

**RESEARCH NATURAL AREAS  
IN THE PACIFIC NORTHWEST**

By Jerry F. Franklin

WHAT ARE RESEARCH NATURAL AREAS? For what purposes have they been set aside? How are they used, where are they, and how many do we have?

ALL Federal land management agencies have a "Research Natural Area" category, even if not called by that exact name. In the Pacific Northwest these agencies include the Bureau of Land Management, Bureau of Sport Fisheries and Wildlife, the National Park Service in the U.S. Department of Interior, and the Forest Service in the U.S. Department of Agriculture.

#### PURPOSES OF RESEARCH NATURAL AREAS

"Natural Area" suggests an area set aside and maintained in its natural condition. Research Natural Areas are indeed that, but much more as well. These areas are lands which have been set aside to preserve various natural features in an undisturbed state for research and educational purposes. Many of these areas, especially in the Pacific Northwest, have been set aside either to (1) preserve examples of the important plant communities which typify the region, such as Douglas-fir or big sagebrush stands, or to (2) preserve unique and often complex ecosystems such as bog communities. Areas representing major undisturbed communities or ecosystems are of special significance to the scientist, as they provide baselines against which the effects of man-caused changes can be measured.<sup>1</sup> Research Natural Areas also may be specifically set aside as preserves for rare or endangered plant or animal species, thus providing a gene pool for study by future scientists. Finally, physical as well as biological features may be protected within Research Natural Areas if they are of scientific interest primarily, although the Forest Service presently does not do so; examples could be geologically unique rock formations or the type of locality for a specific kind of soil.

In all cases, Research Natural Areas are tracts where natural processes are allowed to dominate and where some natural feature(s) is preserved for research and educational purposes. In this sense, they contrast with some other land classifications, such as botanical areas, which may have features of equal significance to the scientific community and the recreational public, but where such an ex-

OREGON MYRTLES / MYRTLE ISLAND  
RESEARCH NATURAL AREA / DOUGLAS  
COUNTY / OREGON / Photo by U.S. Forest  
Service

tremely restrictive classification is not necessary to protect the feature.

#### USE OF RESEARCH NATURAL AREAS

All agencies involved in preservation of Research Natural Areas have evolved similar sets of regulations to insure that protection of the scientific and educational values of the natural area tracts dominates their management and use. Scientific and educational use must be consistent with protection of the features for which the Research Natural Area was set aside. Timber cutting is prohibited. Controlled grazing is being phased out, except where such activity is necessary to preserve some key feature of the natural area. Destructive sampling, such as felling of trees for tree ring analysis, is not permitted, nor are large groups of students allowed in boggy meadows. Permanent improvements, such as guard stations or campgrounds, are prohibited. Construction of roads and trails, except for minimum-standard trails essential to the scientific or educational use of the area, generally is prohibited.

Recreation is not a recognized use of Research Natural Areas under present regulations. However, certain types of recreational activities are allowed, but only to the extent that they do not alter the natural features for which a given tract was set aside. Hikers on a trail through a coastal forest with a dense, shrubby understory will have minimal impact on the composition and evolution of the forest community 5 or 10 feet beyond the trail. The same can be said of an occasional hunter, fisherman, or berry picker. However, a large group of picnickers, or even a single motorized vehicle, in a fragile meadow area offers a significant threat to protection of natural conditions in an unmodified state.

Hence, recreational use of Research Natural Areas is allowed as long as the type and level of activities offer no potential threat to the existence or natural development of the feature for which the Research Natural Area was established; at that point, *the conflicting recreational uses of the Research Natural Area will be prohibited*. Natural features are to be preserved and natural processes allowed to predominate on these tracts of land, or their value to the scientist and educator will be impaired.

<sup>1</sup>For a more detailed discussion on the kinds and importance of research possible in Research Natural Areas, see "Natural Areas: Needs, Concepts, and Criteria," by Jerry F. Franklin and James M. Trappe, in the *Journal of Forestry* 66: 456-461 (June 1968).

Although recreational conflicts on existing Research Natural Areas are generally minimal at present, the future promises greater difficulty. Land Management agencies will need the assistance and cooperation of outdoor conservation groups in preserving these tracts. These agencies have become particularly aware of the difficult problems involved in the establishment of Research Natural Areas with such features as lakes, subalpine meadows, and sand dunes. Public cooperation and education will be essential for preservation of these normally high recreational-use areas. Obviously, each tract will have its own peculiar features — degrees of fragility, tolerances for various kinds of use, and weaknesses for others.

Land management agencies, up to now, have not encouraged general public use of Research Natural Areas and probably never will. We do not advertise them and would shudder to find recreational use extensively advocated in a "50 Natural Area Hikes in Oregon and Washington." The time may come, however, when small, selected portions of these areas will be utilized as elements in the agencies' public interpretive program, as are some of the British Nature Reserves. Certainly, as unique remnants of the undisturbed North American landscape (virgin old-growth forests, untrammelled meadows, etc.) they will attract more and more attention, whether the agencies and scientists like it or not.

#### EXISTING RESEARCH NATURAL AREAS

At present, there are 42 Research Natural Areas in existence in Oregon and Washington, covering 28,662 acres of land managed by four Federal agencies (table 1). The oldest of the Research Natural Areas is the Metolius, a 1,440-acre tract of ponderosa pine located near Camp Sherman, which was set aside in 1931. The most recent is Ashland on the Rogue River National Forest, where 1,408 acres of Pacific ponderosa pine and mixed Pacific ponderosa pine and Douglas-fir types were added to the system in 1970. The size of these areas is highly variable, depending on topography and the amount of land needed to preserve the particular feature(s) of interest. The smallest is Myrtle Island, a 28-acre island in the Umpqua River

JERRY F. FRANKLIN is Principal Plant Ecologist, Forestry Sciences Laboratory, Pacific Northwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture, Corvallis, Oregon.



SUGAR PINE / ABBOTT CREEK RESEARCH NATURAL AREA / ROGUE RIVER NATIONAL FOREST / Photo by U.S. Forest Service

covered by Oregon myrtle and Douglas-fir. The largest is the Abbott Creek Research Natural Area, comprising 2,660 acres and a fine example of southwestern Oregon mixed-conifer forest, with many large specimens of sugar pine. Some of the smaller Research Natural Areas represent only a single forest type or ecosystem, while others, particularly the larger, are a mosaic of interacting communities of various types. A good example is the Butter Creek Research Natural Area, a 2,000-acre tract of true fir forest, subalpine meadows, and avalanche tracks, occupying the entire head of a Cascade Range stream drainage.

Existing Research Natural Areas cover a broad spectrum of forest and range types, fulfilling a variety of needs. They vary from the dense, coastal Sitka spruce-western hemlock forests to the dry, east-side ponderosa pine types, and even the shrub and bunchgrass communities typical of the east-side rangelands. They range from the low-elevation valley grasslands and Oregon white oak forests to the subalpine forests and meadows high in the mountains. Many of the Research Natural Areas represent situations in which various tree species reach near-optimal development. Examples are the Sitka spruce at Twin Creek, western redcedar at Cedar Flats, western juniper at Horse Ridge, and noble fir in the Wildcat Mountain Research Natural Area. Some areas, such as the Brewers Spruce and Port Orford Cedar Natural Areas, protect examples of relatively restricted and especially interesting tree species. Gold Lake Bog Research Natural Area contains one of the best examples of sphagnum

bog habitats in the central Cascades of Oregon, as well as protecting five species of carnivorous plants belonging to the sundew and bladderwort families.

#### FUTURE PLANS

The Pacific Northwest system of Research Natural Areas is the best system in existence in the United States today. For this, we owe thanks to such pioneers in this effort as Thornton T. Munger and Leo A. Isaac. In spite of this, the Federal agencies involved do not feel the system is anywhere complete, and are systematically seeking areas to round it out. In 1966 a preliminary list of major forest and range communities present on Federal lands was developed. An estimate of minimal natural area needs for each of these communities was compared with the various types found in existing Research Natural Areas. It was found that a great many types and ecosystems were still lacking adequate representation in the system. Douglas-fir lacked adequate representation in western Oregon. Aquatic ecosystems, such as lakes, were grossly under-represented in existing Research Natural Areas. Some ponderosa pine representation in the eastern Washington Cascades was needed. And there is an



WESTERN REDCEDAR OVER 100 INCHES IN DIAMETER / LONG CREEK RESEARCH NATURAL AREA / MOUNT BAKER NATIONAL FOREST / Photo by U.S. Forest Service

element of urgency, since time is short for locating virgin areas, especially in the commercially important types.

All Federal land management agencies are cooperating in an effort to round out our system of Research Natural Areas. At the national level, a Federal Committee on Research Natural Areas has been established, with their first activity the compilation of "A Directory of Research Natural Areas on Federal Lands of the United States of America."<sup>2</sup> This publication provides an inventory of areas already established on Federal lands and a means of determining what additional areas might be needed throughout the United States.

Interagency cooperation is also extensive in the Pacific Northwest. The Pacific Northwest Research Natural Area Committee has become the focal point for coordination of the Federal program here. Although a Forest Service committee, chaired by Mr. Philip A. Briegleb, Director of the Pacific Northwest Forest and Range Experiment Station, it closely coordinates its activities with the Bureau of Land Management, Bureau of Sport Fisheries and Wildlife, and National Park Service. All four agencies are working together in the preparation of a guidebook to Research Natural Areas in the northwest for the use of scientists and educators. The Pacific Northwest Research Natural Area Committee also is working closely with private groups interested in preserving Research Natural Areas (i.e., the Nature Conservancy and Washington Intercampus Committee on Scientific and Educational Preserves); with professional organizations (i.e., the Society of American Foresters and American Society of Range Management); and with the Ecological Reserves Commission in British Columbia.

Members of the Northwest Committee and cooperating agencies and organizations have been working hard at locating and establishing appropriate natural areas. Six new areas have been established in the last three years, and at least three times that many have been located and are presently being evaluated. Included are two old-growth Douglas-fir Research Natural Areas in the Oregon Cascades, a portion of the "Lost Forest" in central Oregon, and a subalpine larch area on the Okanogan National Forest.

<sup>2</sup> Available from the Superintendent of Documents, Washington, D.C. 20250, for 70 cents.

TABLE 1

Established Research Natural Areas on Federal lands in the Pacific Northwest  
(Oregon and Washington)

Name	Principal Features	Admin. Agency <sup>1</sup>	Acres
Abbott Creek	Southwestern Oregon mixed conifers, especially sugar pine	FS	2,660
Ashland	Pacific ponderosa pine, also mixed with Douglas-fir	FS	1,408
Baird Basin	Ponderosa pine, larch, Douglas-fir	BSFW	160
Brewers Spruce	Brewer spruce	BLM	210
Bull Run	True firs, western hemlock	FS	361
Butter Creek	True Firs, subalpine meadows, and avalanche tracks	NPS	2,000
Canyon Creek	Ponderosa pine	FS	700
Cedar Flats	Western redcedar, Douglas-fir	FS	680
Cherry Creek	Coast Ranges, Douglas-fir	BLM	590
Coquille River Falls	Port-Orford-cedar	FS	500
Diamond Point	Sitka spruce-western hemlock	BSFW	80
Gold Lake Bog	Bog communities and flora	FS	463
Goodlow Mountain	Ponderosa pine	FS	1,260
Hades Creek	Pacific silver fir	NPS	560
Higley Creek	Western hemlock	NPS	480
Horse Ridge	Western juniper	BLM	600
Jackson Creek	Douglas-fir	NPS	160
Lake 22	Western redcedar-western hemlock	FS	790
Long Creek	Western hemlock	FS	640
Maple Knoll	Bigleaf maple	BSFW	100
Meeks Table	Ponderosa pine	FS	68
Metolius	Ponderosa pine	FS	1,440
Myrtle Island	Oregon myrtle	BLM	28
Neskowin Crest	Sitka spruce-western hemlock	FS	686
North Fork Nooksack	Douglas-fir, western hemlock	FS	1,495
Ochoco Divide	Ponderosa pine, grand fir	FS	1,920
Olallie Ridge	Mountain meadows and flora	FS	720
Pataha Bunchgrass	Blue bunch wheatgrass	FS	51
Persia M. Robinson	Douglas-fir, ponderosa pine	FS	540
Pigeon Butte	Oregon white oak	BSFW	38
Pine Creek	Ponderosa pine	BSFW	160
Port Orford Cedar	Port-Orford-cedar	FS	1,122
Pringle Falls	Lodgepole pine	FS	1,160
Quinault	Western hemlock, Sitka spruce	FS	1,468
Rainbow Creek	Eastern Oregon mixed conifer	FS	600
Sister Rocks	Pacific silver fir	FS	215
Twin Creek	Sitka spruce	NPS	100
Turnbull Pine	Ponderosa pine	BSFW	50
Wildcat Mountain	Noble fir	FS	1,000
Willamette Prairie	Willamette Valley grassland	BSFW	69
Wind River	Douglas-fir, western hemlock	FS	1,180
Wolf Creek	Bitterbrush, bunchgrass	FS	150

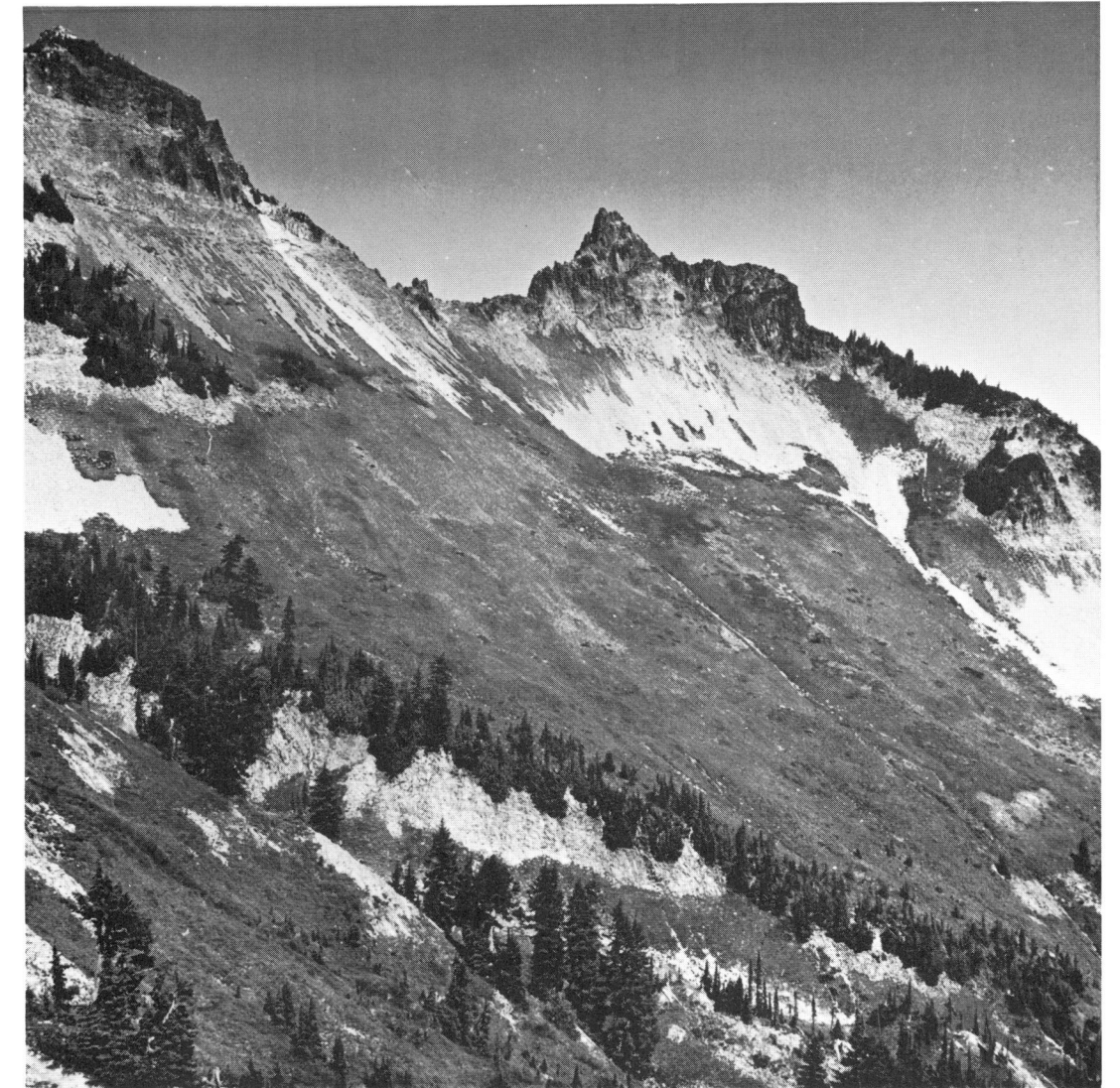
<sup>1</sup>BLM = Bureau of Land Management  
BSFW = Bureau of Sport Fisheries and Wildlife  
(National Wildlife Refuges)

FS = Forest Service  
NPS = National Park Service

CONCLUSION

Land management agencies involved in administering Research Natural Areas need the assistance of groups such as the Mazamas. Suggestions for potential sites are welcome. While many of the kinds of areas of special interest to groups such as the Mazamas may be more appropriate for other designations, such as botanical or scenic areas, we would like to

hear about them. Our mutual cooperation in resolving conflicts in use will be essential in future years. There may be opportunity for review and comment on proposals for the establishment of individual Research Natural Areas prior to their designation. General comments and opinions concerning the Federal Research Natural Area Program are welcome and will receive thoughtful consideration.



MOUNTAIN MEADOWS AND TIMBERLINE FORESTS WITH PINNACLE PEAK ON THE LEFT WITHIN BUTTER CREEK RESEARCH NATURAL AREA / MOUNT RAINIER NATIONAL PARK  
Photo by U.S. Forest Service