LITTLE SINK RESEARCH NATURAL AREA

Supplement No. 4[1]

Glenn M. Hawk[2]

The Research Natural Area described in this supplement is administered by the Bureau of Land Management. Bureau of Land Management Research Natural Areas are administered by District Offices which are organizational subdivisions of their State Offices. Scientists wishing to use these Research Natural Areas should contact the Bureau's State Director. Since this agency's tract is located in Oregon, the responsible individual is the Oregon State Director (Bureau of Land Management, P.O. Box 2965, Portland, Oregon 97208). The manager of the district in which the Research Natural Area is located will be informed of mutually agreed upon activities by the State Director. Nevertheless, a scientist should visit the administering District Office when beginning his studies and explain the nature, purpose, and duration of his activities if at all possible. Permission for brief observational visits to Research Natural Areas can be obtained from District Managers.

The Little Sink Research Natural Area is a part of a Federal system of such tracts established for research and educational purposes. Each of these constitutes a site where some natural features are preserved for scientific purposes and natural processes are allowed to dominate. Their main purposes are to provide:

1. Baseline areas against which effects of human activities can be measured;
2. Sites for study of natural processes in undisturbed ecosystems; and
3. Gene pool preserves for all types of organisms, especially rare and endangered types.

The total Federal system is outlined in "A Directory of the Research Natural Areas on Federal Lands of the United States of America."[3] In Oregon and Washington, 49 Federal Research Natural Areas have been established; 45 are described in "Federal Research Natural Areas in Oregon and Washington: A Guidebook for Scientists and Educators,"[4] along with details on management and use of such tracts; this is the fourth supplement to that guidebook.

The guiding principle in management of Research Natural Areas is to prevent unnatural encroachments, activities which directly or indirectly modify ecological processes on the tracts. Logging and uncontrolled grazing are not allowed, for example, nor is public use which threatens significant impairment of scientific or educational values.

[1] , Supplement No.4 to "Federal Research Natural Areas in Oregon and Washington: A Guidebook for Scientists and Educators," by Jerry F. Franklin, Frederick C. Hall, C. T. Dyrness, and Cbris Maser (USDA Forest Service, 498 p., illus., 1972). The guidebook is available from the Superintendent of Documents, U.S. Government Printing Office:Washington, D.C. 20402, for $3.50; stock number 0101.0225.

[2] Mr. Hawk is a Doctoral candidate at O/egon State University, Corvallis.

[3] Federal Committee on Research Natural Areas. A directory of Research Natural Areas on Federal lands of the United States of America. Washington, D.C., Superintendent of Documents, 129 p., 1968.

[4] • See footnote 1.

Management practices necessary for maintenance of the ecosystem may be allowed.

Federal Research Natural Areas provide a uniquely valuable system of publicly owned and protected examples of undisturbed ecosystems which are available to the scientist. He can conduct his research with minimal interference and reasonable assurance that investments in long-term studies will not be lost to logging, land development, or similar activities. In return, the scientist wishing to use a Research Natural Area has some obligations. He must:

1. Obtain permission from the appropriate administering agency using the area;
2. Abide by the administering agency's regulations governing the use of the natural area including specific limitations on the type of research, sampling methods, etc., allowed; and
3. Inform the administering agency on the progr~ss of the research, published results, and disposition of collected materials.

The purposes of these limitations are simple to insure that the scientific and educational values on the tract are not impaired, to accumulate a documented body of knowledge about the tract, and to avoid conflict between new and old studies. Research on Research Natural Areas must be essentially nondestructive in character; destructive analysis of vegetation is generally not allowed nor are studies requiring extensive forest floor modification or extensive soil excavation. Collection of plant and animal specimens should be restricted to the minumum necessary for provision of voucher specimens and other research needs but under no circumstances should collecting significantly reduce the population level of a species. Collecting must also be carried out in accordance with State and Federal agency regulations.

A scientist wishing to use a particular Research Natural Area within these broad guidelines must contact the administering agency regarding the proposed use [5] and obtain the necessary permission. Each agency differs slightly in its requirements.

,;There are five agencies cooperating in this program in the Pacific Northwest: Forest Service in the U.S. Department of Agriculture; Bureau of Land Management, Bureau of Sport Fisheries and Wildlife, and the National Park Service in the U.S. Department of Interior; and the Atomic Energy Commission.

LITTLE SINK RESEARCH NATURAL AREA

Douglas-fir forest occurring on broken topography, characterized by slumps, ponds, and geologically recent natural disturbance.

Little Sink Research Natural Area was established in October 1973 to exemplify the diversity within the foothill Douglas-fir forest type occupying an area of marine siltstone which has undergone considerable landsliding. Its primary value is its characteristic geologically disturbed nature with slumps, ponds, and recent natural disturbances. The area includes stands of Douglas-fir *(Pseudotsuga menziesii)* and stands of mixed Douglas-fir and big-leaf maple *(Acer macrophyUum)* of sufficient extent to permit community level studies of both the flora and fauna. The 32.38-ha (80-acre) tract is located just south of Falls City, Oregon, near Camp Kilowan, a Camp Fire Girls' camp. The area is in W1h, NWl/4, section 33, T. 8 S., R. 6 W., Willamette meridian. The Little Sink Research Natural Area is located in Polk County and is administered by the Salem District (Salem, Oregon) Bureau of Land Management (BLM).

Access and Accommodations

The Little Sink Research Natural Area is reached by a primitive road, which begins at the Teal Creek bridge at Camp Kilowan, a Camp Fire Girls' camp. Directions from Dallas, Oregon, are as follows: From the corner of Main and Washington Streets in Dallas proceed 9.34 km (5.8 mi) south and west on State Highway 223 (Washington Street in Dallas), then turn right toward Falls City; drive 9.34 km (5.8 mi) through Falls City and turn left towards Valsetz, Oregon; drive one block and turn left and follow signs to Camp Kilowan; after turning onto Teal Creek Road (County Road 867), proceed southwest past the Camp Kilowan caretaker's home on the left near the top of the hill, and turn left through the metal gate; proceed to the double totem poles and turn left between them; park vehicles in the parking lot provided about one block past the totems and to the right; walk through Camp Kilowan following the route marked on fig. LS-1 to Teal Creek; cross the Teal Creek bridge and bear left up the hill until boundary signs are seen. Footpaths start here and are concentrated around the pond systems. They afford limited access to the northwest and west-central portions of the Research Natural Area (RNA).

Limited commercial accommodations are available in Falls City (2.4 km or 1.5 mi), Dallas (19.3 km or 12 mi), and Monmouth (19.3 km or 12 mi). Very limited camping facilities are located at nearby Gerlinger Park just west of Falls City on the Black Rock Road.

Prospective users of the RNA should make arrangements with BLM Salem District as well as with the Willamette Council of Camp Fire Girls, Salem, Oregon, as far in advance as possible in order to assure prescribed access.

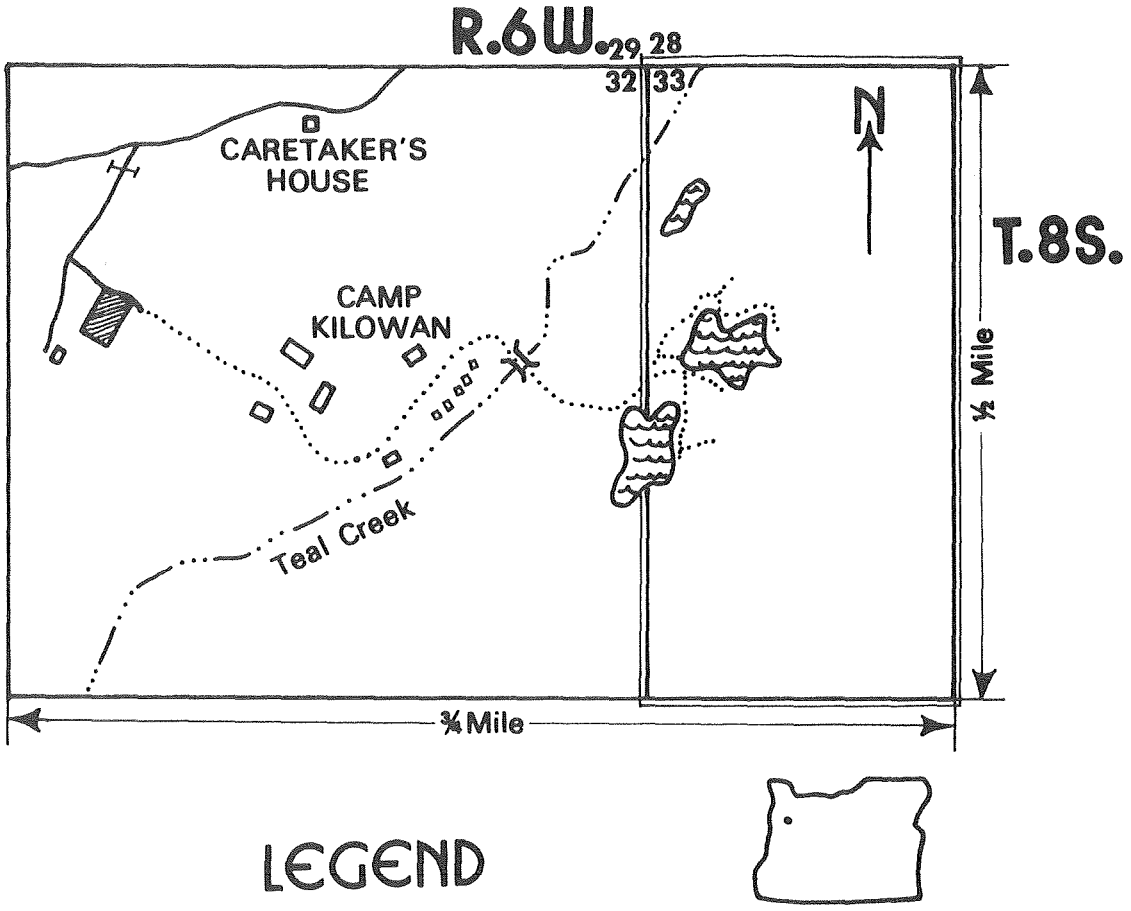

Figure LS-1.—Little Sink Research Natural Area, Polk County, Oregon.

Environment

The Little Sink Research Natural Area occupies moderate to steep northwest facing slopes in the upper Teal Creek drainage. Streams in the area are very small and intermittent. Large-scale landsliding and beaver activities have formed slump basins and ponds (fig. LS-2). The natural area occurs over a narrow elevational range of 180-320 m (600-1,050 ft). Topography ofthe area includes moderate to steep slopes interrupted by frequent slump benches, scarps, and basins. Tree fall and uprooting have further contributed to a hummocky ground surface over much of the area. The rough topography and steep slopes appear to result primarily from frequent mass soil movements.

There are two perennial ponds within the natural area and a third perennial pond located on the western boundary, as well as many intermittent ponds. The ponds and their specific microenvironments and habitats contribute considerable diversity of flora as well as fauna.

The natural area is subject to a marine climate modified by its proximity to the Willamette Valley. Winters are cool and wet while summers are warm and dry. Climatic data from nearby Falls City station 11.3 km (approximately 7 mil northwest of the natural area are as follows (U.S. Department of Commerce 1960-71):

Mean annual temperature	10.5° C (50.9° F)
Mean January temperature	3.5° C (38.4° F)
Mean July temperature	18.1° C (64.6° F)
Mean January minimum temperature	3.33° C (31.4° F)
Mean July maximum temperature	27.3° C (81.0° F)
Average annual precipitation	1,865 mm (73.44 in)
June through August precipitation	51 mm (2.01 in)

Soils within the natural area vary from deep to shallow loams with dark brown colors. For the most part they are derived from siltstone parent materials. On slump scarps the surface soils are gravelly and shallow with small

Figure LS-2.— Slump basins formed across drainage basins are dammed by beavers forming slump ponds.

amounts of organic matter; other areas have relatively thick A horizons containing large amounts of organic matter. Soils within slump basins are often highly organic, moist to wet, and deeper. These forest soils are probably best classified as Noncalcic Brown soils or as Haplumbrepts under the new classification system.

Biota

The entire Little Sink Research Natural Area is forested. In undisturbed areas the dominant type is mixed young- and old-growth Douglas-fir, most closely approximating SAF forest cover type 229, Pacific Douglas-fir type (Society of American Foresters 1954). Disturbed areas are occupied by Douglas-fir and big-leaf maple in about equal proportions. The research area lies on the boundary between the Coast Ranges Province and the Willamette Valley Province of Franklin and Dyrness (1973). Vegetation of the area more strongly resembles that of the Coast Ranges Province of these authors and is typical of lower elevation habitats of the *Tsuga heterophylla* Zone.

Vegetation of undisturbed sites can be classed into two recognizable plant communities depending apparently on availability of soil moisture within their respective habitats. The more xeric community, *Pseudotsuga menziesii/Corylus cornuta* val'. *californica/ Berberis nervosa-Gaultheria shallon,* occurs on upper elevation slopes and benches (fig. LS-3). Its tree layer is dominated by a mixture of second- and old-growth *Pseudotsuga menziesii* with only occasional *Acer macrophyllum* present. *Pseudotsuga menziesii* is the most common sapling in the understory followed by the more shade-tolerant *Abies grandis. Abies grandis* does not appear to ever become a part of the overstory canopy in this community.

[6] Nomenclature follows Hitchcock and Cronquist (1973).

Figure LS-3.— The *Pseudotsuga menziesii/Corylus cornuta* var. *californica/Berberis nervosa-Gaultheria shallon* community is the most xeric community and occupies upper to midslope benches of gentle slopes.

The *Pseudotsuga/Corylus/Berberis-Gaultheria* community is characterized by an abundance of both tall and low shrubs, including *Corylus cornuta* var. *californica, Symphoricarpos albus, Berberis nervosa, Gaultheria shallon, Rosa gymnocarpa,* and *Holodiscus discolor. Corylus cornuta* is the dominant tall shrub and occurs with sporadic *Rosa gymnocarpa* and *Holodiscus discolor* in the tall shrub layer. *Cornus nuttalii* also is a subdominant of this layer in more mesic areas. The low shrub layer consists of an almost continuous carpet of mixed *Berberis nervosa* and *Gaultheria shallon.* The herb layer is patchy, with shared dominance of *Polystichum munitum* of the tall herbs and a mixture of *Trientalis latifolia, Galium triflorum,* and *Achlys triphylla* of the low herb forms.

The more mesic *Pseudotsuga menziesii/ Corylus cornuta* var. *californica-Cornus nuttallii/Polystichum munitum* community also occurs in the undisturbed areas (fig. LS-4). The tree canopy within this community is denser than that of the *Pseudotsuga/ Corylus/Berberis-Gaultheria* community, though actual number of trees per given area appears to be about the same for both communities.

The major differences between the two communities occurring on undisturbed sites are in the structure of understory shrub and herb layers. The tall shrub layer of the *Pseudotsuga / Corylus-Cornus / Polystichum* community is dominated by a mixture of *Corylus cornuta* var. *californica* and *Cornus nuttallii.* However, this layer is much less developed than that in the *Pseudotsuga/ Corylus/Berberis-Gaultheria* community. Although the low shrub layer also contains both *Berberis nervosa* and *Gaultheria shallon,* both are patchy in the *Pseudotsuga/Corylus-Cornus/Polystichum* community. Other shrubs such as *Acer circinatum, Vaccinium parvifolium, Menziesia ferruginea, Rubus parviflorus,* and *Osmoronia cerasiformis* are among the more commonly occurring species in the shrub layer. The herb layer is dominated by *Polystichum munitum* plus a great diversity of low herbs including *Trillium ovatum, Montia perfoliata, Vancouveria hexandra, Disporum hookeri, Viola glabella,* and *Calypso bulbosa.*

A third plant community in the natural area is characteristic of highly disturbed sites. These sites include both slump benches and scarps. The most obvious difference between

Figure LS-4.—The *Pseudotsuga menziesii/Corylus cornuta-Cornus nuttallii/Polystichum munitum* community is a more mesic, undisturbed community occurring on footslopes and gentle benches at lower elevations.

this community, the *Acer macrophyllum-Pseudotsuga menziesii/shrub* community, and those described above is the tree layer (fig. LS-5). The tree canopy in disturbed areas is characterized by a few scattered *Pseudotsuga menziesii* over a well-developed cover of *Acer macrophyllum.* Many of the *Pseudotsuga menziesii* are twisted and bent as a result of the mass soil movements typical of this habitat.

Large-scale landsliding on sites typifying the *Acer-Pseudotsuga/shrub* community has resulted in many large openings in the canopy. Therefore, there is a marked increase in tall shrub cover in these areas. The tall shrub layer is dominated by a mixture of *Acer macrophyllum, Acer circinatum, Corylus cornuta* var. *californica, Holodiscus discolor,* and *Cornus nuttallii,* all occurring in slightly different microhabitats. Other shrubs and tree species distinctive to this community within the natural area include *Philadelphus lewisii, Amelanchier alnifolia, Malus diversiloba,* and *Alnus rubra.* The tall shrub layer also usually contains scattered saplings of *Pseudotsuga menziesii* and *Abies grandis. Abies grandis* is also found in larger size classes in portions of this community. The low shrub layer is also quite diverse and variable, with *Berberis nervosa, Rosa gymnocarpa, Gaultheria shallon, Vaccinium parvifolium,* and *Symphoricarpos albus* occurring abundantly.

Both the low shrub and the herb layers in the *Acer-Pseudotsuga/shrub* community appear to be dominated by residual species representative of predisturbance vegetation. The herb layer in some portions of the community is similar to that of the *Pseudotsuga/Corylus/Berberis-Gaultheria* comm unity, while in others species are more mesic and typical of the *Pseudotsuga/Corylus-Cornus/ Polystichum* community.

Areas which have been severely disturbed may be expected to contain many microhabitats of limited extent. This is indeed the case in the Little Sink Research Natural Area (fig. LS-6). Special habitats include cattail marshes *(Typha latifolia),* skunk cabbage bogs *(Lysichitum americanum),* and patches of devil's club *(Oplopanax horridum)* in poorly drained spring areas, as well as smaller specialized area dominated by lady-fern *(Athyrium filixfemina),* bracken *(Pteridium aquilinum),* or maidenhair fern *(Adiantum pedatum).*

Figure LS-5.—The tree layer of the *Acer macrophyllum-Pseudotsuga menziesii*/shrub community serves as a basic criterion for delimiting this community.

All mammals, birds, reptiles, amphibians, and plants that have been recorded or are expected to occur within the natural area are listed in tables LS-1-LS-5. The Little Sink area contains excellent habitat for several animals. Mallards and pintails of the bird fauna are often sighted and have been found nesting in the area. Also common are Brewer's blackbird in the marsh areas and ruffed grouse in the forests. Among the reptiles the garter snakes *Thamnophis sirtalis* and *T. ordinoides* are quite common. The interface of terrestrial and aquatic habitats provides habitat for a number of small mammals as well as frogs, newts, and salamanders. Throughout the entire natural area, deer mouse, *Peromyscus maniculatus,* and Townsend chipmunk, *Eutamias townsendi,* are abundant. In marshy areas the jumping mouse, *Zapus trinotatus,* is a common mammal.

History of Disturbance

There have been three dominant types of disturbance within the Little Sink Research Natural Area. The first, and probably most important, is the extensive mass soil movement which characterizes much of the area. Second, the area has a fire history typical of most of the Coast Ranges, with the last major fire occurring between 1600 and 1700. The third factor is disturbance caused by man's activities. The natural area is bordered on the south and the east by tilled fields. Some small encroachment during clearing of these bordering areas is apparent to the extent that these boundary areas now offer modified microhabitats. Logging also occurred to the west and north of the area about 1930-35. Logging trails have since yielded access to portions of the area. The area has a fairly extensive trail system around the slump ponds (fig. LS-1) as a result of heavy use by Camp Fire Girls from the adjacent Camp Kilowan as well as by many college classes using the area as a study site.

Human impact on the natural area is restricted primarily to the area around the 'ponds. Some damage to beaver dams has resulted from their being used as bridges, but they are still intact and should be marked in

Figure LS-6.—Pondside localities afford a diversity of microhabitats for development of *Typha* and *Carex* communities.

order to reduce traffic. Fortunately most human traffic does not coincide with the periods of the year when the area is used by migratory fowl for nesting.

Research

Research within the Little Sink Research Natural Area has primarily been descriptive in nature. Extensive use of the area by ecologists at Oregon College of Education and Willamette University has resulted in considerable knowledge of the flora and fauna. Its location and natural features have made it an excellent educational and recreational area for many scientists, ecology students, geology students, and Camp Fire Girls.

The natural area is also particularly valuable for studies of timber management and logging practices within similar areas of the Coast Ranges in Oregon. Many of the specialized microhabitats need further study and offer great possibilities to investigators of either the flora or the fauna. The area could be used in studies comparing soil-vegetation changes following mass soil movements, or the effects of landslides on the animal populations. In these examples the Little Sink Research Natural Area could serve as a potential control system where there is assurance that there will be no further unnatural disturbance.

Maps and Aerial Photographs

Special maps applicable to the Little Sink Research Natural Area include: Topography - 15' Dallas, Oregon quadrangle (scale 1:62,500) issued by the U.S. Geological Survey (1967); and geology-Geologic *Map of Oregon West of the 121st Meridian,* scale 1:500,000 (Peck 1961). The Bureau of Land Management, Salem District Office, can supply information on most recent aerial photo coverage of the area.

Acknowledgment

Acknowledgment is given to Dr. Kenneth Walker of Oregon College of Education for his continual guidance and assistance; R. Nussbaum of Oregon State University for his taxonomic assistance in preparation of faunal lists; and James L. Thompson, Dr. J. M. Johnson, and William Fender for their aid in preparation of a more complete plant listing for this supplement.

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Table LS-1.—Tentative list of mammals which utilize the Little Sink Research Natural Area as residents or transients.

Order	Scientific name	Common name
Insectivora	*Neürotrichus gibbsi*	shrew-mole
	Scapanus orarius	coast mole
	Scapanus townsendi	Townsend mole
	Sorex bendirii	marsh shrew
	Sorex trowbridgii[1]	Trowbridge shrew
	Sorex vagrans	vagrant shrew
	Sorex yaquinae	Yaquina shrew
Chiroptera	*Antrozous pallidus*	pallid bat
	Eptesicus fuscus[1]	big brown bat
	Lasionycteris noctivagans	silver-haired bat
	Lasiurus cinereus	hoary bat
	Myotis californicus	California myotis
	Myotis evotis	long-eared myotis
	Myotis lucifugus[1]	little brown myotis
	Myotis thysanodes	fringed myotis
	Myotis volans	long-legged myotis
	Myotis yumanensis	Yuma myotis
	Plecotus townsendi	Townsend big-eared bat
Lagomorpha	*Lepus americanus*	snowshoe hare
	Sylvilagus bachmani	brush rabbit
	Sylvilagus floridanus	eastern cottontail
Rodentia	*Arborimus longicaudus*	red tree vole
	Castor canadensis[1]	beaver
	Clethrionomys californicus	California red-backed vole
	Erethizon dorsatum[1]	porcupine
	Eutamias townsendi[1]	Townsend chipmunk
	Glaucomys sabrinus[1]	northern flying squirrel
	Microtus oregoni[1]	Oregon meadow vole
	Microtus townsendi[1]	Townsend meadow vole
	Neotoma cinerea[1]	bushy-tailed woodrat
	Ondatra zibethicus[1]	muskrat
	Peromyscus maniculatus[1]	deer mouse
	Sciurus griseus[1]	western gray squirrel
	Spermophilus beecheyi[1]	California ground squirrel
	Tamiasciurus douglasi[1]	chickaree
	Thomomys mazama	Mazama pocket gopher
	Zapus trinotatus[1]	Pacific jumping mouse
Carnivora	*Canis latrans*[1]	coyote
	Lutra canadensis[1]	river otter
	Lynx rufus	bobcat
	Martes americana	martin
	Mephitis mephitis[1]	striped skunk
	Mustela erminea[1]	short-tailed weasel or ermine
	Mustela frenata[1]	long-tailed weasel
	Mustela vison	mink
	Procyon lotor[1]	raccoon
	Spilogale putorius	spotted skunk
	Urocyon cinereoargenteus	gray fox
	Ursus americanus[1]	black bear
	Vulpes fulva[1]	red fox
Artiodactyla	*Cervus canadensis roosevelti*	wapiti
	Odocoileus hemionus columbianus[1]	black-tailed deer

[1] Presence of the animal has been verified by sign, sighting, or capture.

Table LS-2. — Partial list of birds which utilize the Little Sink Research Natural Area, by common names (presence of the animal has been verified by sign, sighting, or capture).

Mallard	Brown Creeper	Red-tailed Hawk	Yellow Warbler
Wood Duck	Golden-crowned Kinglet	Ruffed Grouse	Brewer's Blackbird
Sparrow Hawk	Redwing Blackbird	Mourning Dove	Oregon Junco
California Quail	American Goldfinch	Red-shafted Flicker	Fox Sparrow
Rufous Hummingbird	Song Sparrow	Pileated Woodpecker	Pileated Warbler
Hairy Woodpecker	White-crowned Sparrow	Steller's Jay	Varied Thrush
Scrub Jay	Bewicks Wren	Robin	Nuthatch
	Pintail		

Table LS-3.—Tentative list of reptiles and amphibians which reside within the Little Sink Research Natural Area.

Order	Scientific name	Common name
Salientia	*Ascaphus truei*	tailed frog
	Hyla regilla	Pacific treefrog
	Rana aurora	red-legged frog
Caudata	*Aneides ferreus*	clouded salamander
	Dicamptodon ensatus	Pacific giant salamander
	Ensatina eschscholtzi[1]	Oregon salamander
	Plethodon dunni[1]	Dunn's salamander
	Plethodon vehiculum[1]	western red-backed salamander
	Taricha granulosa[1]	rough-skinned newt
Serpentes	*Charina bottae*	rubber boa
	Thamnophis ordinoides	northwestern gartersnake
	Thamnophis sirtalis[1]	common gartersnake

[1] Presence of the animal has been verified by sighting or collection.

Table LS-4.—Tentative list of flora[1] of the Little Sink Research Natural Area.

Family	Scientific name	Common name
Aceraceae	*Acer circinatum* Pursh	vine maple
	Acer macrophyllum Pursh	big-leaf maple
Anacardiaceae	*Rhus diversiloba* T. & G.	poison oak
Araceae	*Lysichitum americanum* Hulten & St. John	skunk cabbage
Araliaceae	*Oplopanax horridum* (Smith) Miq.	devil's club
Aristolochiaceae	*Asarum caudatum* Lindl.	wild ginger
Berberidaceae	*Achlys triphylla* (Smith) DC.	vanillaleaf
	Berberis nervosa Pursh	Oregongrape
	Vancouveria hexandra (Hook.) Moor. & Dec.	inside-out-flower
Betulaceae	*Alnus rubra* Bong.	red alder
	Corylus cornuta Marsh var. *californica* (DC.) Sharp	California hazel
Callitrichaceae	*Callitriche* sp. L.	water-starwort
	Callitriche hermaphroditica L.	autumn water-starwort
Caprifoliaceae	*Linnaea borealis* L.	twinflower
	Sambucus cerulea Raf. var. *arborescens* (T. & G.) Gray	red elderberry
Caryophyllaceae	*Arenaria macrophylla* Hook.	bigleaf sandwort
	Cerastium arvense L.	field chickweed
	Stellaria crispa Cham. & Schlect.	crisped starwort
	Stellaria media (L.) Cyrill.	common chickweed

[1]A more complete listing of flora is being compiled by William Fender, Science Department, Oregon College of Education, Monmouth, Oregon. Nomenclature used follows Hitchcock and Cronquist (1973); voucher specimens of most listed species are located in the herbarium at Oregon College of Education.

Table LS-4. — Tentative list of flora[1] of the Little Sink Research Natural Area — Continued.

Family	Scientific name	Common name
Compositae	*Petasites frigidus* (L.) Fries var. *palmatus* (Ait.) Cronq.	coltsfoot
	Senecio sp. L.	groundsel
	Senecio triangularis Hook.	arrowleaf groundsel
Cornaceae	*Cornus nuttallii* Aud.	Pacific dogwood
	Cornus stolonifera Michx. var. *occidentalis* (T. & G.) Hitchc.	red-osier dogwood
Cruciferae	*Cardamine angulata* Hook.	angle-leaved bittercress
	Cardamine oligosperma Nutt.	little western bittercress
	Cardamine pensylvanica Mulh.	Pennsylvania bittercress
	Cardamine pulcherrima Greene	slender dentaria
Cupressaceae	*Thuja plicata* Donn.	western red cedar
Cyperaceae	*Carex hendersonii* Bailey	Henderson's sedge
	Carex obnupta Bailey	slough sedge
Equisetaceae	*Equisetum telmateia* Ehrh.	giant horsetail
Ericaceae	*Arbutus menziesii* Pursh	Pacific madrone
	Gaultheria shallon Pursh	salal
	Menziesia ferruginea Smith	rusty-leaf
	Vaccinium parvifolium Smith	red huckleberry
Fagaceae	*Quercus garryana* Dougl.	Oregon white oak
Fumariaceae	*Dicentra formosa* (Andr.) Walp	bleedingheart
Grossulariaceae	*Ribes bracteosum* Dougl.	Stink currant
	Ribes divaricatum Dougl.	coast black gooseberry
	Ribes laxiflorum Pursh	coast trailing currant
	Ribes lobbii Gray	pioneer gooseberry
	Ribes sanguineum Pursh	redflowering currant
Hydrangeaceae	*Philadelphus lewisii* Pursh	Lewis mockorange
Hydrophyllaceae	*Hydrophyllum tenuipes* Heller	slender-stemmed waterleaf
	Nemophila parviflora Dougl.	small-flowered nemophila
Hypericaceae	*Hypericum* L.	St. John's-wort
Iridaceae	*Iris tenax* Dougl.	Oregon iris
Juncaceae	*Juncus effusus* L.	common rush
	Luzula parviflora (Ehrh.) Desv.	smallflowered woodrush
Labiatae	*Lamium purpureum* L.	red dead-nettle
	Stachys L.	hedge-nettle
Leguminosae	*Lotus* L.	lotus
Lemnaceae	*Lemna minor* L.	water lentil
	Wolffia punctata Griseb.	dotted wolffia
Liliaceae	*Disporum hookeri* (Torr.) Nicholson	Hooker fairy-bell
	Disporum smithii (Hook.) Piper	Smith fairy-bell
	Erythronium oregonum Applegate	giant fawn-lily
	Maianthemum dilatatum (Wood) Nels. & Macbr.	false lily-of-the-valley
	Smilacina racemosa (L.) Desf.	false Solomon's seal
	Smilacina stellata (L.) Desf.	starry Solomon-plume
	Trillium ovatum Pursh	trillium
	Veratrum californicum Duran var. *caudatum* (Heller) Hitchc.	California false hellebore
Oleaceae	*Fraxinus latifolia* Benth.	Oregon ash
Onagraceae	*Circaea* L.	circaea
	Epilobium L.	willow-herb
Orchidaceae	*Calypso bulbosa* (L.) Oakes	fairy-slipper
	Corallorhiza maculata Raf.	spotted coral-root
	Goodyera oblongifolia Raf.	rattlesnake-plantain
Oxalidaceae	*Oxalis oregana* Nutt.	Oregon oxalis
Pinaceae	*Abies grandis* (Dougl.) Forbes	grand fir
	Pseudotsuga menziesii (Mirbel) Franco	Douglas-fir
	Tsuga heterophylla (Raf.) Sarg.	western hemlock

Table LS-4. — Tentative list of flora[1] of the Little Sink Research Natural Area — Continued.

Family	Scientific name	Common name
Polygonaceae	*Rumex acetosella* L.	sheep sorrel
Polypodiaceae	*Adiantum pedatum* L. var. *aleuticum* Pupr.	western maidenhair fern
	Athyrium filix-femina (L.) Roth.	lady-fern
	Polypodium glycyrrhiza D.C. Eat.	licorice-fern
	Polystichum munitum (Kaulf.) Presl	sword-fern
	Pteridium aquilinum (L.) Kuhn. var. *pubescens* Underw.	bracken fern
Portulacaceae	*Montia parvifolia* (Moc.) Greene	streambank springbeauty
	Montia perfoliata (Donn) Howell	miner's lettuce
	Montia sibirica (L.) Howell	western springbeauty
Potamogetonaceae	*Potamogeton* L.	pondweed
Primulaceae	*Trientalis latifolia* Hook.	starflower
Ranunculaceae	*Anemone deltoidea* Hook.	threeleaf anemone
	Anemone lyallii Britt.	Lyall's anemone
	Aquilegia formosa Fisch.	western columbine
	Ranunculus orthorhynchus Hook.	western swamp buttercup
	Ranunculus uncinatus D. Don. var. *parviflorus* (Torr.) Benson	little buttercup
	Thalictrum L.	meadowrue
Rhamnaceae	*Rhamnus purshiana* DC.	cascara
Rosaceae	*Amelanchier alnifolia* Nutt. var. *semiintegrifolia* (Hook.) Hitchc.	Saskatoon serviceberry
	Fragaria vesca L. var. *bracteata* (Heller) Davis	western wood strawberry
	Holodiscus discolor (Pursh) Maxim.	ocean-spray
	Osmaronia cerasiformis (T. & G.) Greene	Indian plum
	Rosa gymnocarpa Nutt.	little wild rose
	Rosa pisocarpa Gray	clustered wild rose
	Rubus parviflorus Nutt.	thimbleberry
	Rubus spectabilis Pursh	salmonberry
	Rubus ursinus Cham. & Schlect.	trailing blackberry
	Spiraea L.	spirea
Rubiaceae	*Galium* L.	bedstraw
	Galium aparine L.	cleavers
	Galium triflorum Michx.	sweetscented bedstraw
Salviniaceae	*Azolla filiculoides* Lam.	duckweed fern
Saxifragaceae	*Chrysosplenium glechomaefolium* Nutt.	western golden-saxifrage
	Mitella caulescens Nutt.	leafy-stemmed mitrewort
	Peltiphyllum peltatum (Torr.) Engl.	shieldleaf
	Tellima grandiflorum (Pursh) Dougl.	fringecup
	Tolmiea menziesii (Pursh) T. & G.	youth-on-age
Scrophulariaceae	*Digitalis purpurea* L.	foxglove
	Veronica L.	speedwell
Taxaceae	*Taxus brevifolia* Nutt.	western yew
Typhaceae	*Typha latifolia* L.	broad-leaved cattail
Umbelliferae	*Cicuta douglasii* (DC.) Coult. & Rose	western water-hemlock
	Heracleum lanatum Michx.	common cow-parsnip
	Osmorhiza chilensis H. & A.	mountain sweet-root
Urticaceae	*Urtica dioica* L.	bigsting nettle
Violaceae	*Viola glabella* Nutt.	wood violet

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