledged increased from 76 in 2002 to 93 in 2003 to 126 in 2004. The high level of production in 2004 cannot be attributed to any specific event, location or treatment. The timber harvest has been completed in the treatment units and there were ongoing timber harvest activities in TS during part of the nesting season, which does not appear to have had any effect on nesting success or productivity. 2004 had an epidemic of clearwinged grasshopper (*Camnula pellucida*) on Sycan Marsh. Densities were  $> 100/m^2$  on the southern end of the marsh, which could have contributed to an increase in forage for some woodpeckers. However, we found no statistical differences in productivity between units on the south end of the marsh and the other units. The three years of pre-burn bird data will be very useful to evaluate the effects of post fire conditions.

In the summer of 2005 point count surveys will continue. Prescribed fire application will occur in TS and TN in the fall or early spring of 2006. In 2006 nest searching, point counts and vegetation sampling will occur.

Table 1. Number of nests monitored, and the number that successfully fledged young, during the 2004 field season for each bird species on four study units on the Fremont/Winema National Forest and Sycan Marsh Preserve (TNC) in Oregon.

		Unit				All units combined
		CN <sup>1</sup>	TN	CS	TS	
Williamson's sapsucker	Number of nests monitored	7	0	2	3	12
	Number of nests that successfully fledged young	5	0	2	3	10
Hairy Woodpecker	Number of nests monitored	1	3	1	4	9
	Number of nests that successfully fledged young	0	3	1	3	7
Northern Flicker	Number of nests monitored	4	3	2	9	18
	Number of nests that successfully fledged young	4	3	2	5	12
Pigmy nuthatch	Number of nests monitored	5	1	3	2	11
	Number of nests that successfully fledged young	5	1	3	2	11
Red-breasted Sapsucker	Number of nests monitored	0	4	0	0	4
	Number of nests that successfully fledged young	0	3	0	0	3
White-headed Woodpecker	Number of nests monitored	1	1	0	0	2
	Number of nests that successfully fledged young	1	1	0	0	2
Mountain bluebird	Number of nests monitored	0	0	0	1	1
	Number of nests that successfully fledged young	0	0	0	1	1
Black-backed Woodpecker	Number of nests monitored	0	1	0	0	1
	Number of nests that successfully fledged young	0	1	0	0	1
Totals	Number of nests monitored	18	13	8	19	58
	Number of nests that successfully fledged young	15	12	8	14	49

<sup>1</sup> CN = Control North; TN = Treatment North; CS = Control South; TS = Treatment South

Table 2. Number of successful nests monitored, and the number of young fledged during the 2004 field season for species that produced more than 10 young, excluding pygmy nuthatch on four study units on the Fremont/Winema National Forest and Sycan Marsh Preserve (TNC) in Oregon.

		Unit				All units combined
		CN <sup>1</sup>	TN	CS	TS	
Williamson's sapsucker	Number of successful nests monitored	5	0	2	3	10
	Number of young fledged	8	0	5	10	23
Hairy Woodpecker	Number of successful nests monitored	0	3	1	3	7
	Number of young fledged	0	7	2	7	16
Northern Flicker	Number of successful nests monitored	4	3	2	5	12
	Number of young fledged	15	5	11	22	53
Totals	Number of successful nests monitored	9	6	5	11	31
	Number of young fledged	23	12	18	39	92
	Number of young/nest	2.56	2.00	3.60	3.55	3.07

<sup>1</sup> CN = Control North; TN = Treatment North; CS = Control South; TS = Treatment South

Appendix 1. Common and scientific names of woody vegetation recorded within the Fremont/Winema National Forest and Sycan Marsh study units during the 2002-2004 field seasons.

<b>Common name</b>	<b>Scientific name</b>
White fir	<i>Abies concolor</i>
Western Serviceberry	<i>Amelanchier alnifolia</i>
Bearberry, Kinnikinnick	<i>Arctostaphylos uva-ursi</i>
Greenleaf Manzanita	<i>Arcostaphylos patula</i>
Creeping Oregon grape	<i>Berberis repens</i>
Mountain mahogany	<i>Cercocarpus ledifolius</i>
Idaho Fescue	<i>Festuca idahoensis</i>
Common juniper	<i>Juniperus communis</i>
Twinflower	<i>Linnaea borealis</i>
Lodgepole Pine	<i>Pinus contorta</i>
Ponderosa Pine	<i>Pinus ponderosa</i>
Quaking-aspen	<i>Populus tremuloides</i>
Common Chokecherry	<i>Prunus virginiana</i>
Douglas-fir	<i>Pseudotsuga menziesii</i>
Bitterbrush	<i>Purshia tridentate</i>
Currant	<i>Ribes spp</i>
Wood's Rose	<i>Rosa woodsii</i>
Thimbleberry	<i>Rubus parviflorus</i>
Scouler's Willow	<i>Salix scouleriana</i>
Douglas Spirea	<i>Spirea betulifolia</i>
Common Snowberry	<i>Symphoricarpos albus</i>

Appendix 2. Total number of detections of bird species recorded on four study units during the 2004 season on the Fremont/Winema National Forest and Sycan Marsh Preserve (TNC) in Oregon. Species are arranged in decreasing order of the number of detections during points count surveys.

Bird species	Number of detections
Mountain Chickadee	140
Yellow-rumped Warbler	138
Dark-eyed Junco	94
Dusky Flycatcher	87
American Robin	62
Brown-headed Cowbird	59
Red-breasted Nuthatch	57
Western Tanager	54
Townsend's Solitaire	39
Cassin's finch	34
Chipping Sparrow	27
Hermit Thrush	22
Common Raven	19
Green-tailed Towhee	18
Hairy Woodpecker	18
Mourning Dove	15
Northern Flicker	15
Olive-sided Flycatcher	15
Western Meadowlark	14
White-breasted Nuthatch	12
Western wood-pewee	11
Pine Siskin	11
Clark's Nutcracker	10
Hammond's Flycatcher	10
Cassin's Vireo	9
Fox Sparrow	8
Common Snipe	7
Pygmy Nuthatch	7
Williamson's Sapsucker	6
Sandhill crane	5
Canada Goose	5
Common nighthawk	4
Blue Grouse	4
Mountain Bluebird	4
White-headed Woodpecker	4
Turkey vulture	4
Red-breasted Sapsucker	3
Black-backed Woodpecker	3
Cordilleran Flycatcher	3
Great horned owl	2
Gray Jay	2
Evening Grosbeak	2
Sharp-shinned hawk	2
Townsend's warbler	2
Yellow-headed Blackbird	2
Gull	1
Northern Goshawk	1
Pileated Woodpecker	1
Sora rail	1
Trumpeter swan	1

Golden-crowned Kinglet	1
Red-tailed hawk	1
Rufous hummingbird	1
Varied Thrush	1
American Bittern	1
Black-headed Grosbeak	1
Brewer's Blackbird	1
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Total	1,199