



# CASCADE CENTER *Research & Management* NEWS No. 4

FALL/WINTER 1997

H.J. ANDREWS FOREST • ECOSYSTEM RESEARCH • EDUCATION • ADAPTIVE MANAGEMENT

The Cascade Center for Ecosystem Management is a research & management partnership among the Pacific Northwest Research Station, Oregon State University and the Willamette National Forest. Established in 1991, the Center integrates research and management programs historically centered on the H.J. Andrews Experimental Forest near Blue River, Oregon. The mission of the Cascade Center is to develop, apply, demonstrate, and share new research findings with resource managers and interested individuals.

**CASCADE  
CENTER  
for  
ECOSYSTEM  
MANAGEMENT**

Oregon State University  
Corvallis, OR 97331  
541•737•4286



Pacific NW Research Station  
3200 S.W. Jefferson Way  
Corvallis, OR 97331  
541•737•4286



Willamette National Forest  
Blue River Ranger District  
Blue River, OR 97413  
541•822•3317

[www.fsl.orst.edu/lter](http://www.fsl.orst.edu/lter)

## NATURE TALKS SERIES WRAPS UP A FOURTH SEASON

Over 450 people attended presentations in this summer's Nature Talks! series sponsored by the Cascade Center. Approximately half of the attendees consisted of visitors from nearby campgrounds. Remaining attendees were from communities throughout the McKenzie corridor and the Eugene/Springfield area.

As in the past three summers, the presentation that drew the largest audience was about bats. Stuart Perlmeter, an award-winning high school biology teacher from Springfield, Oregon, gave an introductory

slide presentation. Following the slides, Stuart and several of the students who help him conduct bat surveys on the Willamette National Forest, assisted members of the audience in identifying, or keying out, live bats.



Other season favorites included a Kalapuya Indian storyteller, an Oregon Department of Fish and Wildlife presentation on black bears, and a wide-ranging discussion on forest biology and management led by foresters

from the Blue River Ranger District.

If you would like to recommend future topics and presenters for this series, contact:

Pam Druliner, (541) 822-3317 or  
[drulinep@ccmail.orst.edu](mailto:drulinep@ccmail.orst.edu).

*Above: A reluctant Nature Talks! co-presenter*

*Below: Audience reacts to presentation in 1997 Nature Talks! series.*







# THE NORTHERN SPOTTED OWL

## CENTRAL CASCADES DEMOGRAPHY STUDY

### CASCADE CENTER *for* ECOSYSTEM MANAGEMENT

H.J. ANDREWS FOREST

ECOSYSTEM RESEARCH

EDUCATION

ADAPTIVE MANAGEMENT

Nearly 30 years ago, researchers from the Oregon Cooperative Wildlife Research Unit, Pacific Northwest Research Station, Oregon State University, and managers of the Willamette National Forest began some of the original research on the northern spotted owl in and around the H.J. Andrews Experimental Forest. In the ensuing years similar studies were initiated throughout the owl's range (the western portions of Oregon and Washington, and in northern California) by various government agencies, universities, and private entities.

These early research efforts warned of an impending natural resource crisis: the decline of a species strongly associated with structurally complex forests in the Pacific Northwest. This information led the U.S. Fish & Wildlife Service to list the owl as "Threatened" in 1990 (under the Endangered Species Act of 1973) and sparked a national controversy over the management of these ecologically and economically valuable forests.

Society responded by dramatically changing the policies governing federally-managed forests in this region by developing the Northwest Forest Plan (also called the "President's Plan"). This plan set forth new guidelines for public lands subject to timber harvest and established a network of large "Late-Successional Reserves" to provide for the long-term persistence of the many plants and animals that make old-growth forests unique. Many of the guidelines in the Northwest Forest Plan are derived directly from the results of these spotted owl studies.

Early investigations examined the owls' life-history (diet, breeding habits, nest requirements, life-span, predators, etc.) which was largely unknown just a few decades ago. Radio-telemetry revealed the habitat preferences and other key aspects of the bird's biology, such as the size of a pair's home-range, and the fate of their juveniles after leaving the nest.

The study was expanded in 1987 to encompass an entire sub-population of spotted owls. Annual surveys of a 1,474 sq. km. area (364,225 acres), including portions of the Blue River, McKenzie Bridge and Sweet Home Ranger Districts, have identified over 120 pairs, making this one of the densest populations in Oregon.

Today, assessment of the status and trend of this sub-population is of primary interest. Researchers strive to understand the factors that influence the species'

background



the study

# CENTRAL CASCADES SPOTTED OWL DEMOGRAPHY STUDY

plight such as reproductive rates and survival rates. Forests are surveyed annually for occupancy by specific owl pairs which are identified by color leg-bands. Each pair of owls is checked in spring and summer for reproductive status. If they nest, the young are counted and banded. These techniques enable researchers to detect trends in the population over time with sophisticated population models.

Researchers also study the creatures eaten by spotted owls. In this area, the northern flying squirrel comprises about half of the owl's diet. Bushy-tailed woodrats, brush rabbits and young snowshoe hares, red-tree voles, red-backed voles, deer mice, and a number of other small animals comprise the rest of the diet. Understanding the life-cycles of these creatures has been instrumental in better understanding the owl.

How "forest fragmentation" (the amount and arrangement of habitat) affects spotted owls is also studied. Northern spotted owls are well suited to living in large expanses of relatively unbroken forest. The patterns and techniques of timber harvest in this region since WWII have resulted in a patchy forested landscape. In addition to the direct loss of habitat due to timber harvest, a patchy arrangement of clear-cuts is thought to be detrimental for a variety of reasons (e.g. changes in microclimate, and possibly improved conditions for spotted owl predators (e.g. great-horned owls) and competitors (e.g. barred owls).

The Central Cascades study continues by monitoring the owl's progress under the Northwest Forest Plan, and by increasing our understanding of the role of this species in the forests of the Pacific Northwest. Perhaps this will continue to enable society to make informed decisions regarding the use of these natural resources that we and the owls depend upon.

## publications

Forsman, Eric D.; Meslow, E. Charles; Wight, Howard M. 1984. **Distribution and biology of the spotted owl in Oregon.** Wildlife Monographs. 87:1-64

Miller, Gary S.; DeStefano, Stephen; Swindle, Keith A.; Meslow, E. Charles. 1996. **Demography of northern spotted owls on the H.J. Andrews study area in the central Cascade mountains, Oregon.** Studies in Avian Biology. No. 17:37-46.

Ripple, William J.; Johnson, David H.; Hershey, K.T.; Meslow, E. Charles. 1991. **Old-growth and mature forests near spotted owl nests in Western Oregon.** Journal of Wildlife Management. 55(2):316-318.

## Project Contacts:

Keith Swindle  
Oregon Cooperative  
Wildlife Research Unit  
Oregon State University  
swindlek@ccmail.orst.edu  
(541) 737-4531

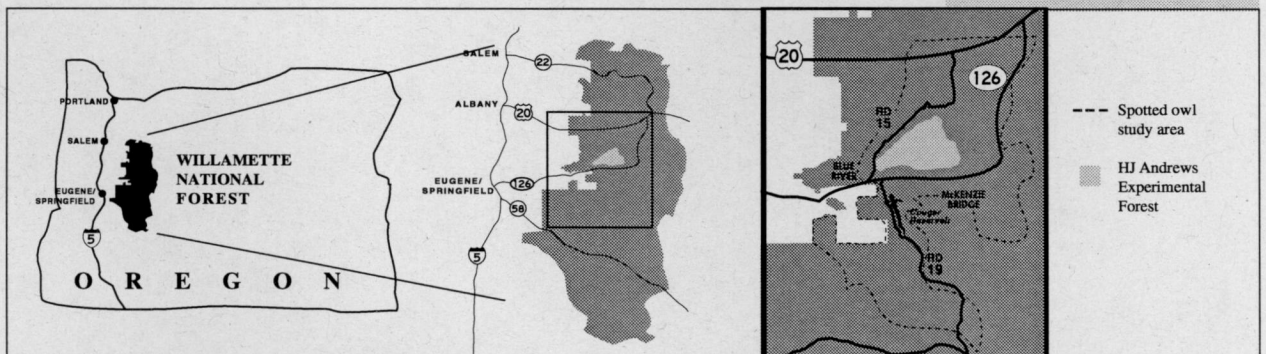
Jim Thraikill  
Oregon Cooperative  
Wildlife Research Unit  
Oregon State University  
thraill@fsl.orst.edu  
(541) 822-3359

Robert Anthony  
Oregon Cooperative  
Wildlife Research Unit  
USGS Biological Resources  
Division  
anthonyr@ccmail.orst.edu  
(541) 737-1954

John Cissel  
Research Coordinator  
Cascade Center  
Blue River Ranger District  
cissel@fsl.orst.edu  
(541) 822-3317

## PUBLICATION REQUESTS:

Carol Wood  
Oregon State University  
FSL 331  
Corvallis, OR 97331  
woodc@fsl.orst.edu





## FOR MORE INFORMATION...

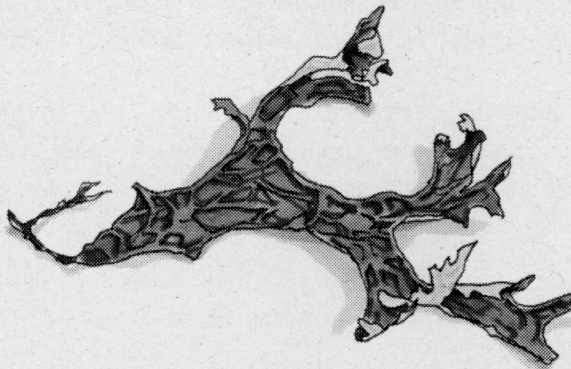
**The Young Stand Thinning & Diversity Study:** New webpages linked to the Andrews LTER website contain information on the Young Stand Thinning & Diversity Study. Included are electronic versions of the Young Managed Stands Communique, a project summary (see below), site maps and treatment photographs, and a first-year summary of vegetative response. This year's post-treatment data collection, which has just been completed, will be summarized and posted sometime next spring.

Ongoing data collection is planned for at least the next ten years on wildlife and vegetation response variables. Those variables include birds, small mammals and amphibians, as well as general vegetation and Chanterelle mushrooms. Results of the analysis of logging system variables such as soil compaction, damage to residual trees, and cost efficiency of the different logging systems are nearing completion. Access the Young Stand webpages at:

[www.fsl.orst.edu/lter/navigafr.htm](http://www.fsl.orst.edu/lter/navigafr.htm)

For a hardcopy version of the Young Stand project summary, see the listing below.

**Enhancing lichens and bryophytes in young forests** is the title of a new video soon to be released by the Forestry Media Center at Oregon State University. Aimed at managers, the 16 minute video summarizes findings from several studies. It highlights stand structural and compositional features that are important for lichens and bryophytes, and discusses how management could favor these during thinning and other operations to speed development of lichen and bryophyte communities in young stands. Acknowledgements include the Willamette and Siuslaw National Forest, and various BLM agencies for the project funding that led



to the results. Funding for video production was provided by the Biological Resource Division of the Geological Survey. The video will be available for purchase for \$95.00 or a 5 day rental for \$20.00. For more information contact:

Forestry Media Lab: (541) 737-4702.

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The following hardcopy publications are available with request via mail, fax, or e-mail from: **Carol Wood**  
Oregon State University, FSL 331, Corvallis, OR 97331 Fax: (541) 737-1393 e-mail: [woodc@fsl.orst.edu](mailto:woodc@fsl.orst.edu)

### RESEARCH LITERATURE

- ☐ Iverson, Richard M.; Reid, Mark E.; LaHusen, Richard G. 1997. **Debris-flow mobilization from landslides.** Annu. Rev. Earth Planet. Sci. 25: 85-138.
- ☐ Lertzman, Ken; Spies, Tom; Swanson, Fred. 1997. **From ecosystem dynamics to ecosystem management.** In: Schoonmaker, Peter K.; von Hagen, Bettina; Wolf, Edward C., eds. The rain forests of home: profile of a North American bioregion. Washington, DC: Island Press: 361-382.
- ☐ Rose, Coulter R.; Muir, Patricia S. 1997. **Green-tree retention: consequences for timber production in forests of the western Cascades, Oregon.** Ecological Applications 71(1): 209-217.
- ☐ Swanson, Fred. 1997. **H.J. Andrews Experimental Forest: assessing how land use, natural disturbances, and climate change affect carbon dynamics, biodiversity, and hydrology.** Lter Network News. Winter (20): 6-7.
- ☐ Wallin, David O.; Swanson, Frederick J.; Marks, Barbara; Cissel, John H.; Kertis, Jane. 1996. **Comparison of managed and pre-settlement landscape dynamics in forests of the Pacific Northwest, USA.** Forest Ecology and Management 85: 291-309.

### CASCADE CENTER PROJECT SUMMARIES (one-page descriptions of key Cascade Center projects)

- ☐ Cascade Center: Purpose, roles, distinguishing features. 1996.
- ☐ The Young Stand Thinning And Diversity Study: Managing for diversity. 1996.
- ☐ Very Young Stand Management: An adaptive management case study. 1996.
- ☐ Long-term Ecosystem Productivity: Integrated research site. 1996.
- ☐ Blue River Landscape Project: Testing an alternative approach. 1997
- ☐ The Northern Spotted Owl: Central Cascades demography study. 1997. (included in this issue)