

BEFORE THE BOARD OF COUNTY COMMISSIONERS FOR  
MULTNOMAH COUNTY, OREGON

In the Matter of the Adoption of the )  
Natural Area Protection and Manage- ) RESOLUTION.  
ment Plan for Multnomah County ) No. 92-102  
\_\_\_\_\_ )

WHEREAS, the conservation of natural areas in the urban and rural portions of Multnomah County is critical to maintaining biologically diverse populations of flora and fauna; and

WHEREAS, the protection of natural areas is considered to be an essential element in the quality of life desired by Multnomah County citizens; and

WHEREAS, quality of life is an important aspect of attracting new businesses to Multnomah County and maintaining economic health on a sustainable basis; and

WHEREAS, Board Resolution No. 90-57 established the Natural Areas Acquisition and Protection Fund and called for the development of a plan to guide the expenditure of Fund resources; and

WHEREAS, the Park Services Division has developed a Natural Areas Protection and Management Plan which conveys a county-wide commitment to natural area conservation and identifies opportunities to translate commitment into action; and

WHEREAS, opportunities for public involvement and comment have been provided by the Multnomah County Parks Advisory Committee, the Multnomah County Planning Commission, and the Board of County Commissioners; and

WHEREAS, the Parks Advisory Committee and the Planning Commission have reviewed and approved the Natural Areas Protection and Management Plan;

NOW, THEREFORE, be it resolved that the Board of County Commissioners for Multnomah County hereby adopts the Natural Areas Protection and Management Plan, as amended.

ADOPTED this 4th day of June, 1992.

BOARD OF COUNTY COMMISSIONERS  
FOR MULTNOMAH COUNTY, OREGON

By Gladys McCoy  
Gladys McCoy, Chair



LAWRENCE KRESSEL, County Counsel  
for Multnomah County

By John L. DaBay  
Deputy County Counsel

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# Multnomah County Natural Area Protection and Management Plan

June 1992



## Board of County Commissioners

Gladys McCoy, Chair of the Board

Commissioner Pauline Anderson

Commissioner Gary Hansen

Commissioner Rick Bauman

Commissioner Sharron Kelley



## Department of Environmental Services

Paul Yarborough, Director  
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### Parks Advisory Committee

Robert Findley  
Dr. Arch Diack  
Jean Ridings  
Vivian Starbuck  
Dr. Charles Becker Sr.  
Christine Lightcap  
Greg Wolley

### Natural Area Subcommittee

Jean Ridings, Parks Advisory Committee  
Dr. Arch Diack, Parks Advisory Committee  
Christine Lightcap, Parks Advisory Committee  
Nancy Diaz, Mt. Hood Forest Service  
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Jim Morgan, Metro  
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## THE VISION

Multnomah County will be a community where both people and nature flourish.

## **PLAN PURPOSE**

***" . . . The first intelligent rule of tinkering is--save all the pieces."***

***--Aldo Leopold***



A critical element in the long-term protection of a viable natural area system will be the creation of a comprehensive environmental education and interpretation program for county residents and visitors. This program will promote the wise use and enjoyment of natural areas and informed decisions regarding environmental issues facing the region.

Direct daily contact with nature should not become a story from our past but rather a living legacy for future generations.

## POLICIES

*"The state of civilization of a people may be measured by its care and forethought for the welfare of generations to come." (Dr. John C. Merriam, Save the Redwoods League, 1931)*

B. Corridors that connect and help form these natural area systems should be protected in order to minimize fragmentation of habitat and isolation of species.

C. Publicly-owned natural areas should be protected and their value enhanced through the appropriate management of adjacent properties.

This may be achieved by:

- the adoption of land use regulations to protect Goal 5 resources listed on the county's inventory,
- the provision of incentives which encourage wise land stewardship and
- education of property owners.

D. Through its Department of Environmental Services, the county shall act as an advocate for the protection, conservation and restoration of natural areas.

E. The county shall work cooperatively with appropriate federal, state, regional, local agencies and non-profit organizations to protect and enhance the natural resources of Multnomah County.

#### **Policy #2 Finance**

A. The county shall endeavor to review, evaluate and dispose of surplus property in a timely manner in order to provide revenue for the implementation of this plan. Revenue from general obligation bonds may also be used for acquisition. (In April 1990, the Board of County Commissioners created a Natural Areas Acquisition and Protection Fund, and allocated 50% of the proceeds from the sale of unrestricted county surplus property.)



- G. If a natural area is acquired which is served by the Sauvie Island Drainage District, the county shall respect the lawful rights of the district to operate and maintain drainage system components located on county-owned natural areas and pay the annual Sauvie Island Drainage District assessment or provide service in-lieu-of such payment.

**Policy #4 Public Involvement**

- A. The public shall be encouraged to participate in the selection of natural area sites for acquisition of fee title or conservation easements.
- B. The management planning process for each site shall incorporate a public involvement element.
- C. The county will foster the development and use of alternative labor, in the form of citizen volunteers, service groups, inmate crews, etc., for various aspects of operations and maintenance of natural areas.

**Policy #5 Education**

- A. The county shall endeavor to provide an educational and interpretive program which:
1. Promotes public awareness of our relationship to and dependence on finite natural resources.
  2. Provides a foundation for informed public decisions regarding the management of natural resources.
  3. Encourages appropriate use and appreciation of publicly-owned natural areas.

## PLAN IMPLEMENTATION

*We are living at the time of man's final conquest over the natural landscape. What we have already saved of the natural world, what we save in the next few years, is all that will ever be saved. Those that follow will no longer have the chance. They will only be able to care for what we leave them."*  
(George B. Fell)

In order to implement Policy #1, the following work tasks should be initiated or continued:

- 1a. The Park Services Division shall work with the Metropolitan Greenspaces Program to identify natural areas to be acquired and to designate the lead agency for acquisition. For instance, Multnomah County may be the lead agency for acquisition of properties along the portion of Johnson Creek located outside the urban growth boundary, while Gresham or Portland may be the lead agency within their jurisdictional boundaries with the county as a potential partner.

Where Multnomah County will be the lead agency, the county will develop a work plan to identify property boundaries, existing zoning, ownership patterns, protection strategies, potential partnerships and other relevant factors.

- 1b. Establish procedures to regularly review all county properties and tax foreclosed properties to determine if any have value as natural areas. Properties with natural area values may be retained by the county or transferred to another appropriate jurisdiction.
- 1c. Continue biological surveys and data analysis necessary to identify target sites for acquisition or protection.
- 1d. Share information with cities, service groups and non-profit organizations about natural areas of interest and encourage their participation in the protection of these areas.



### Policy #3 Management

Once acquired, natural areas will need clear, concise management plans to guide current and future administration.

Without a management plan, well intentioned improvements can quickly become threats to the integrity of the area which acquisition was intended to protect. Too many trails, roads, parking lots, etc., and the resulting visitation can quickly erode a site's value. The type and level of public use should be determined with the appropriate expertise and public participation.

To measure the impact of outside influences and public use, an information base of a site's air and water quality, soil condition, botanical and wildlife components should be developed and regularly updated. Resource monitoring is essential to maintain the integrity of the site and the public's investment.

In addition to a specific management plan for each site, appropriate maintenance techniques should be identified to guide park staff. Maintenance of a natural area will require, for example, education in areas such as integrated pest management, and the identification and removal of exotic plant species. Appropriate maintenance techniques shall be incorporated into the Division Maintenance Standards and Baseline Maintenance Schedule documents.

In order to implement Policy #3 the following work tasks should be initiated:

- Task 3a. The Park Services Division shall establish indicators by which site quality can be monitored.
- 3b. The Park Services Division shall develop a work plan for the gathering of historical, current and future base information for all county-owned natural areas.

### **Policy #5 Education**

The long-term success of any program undertaken by a governmental agency depends on public education. Education is a prerequisite to public involvement and the development of a constituency for natural areas.

Taxpayers should be made aware of the resources available for their enjoyment, and the long-term economic value of wise land stewardship.

Education programs can include passive elements such as signage and brochures or active elements such as school programs, living history, nature centers and special events. To be effective, a multifaceted education program will be required.

In order to implement Policy #5 the following work tasks should be initiated:

- 5a. The Park Services Division will maintain or expand educational efforts within financial constraints.
- 5b. The Park Services Division will develop partnerships with other agencies, non-profit organizations, and volunteers to leverage education program resources.
- 5c. The Park Services Division will identify educational opportunities as part of the management planning process for natural area sites.

### **Policy #6 Land Use and Development**

Significant natural areas on privately-owned lands that are listed on the Goal 5 inventory must be protected to conserve resource values without preventing reasonable use of the land.

Private land, within identified natural area systems, may be integral to maintaining valuable habitats, connecting corridors and their associated values.

The proliferation of heavily traveled roads within Multnomah County can contribute to the degradation of natural areas in several ways. Examples include:

- increased storm water run-off.  
barriers to migration - both terrestrial and aquatic species.
- potential contamination of surface water resulting from the use of herbicides.  
sedimentation of streams resulting from road construction projects.
- high "road-kill" rates along seasonal migration routes.

In order to address these concerns and implement Policy #7, the Transportation Division should develop a work plan to:

- 7a. Identify roads within natural area systems in Multnomah County.
- 7b. Develop road design and construction standards which incorporate bio-engineering techniques.
- 7c. Review and evaluate use of herbicides along roads located adjacent to perennial streams.
- 7d. Document locations of chronic, unauthorized garbage dumping for clean-up and installation of physical barriers.
- 7e. Develop a storm water management program which meets or exceeds current state and federal standards.
- 7f. Work with Oregon Department of Fish and Wildlife to identify stream crossings which have created migration barriers and schedule corrective measures.
- 7g. Work with Oregon Department of Fish and Wildlife to identify areas with high "road-kill" rates and develop strategies to reduce mortality.



## NATURAL AREA SYSTEMS

*"It is much easier and more cost effective to protect intact, functioning ecosystems with their myriad species than to initiate emergency room measures for one endangered species after another or to wait until common species become endangered before acting to protect them." Balancing on the Brink of Extinction, Edited by Kathryn A. Kohm*

escape the ravages of urban development and continue to support viable population's of resident and anadromous fish species. Examples of these important remnants include Balch, Miller and McCarty Creeks. The western face of the range slopes more gently to the Tualatin Valley. This mountainous landscape was once dominated with fir, hemlock and maple forests, with a few stands of Oregon ash along streams. Many of the once forested tracts have been cleared and large tracts of residential development now prevail. Five thousand acre Forest Park, the largest natural park in the Portland/Vancouver Metro area is located within the Tualatin Mountains. The range provides a travel corridor for wildlife between Forest Park, the Tualatin Valley and Coast Range to the west and northwest.

The Fanno Creek Corridor drains the west side of the Tualatin Mountains including Portland, portions of Multnomah County, Beaverton and Tigard. Fanno Creek meanders 14 miles through residential, commercial and industrial lands before entering the Tualatin River. The upper reaches and headwater tributaries of Fanno Creek (to SW Oleson Road), partially within Multnomah County, flow through densely forested and residential areas. There are still scattered wetlands throughout the upper reaches of the creek. Cutthroat trout are known to spawn in the few remaining silt-free gravel beds. The lower stretches of the creek have been seriously degraded due to increased urbanization, residential, commercial and industrial encroachment.

#### **Columbia River Lowlands/Slough/Islands**

The Columbia River, the largest river on the Pacific Coast of North America, cuts through the Cascade Mountains on its course westward to the Pacific Ocean. The Columbia River lowlands were once a mosaic of lakes, sloughs, creeks and wetland forests. Within Multnomah County, Smith and Bybee

banks. Within Multnomah County, the shores of the Willamette are predominated by industrial, commercial and residential uses including downtown Portland. Elk Rock Island, Ross and Toe Islands, Oaks Bottom Wildlife Refuge, Kelly Point Park and portions of Sauvie Island are examples of natural areas remaining along the river. Today, place names on a map of the city describe rich wetland and riparian areas once prevalent. These names are poetic reminders of a time when Swan Island actually was an island, Mock's Bottom--a productive wetland system and Guild's Lake--a 50-acre pond.

#### **Fairview Lake and Creek**

Fairview Creek originates in a highly urbanized portion of Gresham, and flows north passing through areas characterized by urban development. After passing under Interstate 84 at Fairview, the creek flows briefly through agricultural lands and then into Fairview Lake. The entire Fairview Creek watershed is located within the Urban Growth Boundary. This stream is characterized by a patchwork of healthy native riparian vegetation, urban development, agricultural uses (to the edge of the creek) and underground culverted portions. Fairview Lake, the headwaters of the Columbia Slough, was formerly an emergent wetland that has been dredged to enhance storm water retention. Fairview Creek and Lake links the forested buttes in Gresham with the Columbia Slough and the Columbia River.

#### **Multnomah Channel/Sauvie Island**

Multnomah Channel/Sauvie Island are located in northwest Multnomah County near the confluence of the Willamette and Columbia Rivers. The area is a remnant of a once vast system of braided channels, wetlands and riparian areas along the Willamette and Columbia Rivers. The combination of wetland forests, upland forests, emergent wetlands, open water and agricultural areas

Beaver Creek near Mt. Hood Community College. Much of the area surrounding Kelly Creek is currently being developed for residential uses. Agricultural uses are common in the upper reaches of Beaver Creek while residential uses predominate within Troutdale city limits. These land uses have degraded the value of these two riparian systems as well as water quality, quantity and associated fish production potential. Nonetheless, Beaver and Kelly Creeks continue to provide riparian corridor habitat for a variety of birds, deer, and small mammals.

### **Columbia River Gorge**

The Columbia River Gorge National Scenic Area extends 80 miles along the Columbia River, from the Sandy River east to the Deschutes River. The diverse and unique features and formations within the Gorge are a result of cataclysmic floods, volcanic action and landslides. A combination of moss covered basalt cliffs, lush temperate rain forest and waterfalls characterize the portions of the scenic area within Multnomah County. The National Scenic Area is jointly managed by the U.S. Forest Service and Columbia Gorge Commission. A Comprehensive Management Plan was adopted by the Gorge Commission in late 1991.

### **Larch Mountain**

At 4,056 feet, Larch Mountain is the highest point in Multnomah County. Much of Larch Mountain is located within the Mt. Hood National Forest where streams rise and flow north to form the Columbia Gorge waterfalls or southwest into the Sandy River. These streams provide important habitat for resident and anadromous fish species.

Larch Mountain's elevation makes it the only place in the County where Pacific Silver and Noble Fir grow. The forests of Larch Mountain are habitat



### **Johnson Creek and Tributaries/Beggars Tick Marsh**

Johnson Creek is a tributary of the Willamette River originating west of the Sandy River near Orient. Flowing approximately 18 miles west through the City of Gresham, unincorporated East Multnomah County, Portland, and unincorporated North Clackamas County, Johnson Creek enters the Willamette River in the City of Milwaukie. The Johnson Creek Corridor is a mosaic of natural areas interspersed with large areas which have been developed to various intensities, integrated with the water course which provides food, shelter, breeding and rearing areas for aquatic and terrestrial wildlife. Agricultural and residential uses characterize the Creek from the headwaters to SE 92nd Avenue. West from this point, predominant land uses include: residential, industrial and commercial development. Land uses throughout the watershed have impacted water quality and quantity. Subsequently, the productivity of this urban stream has been significantly compromised. Johnson Creek is an important wildlife corridor connecting various volcanic buttes and wetland areas with the Willamette River. It is one of the few remaining free-flowing creeks of its size in the Metropolitan Area. The less disturbed stretches of the creek are characterized by western red cedar, red alder, cottonwood and willow riparian forests. Beggars Tick Wildlife Refuge, located within the Johnson Creek watershed, is a 20+ acre wetland complex situated near SE 111th and Foster Road.



## SITE EVALUATION CRITERIA

*The Island Within by Richard Nelson:*

*"As time went by, I realized that the particular place I'd chosen was less important than the fact that I had chosen a place and focused my life around it . . . Every place like every person is elevated by the love and respect shown toward it, and by the way in which it's bounty is received."*

# MULTNOMAH COUNTY NATURAL AREA PROTECTION AND MANAGEMENT PROGRAM

## SITE EVALUATION FORM

Site Name:

Natural Area System:

Site Location; streets, tax lots:

Site Size:

Numbers of Applicable Polygons:

One paragraph overall description of site:

Rare plants or animals    yes   or   no  
Description:

Connectivity    yes   or   no  
Description:

Biodiversity    yes   or   no  
Description:

NATURAL AREA INFORMATION DATA BASE

Info. Source Code \_\_\_\_\_ Site Code \_\_\_\_\_

Date this form filled out: \_\_\_\_\_

NATURAL AREA INFORMATION DATABASE

The items on the left side of the page are coded into the master database which will eventually go into Metro's arcinfo system for their Natural Area inventory. A number of other data files containing species occurrence information for plants and animals will also be generated. For details, see the attached appendices.

\_\_\_\_ (1-4) Site Number (from workshop)  
\_\_\_\_ (5-7) Information Source Code \_\_\_\_ W - workshop, F-field trip, O -  
other including subsequent professional field surveys, S - field  
ABC survey by Natural Area Inventory (NAI) staff, H - historical survey  
\_\_\_\_ (8-17) Investigator's Name(s) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_ (18-23) Date of field survey of site \_\_\_\_\_ MM/DD/YY  
MMDDYY

\_\_\_\_ (24-27) Time of field survey \_\_\_\_ : \_\_\_\_ to \_\_\_\_ : \_\_\_\_ HH:MM, use 24-hour  
0000

Date(s) of other visit(s) \_\_\_\_\_  
\_\_\_\_\_ MM/DD/YY

\_\_\_\_ (28-30) Total hrs on site, should be cumulative total as additional  
000 time is spent there.

Purpose of visit \_\_\_\_\_ for other  
and workshop data

\_\_\_\_ (31-36) Site Number 0:00:000 County:City:Number  
000000 County: 1-Clackamas, 2-Clark, 3-Multnomah, 4-Washington  
Cities: 1-Beaverton, 2-Canas, 3-Cornelius, 4-Durham, 5-Fairview,  
6-Forest Grove, 7-Gladstone, 8-Gresham, 9-Happy Valley, 10-  
Hillsboro, 11-Johnson City, 12-King City, 13-Lake Oswego, 14-  
Milwaukie, 15-Oregon City, 16-Portland, 17-Rivergrove, 18-Sherwood,  
19-Maywood Park, 20-Tigard, 21-Tualatin, 22-Troutdale, 23-  
Vancouver, 24-Washougal, 25-West Linn, 26-Wilsonville, 27-Wood  
Village.

Site Number: 1-999

Subbasin \_\_\_\_\_ Use State Water Resources or ODFW codes  
River mile \_\_\_\_\_  
Site name \_\_\_\_\_ (words)

Info. Source Code \_\_\_\_\_ Site Code \_\_\_\_\_

- above lists
- (62) Does this forest have old-growth elements (big native trees > 36" dbh, usually more than one) present? \_\_\_\_\_ y/n  
Approx. forest height in ft \_\_\_\_\_

Shrubs: (woody vegetation 3-15 ft tall) This will need to be filled in for all forest and shrub sites, plus any other types which have shrubs present.

- (63) Shrub density:  
C-closed, crowns mostly touching or open by less than 1/4 crown diameter  
O-open, crowns mostly not touching, separated by 1/4 to 1 1/2 crown diameter  
S-savannah like, scattered crowns separated by more than 1 1/2 crown diameter
- (64-65) Percent deciduous species, estimated visually and recorded as increments of 10%: e.g., 0,10,20,...90,99. Ninety-nine percent is used to represent 100% to save space in the database.
- (66-67) Number of shrub species identified \_\_\_\_\_

Dominant shrub species. This information is placed in the SHRUBS file, where 1 is placed by each species present. Dominants are defined as the most abundant species whose percent cover collectively reaches 50% or more, plus any other species comprising 20% cover [as defined in Wetland Training Institute 1989]: \_\_\_\_\_

\_\_\_\_\_ Listed as 4- or 5-letter species codes given in Garrison and Skovlin (1976, first two or three letters of genus and species)

Other species: \_\_\_\_\_  
\_\_\_\_\_ list codes, as above

y for yes

- (68) Rare/Unique species: \_\_\_\_\_  
\_\_\_\_\_ list codes, drawn from above lists

Ground Cover: (herbaceous and small shrub vegetation 0 to 3 ft), this will be filled in for probably almost all sites.

- (69-70) Density of ground cover \_\_\_\_\_ Estimate of percent of ground covered by vegetation, to nearest 10 percent, 99=100%.
- 00 — (71) Mowed or grazed? \_\_\_\_\_ y=yes, n=no
- (72-74) Number of ground cover species observed \_\_\_\_\_
- 000 Dominant species: Species observed are given 1's in the GROUND file, codes used are as above for trees, shrubs) \_\_\_\_\_

Other species: (as above) \_\_\_\_\_



Info. Source Code \_\_\_\_\_ Site Code \_\_\_\_\_

- \_(97) Stream/pond substrate \_\_\_\_\_ 1-rock, 2-mud, 3-gravel,  
4-sand, 5-can't tell, 6-other
- \_(98) Stream flow \_\_\_\_\_ 1-fast moving, 2-slow moving, 3-pools
- \_(99) Stream cover \_\_\_\_\_ At time of leaf-on:: 1-Fully shaded: at  
noon, 75-100% of stream is shaded from the sun; 2-  
partially shaded (50-75% shaded); 3-partially exposed  
(25-50% shaded); 4-fully exposed (0-25% shaded)
- \_(100) Stream channel alterations \_\_\_\_\_ 1-none, banks appear natural,  
2-dredged or ditched, 3-wall/bulkhead, 4-riprap, 5-  
culverts, 5-stream is in underground pipe, 6-other
- \_(101) Structures or barriers in the stream \_\_\_\_\_ 1-dams, 2-bridges,  
3-islands, 4-waterfalls, 5-rapids, 6-debris jams, 7-other  
Paper & small trash litter in representative 100-ft stretch  
of stream \_\_\_\_\_ 1: 0-5, 2: 5-10, 3: 10-50, 4: over 50  
Cans and bottles litter in representative 100-ft stretch  
of stream \_\_\_\_\_ 1: 0-5, 2: 5-10, 3: 10-50, 4: over 50  
Large items litter in representative 100-ft stretch  
of stream \_\_\_\_\_ 1: 0-5, 2: 5-10, 3: 10-50, 4: over 50  
Hazardous waste litter in representative 100-ft stretch  
of stream \_\_\_\_\_ 1: 0-5, 2: 5-10, 3: 10-50, 4: over 50  
Yard debris litter in representative 100-ft stretch  
of stream \_\_\_\_\_ 1: 0-5, 2: 5-10, 3: 10-50, 4: over 50
- \_(102) Undercut banks \_\_\_\_\_ y-yes, n-no
- \_(103) Large organic debris \_\_\_\_\_ 1-log piles, 2-tree roots,  
3-logs or stumps, 4-other
- \_(104) Rocks \_\_\_\_\_ 1-rock ledges, 2-gravel deposits, 3-large  
boulders, 4-small boulders
- \_(105) Bank erosion severity: N - none, M - moderate, S -severe
- \_(106) Bank erosion distribution: L - local, W - widespread
- Adjacent Corridors:
- \_(107) Number of adjacent corridors \_\_\_\_\_
- \_(108) Presence of game or people trails? \_\_\_\_\_ y-yes, n-no  
Other comments on quality, etc. of corridors \_\_\_\_\_
- 

Generalized Adjacent Land Uses:

List types, using the NYC inventory 3-letter codes (see  
Appendices)

Comments \_\_\_\_\_

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Water Uses:

Circle appropriate known uses:

1-recreation, 2-swimming, 3-fishing, 4-drinking water,  
5-industrial water, 6-irrigation, 7-livestock, 8-other  
\_\_\_\_\_ describe other uses

Sources of Wastewater:

Are there pipes emptying into the stream? \_\_\_\_\_ yes/no  
Source of pipes \_\_\_\_\_ 1-industry, 2-farm lots, 3-streets  
4-roadside ditches, 5-unknown, 6-other

Info. Source Code \_\_\_\_\_ Site Code \_\_\_\_\_

Birds: BIRDS and BRDBR file.

\_\_\_\_ (126-128) Number of species observed: \_\_\_\_\_

\_\_\_\_ (129) Bird Interest: \_\_\_\_\_ as above

Breeding bird survey results in BRDBR file. List species codes and number of each observed during the 8-minute count period (after Reynolds et al. 1982) to gather information on relative abundance, numbers placed by species in the BRDBR file.

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Additional species observed during rest of field visit or during other observations. In the case of woodpeckers and other species leaving signs rather than being actually observed, use the species code followed by S-seen, H-heard, O-old sign, N-new sign, B-nest, R-remains Example: pileated woodpecker new sign observed would be coded as drpin. These species are recorded in the BIRDS file as 1's by species occurring.

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Rare or unique species

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Mammals: Additional information goes into the MAMMAL file, where species known to occur are indicated with a 1 by the species name.

\_\_\_\_ (130-131) Number of species observed: \_\_\_\_\_

\_\_\_\_ (132) Mammal Interest : \_\_\_\_\_ as above

Species observed on standard transect of variable length and width walked through the site. Length and width will be determined by size and layout of site and visibility through the vegetation. List species, number of animals when actually observed, leave number blank for recognizable signs. Observation type: S-seen, H-heard, D-droppings, T-tracks, B-burrows, M-gopher/mole dirt mounds, R-remains, etc. Code species abbreviation and observation type as for birds.

Example: coyote tracks coded as calat

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Other species observed elsewhere during survey

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Rare/unique species

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Blue Currant  
*Ribes bracteosum*  
 Red Currant  
*Ribes sanguineum*  
 Sticky Currant  
*Ribes viscosissimum*  
**HYDRANGEA (Hydrangeaceae)**  
 Mockorange  
*Philadelphus lewisii*  
**ROSE (Rosaceae)**  
 Western Serviceberry  
*Amelanchier alnifolia*  
 Goatsbeard  
*Aurorus sylvestris*  
 Black Hawthorn (wetland form)  
*C. douglasii* variety *douglasii*  
 Black Hawthorn (upland form)  
*C. douglasii* variety *subcordata*  
 Wood Strawberry  
*Fragaria vesca*  
 Broad-petal Strawberry  
*Fragaria virginiana*  
 Oregon Avens  
*Gesum macrophyllum*  
 Ocean-spray  
*Holodiscus discolor*  
 Indian Plum  
*Osmaronia cerasiiformis*  
 Pacific Ninebark  
*Physocarpus capitatus*  
 Sticky Cinquedol  
*Potentilla glandulosa*  
 Norwegian Cinquedol  
*Potentilla norvegica*  
 Marsh Cinquedol  
*Potentilla palustris*  
 Common Chokecherry  
*Prunus virginiana*  
 Bitter Chokecherry  
*Prunus emarginata*  
 Cut-leaved Plum  
*Prunus domestica*  
 Cultivated Pear  
*Prunus communis*  
 Cultivated Apple  
*Prunus malus*  
 Western Crabapple  
*Prunus fusca*  
 Baldhip Rose  
*Rosa gymnocarpa*  
 Noosa Rose  
*Rosa austriaca*  
 Evergreen Blackberry  
*Rubus laciniatus*  
 Trailing Blackberry  
*Rubus ursinus*  
 Blackcap  
*Rubus leucodermis*  
 Thimbleberry  
*Rubus parviflorus*  
 Five-leaved Bramble  
*Rubus pedatus*  
 Salmonberry  
*Rubus spectabilis*  
 Himalayan Blackberry  
*Rubus discolor*  
 Annual Burned  
*Sanguisorba occidentalis*  
 Siskiyou Mountain-ash  
*Sorbus sitchensis*  
 Douglas's Spirea  
*Spirea douglasii*  
**PEA (Leguminosae)**  
 Scotch Broom  
*Cytisus scoparius*  
 Everlasting Pea-vine  
*Lathyrus latifolius*  
 Hairy vetchling  
*Lathyrus hirsutus*  
 Grass Pea-vine  
*Lathyrus aphacioides*  
 Small-flowered Deer-vetch  
*Lotus erianthus*  
 Meadow Lotus  
*Lotus denticulatus*  
 Field Lupine  
*Lupinus micranthus*  
 Two-color Lupine  
*Lupinus bicolor*  
 Spurred Lupine  
*Lupinus latifolius*  
 Sulfur Lupine  
*Lupinus albus*  
 Broad-leaved Lupine  
*Lupinus latifolius*  
 Large-leaved Lupine  
*Lupinus polyphyllus*  
 Alfalfa  
*Medicago sativa*  
 White Sweet-clover  
*Medicago alba*  
 Mare's Foot  
*Trifolium arvense*  
 Suckling Clover  
*Trifolium dubium*  
 Red Clover  
*Trifolium pratense*

Tenagress  
*Viola cracca*  
 American Vetch  
*Viola americana*  
 Hairy Vetch  
*Viola hirsuta*  
 Winter Vetch  
*Viola villosa*  
 Slender Vetch  
*Viola tetrasperma*  
 Common Vetch  
*Viola calve*  
**GERANIUM (Geraniaceae)**  
 Stork's-bill  
*Erodium cicutarium*  
 Carolina Geranium  
*Geranium carolinianum*  
 Cut-leaved Geranium  
*Geranium dissectum*  
 Dove-foot Geranium  
*Geranium molle*  
 Small-flowered Crane's-bill  
*Geranium pusillum*  
**WOOD-SORREL (Oxalidaceae)**  
 Creeping Yellow Wood-sorrel  
*Oxalis corniculata*  
 Western Yellow Oxalis  
*Oxalis stricta*  
 Oregon Oxalis  
*Oxalis oregana*  
 Trillium-leaved Wood-sorrel  
*Oxalis trillifolia*  
**SPURGE (Euphorbiaceae)**  
 Petty Spurge  
*Euphorbia paphis*  
**WATER-STARWORT (Callitricheae)**  
 Oil-leaved Water-starwort  
*Callitriche heterophylla*  
**SUMAC (Anacardiaceae)**  
 Poison Oak  
*Rhus diversiloba*  
**STAFF-TREE (Celastraceae)**  
 Western Wahoo  
*Euonymus occidentalis*  
**MAPLE (Aceraceae)**  
 Vine Maple  
*Acer circinnatum*  
 Big-leaved Maple  
*Acer macrophyllum*  
**BUCKTHORN (Rhamnaceae)**  
 Cescara  
*Rhamnus purshiana*  
 Oregon tea-tree  
*Ceanothus sanguineus*  
**MALLOW (Malvaceae)**  
 Dwarf Mallow  
*Malva neglecta*  
 Meadow Sidalcea  
*Sidalcea campestris*  
**ST. JOHN'S-WORT (Hypericaceae)**  
 Common St. John's-wort  
*Hypericum perforatum*  
**WATERWORT (Elatinaceae)**  
 Bergia  
*Sergia texana*  
 Three-stamen waterwort  
*Elatine triandra*  
**VIOLET (Violaceae)**  
 Early Blue Violet  
*Viola adunca*  
 Pansy  
*Viola arvensis*  
 Marsh Violet  
*Viola palustris*  
 Stream Violet  
*Viola glabella*  
 Evergreen Violet  
*Viola sempervirens*  
**EVENING-PRIMROSE (Onagraceae)**  
 Enchanter's Nightshade  
*Circaea alpina*  
 Fireweed  
*Epilobium angustifolium*  
 Watson's Willow-weed  
*Epilobium watsonii*  
 Common Willow-weed  
*Epilobium glandulosum*  
 Red-seeded Evening-primrose  
*Oenothera erythrosepala*  
**WATER-MILFOIL (Haloragaceae)**  
 Water-milfoil  
*Myriophyllum species*  
**MARE'S-TAIL (Hippuridaceae)** 45  
 Common Mare's-tail  
*Hippurus vulgaris*

**PARSLEY (Umbelliferae)**  
 Sharp-tooth Angelica  
*Angelica arguta*  
 Poison-hemlock  
*Conium maculatum*  
 Queen Ann's Lace  
*Oenanthe carota*  
 Cow-parsnip  
*Heracleum lanatum*  
 Parsley-leaved Lovage  
*Ligusticum apiculatum*  
 Grey's Lovage  
*Ligusticum grayi*  
 Common Lomatium  
*Lomatium utriculatum*  
 Pacific Water-parsley  
*Oenanthe sarmentosa*  
 Mountain Sweet-root  
*Osmorhiza chilensis*  
 Pacific Sencillo  
*Sanicula crassicaulis*  
**DOGWOOD (Cornaceae)**  
 Western Flowering Dogwood  
*Cornus nuttallii*  
 Red-osier Dogwood  
*Cornus stolonifera*  
**HEATH (Ericaceae)**  
 Madrone  
*Arbutus menziesii*  
 Salal  
*Gaultheria shallon*  
 Indian-pipe  
*Monotropa uniflora*  
 Western Rhododendron  
*Rhododendron macrophyllum*  
 Western Azalea  
*Rhododendron occidentale*  
 Red Huckleberry  
*Vaccinium parviflorum*  
 Evergreen Huckleberry  
*Vaccinium ovatum*  
**PRIMROSE (Primulaceae)**  
 Pimpernel  
*Anagallis arvensis*  
 Fringed Loosestrike  
*Lysimachia clethra*  
 Tufted Loosestrike  
*Lysimachia thyrsiflora*  
 Western Starflower  
*Trientalis latifolia*  
**ASH (Oleaceae)**  
 Oregon Ash  
*Fraxinus latifolia*  
**GENTIAN (Gentianaceae)**  
 Common Gentian  
*Centaurea umbellatum*  
 Staff Gentian  
*Gentiana scabra*  
 Northern Gentian  
*Gentiana amarella*  
**BUCK-BEAN (Menthanthaceae)**  
 Buckbean  
*Maryanthes trifida*  
**DOGBANE (Apocynaceae)**  
 Spreading Dogbane  
*Apocynum androsaemifolium*  
 Penwilde  
*Vincetoxicum*  
**MORNING-GLORY (Convolvulaceae)**  
 Field Morning-glory  
*Convolvulus arvensis*  
 Night-blooming Morning-glory  
*Convolvulus nyctagineus*  
 Lady's-nightcap  
*Convolvulus sepium*  
**DODDER (Cuscutaceae)**  
 Common Dodder  
*Cuscuta epithymum*  
**PHLOX (Polemoniaceae)**  
 Varied-head Collomia  
*Collomia heterophylla*  
 Large-flowered Collomia  
*Collomia grandiflora*  
 Bicolored Linanthus  
*Linanthus bicolor*  
 Microsteris  
*Microsteris gracilis*  
 Stinkweed  
*Navarretia squarrosa*  
**WATERLEAF (Hydrophyllaceae)**  
 Pacific Waterleaf  
*Hydrophyllum tenuipes*  
 Small-flowered Nemophila  
*Nemophila parviflora*  
 Shade Phacelia  
*Phacelia nemoralis*  
**BORAGE (Boraginaceae)**  
 Borage  
*Borago officinalis*  
 Common Forget-me-not

**Western Bluebells**  
*Mertensia platyphylla*  
**Common Forget-me-not**  
*Myosotis scorpioides*  
**Blue Scorpion-grass**  
*Myosotis micrantha*  
**Yellow @ Blue Forget-me-not**  
*Myosotis discolor*  
**Fragrant Plagiobothrys**  
*Plagiobothrys figuratus*  
**Common Comfrey**  
*Symphytum officinale*  
**Rough Comfrey**  
*Symphytum asperum*  
**VERBENA (Verbenaceae)**  
 Wild Hyssop  
*Verbena hastata*  
**MINT (Labiatae)**  
 Hemp Nettle  
*Galeopsis tetrahit*  
 Ground Ivy  
*Glechoma hederacea*  
 Red Henbit  
*Lamium purpureum*  
 Horehound  
*Marrubium vulgare*  
 Pennyroyal  
*Mentha pulegium*  
 Field Mint  
*Mentha arvensis*  
 Round-leaved Mint  
*Mentha rotundifolia*  
 Spearmint  
*Mentha spicata*  
 Peppermint  
*Mentha piperita*  
 American Bee-balm  
*Monarda didyma*  
 Savory  
*Satureia douglasii*  
 Marsh Stachys  
*Scutellaria galericulata*  
 Great Hedge-nettle  
*Stachys cooleyae*  
 Mexican Hedge-nettle  
*Stachys mexicana*  
 Marsh Betony  
*Stachys palustris*  
 Wood Sage  
*Teucrium canadense*  
**NIGHTSHADE (Solanaceae)**  
 Blue Bindweed  
*Solanum dulcamara*  
 Hairy Nightshade  
*Solanum sarachoides*  
 Garden Nightshade  
*Solanum nigrum*  
**FIGWORT (Scrophulariaceae)**  
 Lesser's Snapdragon  
*Antirrhinum orontium*  
 Golden-Indian-paintbrush  
*Castilleja lewisii*  
 Sm.-flowered Blue-eyed Mary  
*Collinsia parviflora*  
 Lg.-flowered Blue-eyed Mary  
*Collinsia grandiflora*  
 Foxglove  
*Digitalis purpurea*  
 Mudwort  
*Limnolobos aequalis*  
 Butter And Eggs  
*Linaria vulgaris*  
 Yellow Monkey-flower  
*Mimulus guttatus*  
 Musk-flower  
*Mimulus moschatellus*  
 Chickweed Monkey-flower  
*Mimulus alba*  
 Hairy Owl-Clover  
*Orthocarpus hispidus*  
 Broad-leaved Penstemon  
*Penstemon ovatus*  
 California Figwort  
*Scrophularia californica*  
 Snow Queen  
*Synthyris raniformis*  
 Small-flowered Tonella  
*Tonella tenella*  
 Common Mullen  
*Verbascum thapsus*  
 Moth Mullen  
*Verbascum blattaria*  
 American Brooklime  
*Veronica americana*  
 Common Speedwell  
*Veronica arvensis*  
 Paul's Betony  
*Veronica officinalis*  
 Persian Speedwell  
*Veronica persica*  
**BLADDERWORT (Lentibulariaceae)**  
 Common Bladderwort  
*Utricularia vulgaris*  
**PLANTAIN (Plantaginaceae)**  
 English Plantain



Sweet Woodruff  
*Asperula odorata*  
 Cleavers  
*Galium aparine*  
 Rough Bedstraw  
*Galium asperum*  
 Sweet-scented Bedstraw  
*Galium triflorum*  
 Small Bedstraw  
*Galium tridum*  
 Blue Field-madder  
*Sherardia arvensis*  
**HONEYSUCKLE (Caprifoliaceae)**  
 Twinflower  
*Lonicera borealis*  
 Trumpet Vine  
*Lonicera ciliosa*  
 Black Twinberry  
*Lonicera involucrata*  
 Blue Elderberry  
*Sambucus canadensis*  
 Red Elderberry  
*Sambucus racemosa*  
 Common Snowberry  
*Symphoricarpos albus*  
**VALERIAN (Valerianaceae)**  
 Lamb's Lettuce  
*Valerianaella locusta*  
**TEASEL (Dipsacaceae)**  
 Teasel  
*Dipsacus sylvestris*  
**CUCUMBER (Cucurbitaceae)**  
 Manroot  
*Mareh oregonus*  
**HAREBELL (Campanulaceae)**  
 Scouter's Bellflower  
*Campanula scouleri*  
 Canterbury Bell  
*Campanula medium*  
 Howellsia  
*Howellsia aquatilis*  
**ASTER (Compositae)**  
 Yarrow  
*Achillea millefolium*  
 Pathfinder  
*Adenocaulon bicolor*  
 Large-flowered Agoseris  
*Agoseris grandiflora*  
 Pearly-everlasting  
*Anaphalis margaritacea*  
 Mayweed Chamomile  
*Anthemis cotula*  
 Common Burdock  
*Arcium minus*  
 Douglas's Sagewort  
*Artemisia douglasiana*  
 Columbia River Mugwort  
*Artemisia ludoviciana*  
 Common California Aster  
*Aster chilensis*  
 White-topped Aster  
*Aster curtus*  
 Douglas's Aster  
*Aster subspicatus*  
 English Daisy  
*Bellis perennis*  
 Water Manifold  
*Bidens beckii*  
 Nodding Beggar-tick  
*Bidens cernua*  
 Three-lobed Beggar-tick  
*Bidens tripartita*  
 Leafy Beggar-tick  
*Bidens frondosa*  
 Western Beggar-tick  
*Bidens vulgata*  
 Bachelor's Button  
*Centaurea cyanus*  
 Brown Knapweed  
*Centaurea jacea*  
 Marguerite  
*Chrysanthemum leucanthemum*  
 Quercy  
*Cichorium intybus*  
 Canada Thistle  
*Cirsium arvense*  
 Common Thistle  
*Cirsium vulgare*  
 Horseweed  
*Coryza canadensis*  
 Rough Hawkbeard  
*Crepis setosa*  
 Smooth Hawkbeard  
*Crepis capillaris*  
 Annual Fleabane  
*Erigeron annuus*  
 Williamette Daisy  
*E. decumbens* variety *decumbens*  
 Philadelphia Fleabane  
*Erigeron philadelphicus*  
 Quinceweed  
*Galeopsis ciliata*  
 Marsh Cudweed  
*Gnaphalium palustre*  
 Snatchweed

White-flowered Hawthorn  
*Hieracium albiflorum*  
 Common Hawkweed  
*Hieracium vulgatum*  
 Spotted Cat-ear  
*Hypochaeris radicata*  
 Smooth Cat-ear  
*Hypochaeris glabra*  
 Prickly Lettuce  
*Lactuca scariola*  
 Nipplewort  
*Lapsana communis*  
 Fall Dandelion  
*Leontodon autumnalis*  
 Cluster Tarweed  
*Media glomerata*  
 Chile Tarweed  
*Media sativa*  
 Pineapple Weed  
*Melicania melicanoides*  
 Sweet Coltsfoot  
*Petasites ligidus*  
 Tansy Ragwort  
*Senecio jacobaea*  
 Common Groundsel  
*Senecio vulgaris*  
 Canada Goldenrod  
*Solidago canadensis*  
 Prickly Sow-thistle  
*Sonchus asper*  
 Common Sow-thistle  
*Sonchus oleraceus*  
 Common Tansy  
*Tanacetum vulgare*  
 Common Dandelion  
*Taraxacum officinale*  
 Meadow Salsify  
*Inopogon pratensis*  
 Oyster Salsify  
*Inopogon perfoliatus*  
 Codonop  
*Xanthox strumarium*  
**SALAMANDERS (Amphystomata)**  
 Northwestern Salamander  
*Amphystoma gracile*  
 Long-toed Salamander  
*Amphystoma macrodactylum*  
 Pacific Giant Salamander  
*Dicamptodon ensatus*  
 Olympic Salamander  
*Ptychocheilus olympicus*  
**UNGLS SALAMANDERS (Plethodontidae)**  
 Clouded Salamander  
*Ambystoma tigrinum*  
 Oregon Slender Salamander  
*Batrachoseps wrighti*  
 Duna's Salamander  
*Plethodon dunni*  
 West Red-backed Salamander  
*Plethodon vehiculum*  
 Erseina  
*Erseina eschscholtzi*  
**NEWTS (Salamandridae)**  
 Rough-skinned Newt  
*Taricha granulosa*  
**TOADS (Bufonidae)**  
 Western Toad  
*Bufo boreas*  
**TREEFROGS (Hylidae)**  
 Pacific Treefrog  
*Hyla regilla*  
**TRUE FROGS (Ranidae)**  
 Red-legged Frog  
*Rana aurora*  
 Spotted Frog  
*Rana pretiosa*  
 Bullfrog  
*Rana catesbeiana*  
**TURTLES (Chelydridae)**  
 Western Pond Turtle  
*Clemmys emmurella*  
 Painted Turtle  
*Chrysemys picta*  
 Pond Slider  
*Pseudemys scripta*  
**IGUANIDS (Iguanidae)**  
 Western Fence Lizard  
*Sceloporus occidentalis*  
**ALLIGATOR LIZARDS (Anguillidae)**  
 Northern Alligator Lizard  
*Gerrhonotus ocoyoacae*  
 Southern Alligator Lizard  
*Gerrhonotus multicarinatus*  
**SINKS (Scinidae)**  
 Western Skink  
*Eumeces skiltonianus*

Racer  
*Coluber constrictor*  
 Ringneck Snake  
*Diadophis punctatus*  
 Common Garter Snake  
*Thamnophis sirtalis*  
 Northwestern Garter Snake  
*Thamnophis ordinoides*  
 Pacific Gopher Snake  
*Pituophis melanoleucus*  
 Garter Snake  
*Thamnophis*  
**LOONS (Gaviidae)**  
 Common Loon  
*Gavia immer*  
**GREBS (Podicipedidae)**  
 Horned Grebe  
*Podiceps auritus*  
 Pied-billed Grebe  
*Podilymbus podiceps*  
 Western Grebe  
*Aechmophorus occidentalis*  
 Eared Grebe  
*Podiceps nigricollis*  
**CORMORANTS (Phalacrocoracidae)**  
 Double-crested Cormorant  
*Phalacrocorax auritus*  
**HERONS (Ardeidae)**  
 American Bittern  
*Botaurus lentiginosus*  
 Black-crowned Night Heron  
*Nycticorax nycticorax*  
 Green-backed Heron  
*Butorides striatus*  
 Great Blue Heron  
*Ardea herodias*  
 Great Egret  
*Casmerodius albus*  
 Sandhill Crane  
*Grus canadensis*  
**SWANS-GESE-DUCKS (Anatidae)**  
 Great White-fronted Goose  
*Anser albifrons*  
 Snow Goose  
*Anser canadensis*  
 Canada Goose  
*Branta canadensis*  
 Mallard  
*Anas platyrhynchos*  
 Gadwall  
*Anas strepera*  
 Green-winged Teal  
*Anas crecca*  
 American Wigeon  
*Anas americana*  
 Eurasian Wigeon  
*Anas penelope*  
 Northern Pintail  
*Anas acuta*  
 Northern Shoveler  
*Anas clypeata*  
 Blue-winged Teal  
*Anas discors*  
 Cinnamon Teal  
*Anas cyanoptera*  
 Fuddy Duck  
*Oxyura jamaicensis*  
 Wood Duck  
*Aix sponsa*  
 Canvasback  
*Aythya valisineria*  
 Ring-necked Duck  
*Aythya collaris*  
 Lesser Scaup  
*Aythya alanis*  
 Barrow's Goldeneye  
*Bucephala islandica*  
 Common Goldeneye  
*Bucephala clangula*  
 Bufflehead  
*Bucephala albeola*  
 Common Merganser  
*Mergus merganser*  
 Red-breasted Merganser  
*Mergus serrator*  
 Hooded Merganser  
*Lophodytes cucullatus*  
**RAILS-COOTS (Rallidae)**  
 Virginia Rail  
*Rallus limicola*  
 Sora Rail  
*Coturnicops noveboracensis*  
 American Coot  
*Fulica americana*  
 Semipalmated Plover  
*Charadrius semipalmatus*  
 Killdeer  
*Charadrius vociferans*  
**SANDPIPERS (Scolopacidae)**  
 Greater Yellowlegs  
*Tringa melanoleuca*  
 Solitary Sandpiper  
*Tringa solitaria*  
 Spotted Sandpiper

Long-billed Dowitcher  
*Limnodromus scolopaceus*  
 Common Snipe  
*Gallinago gallinago*  
 Lesser Yellowlegs  
*Tringa flavipes*  
 Dunlin  
*Calidris alpina*  
 Western Sandpiper  
*Calidris melanotos*  
 Least Sandpiper  
*Calidris maritima*  
**JAEGER-GULLS-TERNS (Laridae)**  
 Bonaparte's Gull  
*Larus philadelphia*  
 Ring-billed Gull  
*Larus delawarensis*  
 Herring Gull  
*Larus argentatus*  
 California Gull  
*Larus californicus*  
 Glaucous Gull  
*Larus hyperboreus*  
 Western Gull  
*Larus occidentalis*  
 Forster's Tern  
*Sterna forsteri*  
 Caspian Tern  
*Sterna caspia*  
**AMERICAN VULTURE (Cathartidae)**  
 Turkey Vulture  
*Cathartes aura*  
**HAWKS-EAGLES (Accipitridae)**  
 Bald Eagle  
*Haliaeetus leucocephalus*  
 Northern Harrier  
*Circus cyaneus*  
 Sharp-shinned Hawk  
*Accipiter striatus*  
 Cooper's Hawk  
*Accipiter cooperii*  
 Northern Goshawk  
*Accipiter gentilis*  
 Red-tailed Hawk  
*Buteo jamaicensis*  
 Swainson's Hawk  
*Buteo swainsoni*  
 Rough-legged Hawk  
*Buteo lagopus*  
 Osprey  
*Pandion haliaetus*  
 Buteo  
*Accipiter*  
**FALCONS (Falconidae)**  
 American Kestrel  
*Falco sparverius*  
 Merlin  
*Falco columbarius*  
 Peregrine Falcon  
*Falco peregrinus*  
**GROUSE-PTARMIGAN (Phasianidae)**  
 Ruffed Grouse  
*Bonasa umbellus*  
 California Quail  
*Callipepla californica*  
 Ring-necked Pheasant  
*Phasianus colchicus*  
**PIGEONS-DOVES (Columbidae)**  
 Band-tailed Pigeon  
*Columba fasciata*  
 Rock Dove  
*Columba livia*  
 Mourning Dove  
*Zenaidura macroura*  
**PARROTS (Psittacidae)**  
 Monk Parakeet  
*Myiopsitta monachus*  
**OWLS (Tytonidae)**  
 Barn Owl  
*Tyto alba*  
**OWLS (Strigidae)**  
 Short-eared Owl  
*Asio flammeus*  
 Long-eared Owl  
*Asio otus*  
 Great Horned Owl  
*Bubo virginianus*  
 Western Screech Owl  
*Otus kennicottii*  
 Burrowing Owl  
*Athene curucularia*  
 Northern Pygmy Owl  
*Glaucidium gnoma*  
 Northern Saw-whet Owl  
*Aegolius acadicus*  
**NIGHTJARS (Caprimulgidae)**  
 Common Nighthawk  
*Chordeiles minor*  
**HUMMINGBIRDS (Trochilidae)**  
 Anna's Hummingbird

## **HISTORICAL DATA**



Between the Columbia River and the Columbia Slough, there were numerous lakes and sloughs, creeks and springs that drained to the west from the general area where Portland International Airport and surrounding commercial development are now located. Smith and Bybee lakes are mere remnants of the extensive water bodies and wetlands that dominated this section of the county. Mark Wilson, a consulting horticulturist, has done extensive research into various vegetative habitats in Oregon and especially in the Willamette Valley. His research indicates that Deschampsia wetlands were present in the Columbia bottomlands. This research has not been documented, however, and verification would be necessary prior to any proposed restoration project involving this habitat type.

At its eastern end, the county was described by the early surveyors as "high mountain land. Unfit for cultivation and unsurveyed." The soil was considered 3rd rate. The land was well timbered with fir, cedar, and hemlock with an understory of hazel, vine maple, and briars. This area, now the Mt. Hood National Forest, is partially located within the newly created Columbia Gorge National Scenic Area. The Bull Run watershed was generally described as possessing a quality above "common" with the bottomland along the North Sandy River rich and well adapted to cultivation. It too was well timbered with fir and cedar.

The Sandy River and especially its upper reaches showed many oxbows timbered to the waterline. Undergrowth was thick with vine maple and hazel. Surveyors described the Sandy drainage as follows:

"This fractional Township contains a large amount of fine farming lands and some excellent FIR (sic) and CEDAR (sic) timber. .. It has an abundant supply of fine water power and will support a large settlement."

Today the Sandy River area possesses one of the most natural suburban parks existing in the state -- Oxbow County Park. In addition to the mainstem, there were numerous smaller feeder streams scattered throughout this end of the county emptying into the Sandy and Columbia rivers.

Central county east of the Willamette was also dotted with small lakes and streams. One major drainage likely originating from Rocky Butte was called Sullivan's Gulch. We now refer to this ravine as the I-84 corridor. Further south the major drainage was formed by Johnson Creek which, in addition to Crystal Springs, is one of the last surface flowing streams within the city of Portland draining into the Willamette River. Streams and attendant wetlands that dominated most of the county's low elevation areas have been either filled or placed into culverts.

The west hills were logged during the intense settlement era between 1850 and 1900. Forest Park provides protection of the same vegetative species as before development -- dense stands of fir, cedar, hemlock, and maple. Creeks such as Doane and Saltzman, among others, still flow to the Willamette slough but either no longer support native fish populations or have severely reduced fish populations because of poor upstream passage through the large culverts under

and their attendant steep ravines were culverted and covered with up to 100' of fill before late 19th century. The only remaining stretches of wetlands are located at Oaks Bottom along the mainstem Willamette River and at Burlington Bottoms along the Willamette Slough. It is estimated that we have lost more than 95% of the wetlands along the Willamette River in Multnomah County. In the Columbia region, the large number of lakes no longer exists and the many spring fed creeks were put underground as development progressed. Likely 80-85% of the wet areas along the Columbia have been lost. Of the estimated thirty or more large and small creek systems and their attendant marshes identified by the early surveyors, less than a dozen remain in a free flowing or partially free flowing state. These include Johnson Creek, Crystal Springs, the Sandy River and its tributaries, Fanno Creek, Tryon Creek, Balch Creek, and other smaller creeks that flow through city neighborhoods. While a hundred or so years ago these streams supported fish and amphibian populations, many today suffer from channelization and pollution. Still others only flow underground.

Upland habitats have also been lost. Few old growth stands remain. One 20 acre site was "discovered" in the westhills recently. The Sandy River drainage and Oxbow Park provide the most extensive county owned stands of old growth forest. Oak savannah habitat was likely not common along the Willamette. The surveyors did not make note of such stands on their maps, but a few residualized stands remain. It is not possible to determine the extent of loss of this habitat type. Prairies also were likely not common due to the predominantly wet nature of the county. However, two prairies are still noted on county maps, both lying within the boundaries of the Mt. Hood National Forest.



## REPORT ON HISTORIC AND CURRENT FISH POPULATIONS OF STREAMS WITHIN THE GREATER PORTLAND METROPOLITAN AREA

This report provides a list of all known fish species, both native and exotic, that inhabit streams within the outer boundaries of what is referred to as the greater Portland metropolitan area. The information contained in this report was gathered mostly through personal communication with various individuals both private and professional including staff biologists from the Oregon Department of Fish and Wildlife (ODFW). There is little or no formal documentation of non-game and non-commercial fish species. The information contained herein is as complete as possible given this situation.

There are currently 100 species of fish within the state of Oregon. Of these, only 32 species are native. Although it is likely that all watercourses in Oregon now contain exotic fish species, urban streams are especially vulnerable to the invasion or introduction of exotics. The sources of these introductions include deliberate planting by the former Fish Commission of Oregon and now by ODFW and the accidental or purposeful release by private parties. In addition, some exotic species have migrated through the Columbia River system from Washington state.

The material in this report is organized by drainage and by geographic location, west or east of the Willamette River which transects the city of Portland. Known and likely historic and current populations are listed for each drainage. In addition, where possible, comments are provided on the current condition of the habitat, noteworthy items on population changes, and the potential for restoration in areas of habitat depletion.

### WESTSIDE DRAINAGES

#### Fanno Creek Drainage

Historic populations:

- cutthroat trout - Willamette race  
(*Oncorhynchus clarki*)
- sculpin species - Cottidae spp. likely  
includes reticulate sculpin (*Cottus*  
*perplexus*) and others
- redside shiner (*Richardsonius balteatus*)
- largescale sucker (*Catostomus*  
*macrocheilus*)
- western Brook lamprey (*L. richardsoni*)
- northern squawfish  
(*Ptychocheilus oregonensis*) - in  
lower reaches



Dairy Creek mainstem: Data incomplete. Upper watershed (outside the urban boundary) maintains good habitat and is known to support the following species:

cutthroat trout - Willamette race  
(*Oncorhynchus clarki*)  
sculpin - Cottidae spp.  
western brook lamprey (*Lampetra richardsoni*)  
possible rainbow trout (*Oncorhynchus mykiss*)

In the lower end of the creek below Highway 26 it is likely that the following species occur:

northern squawfish (*Ptychocheilus oregonensis*)  
largescale sucker (*Catostomus macrocheilus*)  
redside shiner (*Richardsonius balteatus*)

All these species are native and were likely in this creek system historically. These species have been recently verified by ODFW staff.

#### Tualatin River Drainage

Historic populations would be the same as for Dairy Creek with the addition of the following for current populations:

brown bullhead (*Ictalurus nebulosus*)  
carp (*Cyprinus carpio*)  
crappie (*Pomoxis* sp.)  
largemouth bass (*Micropterus salmoides*)  
smallmouth bass (*Micropterus dolomieu*)  
channel catfish (*Ictalurus punctatus*)  
steelhead (*Oncorhynchus mykiss*)  
bluegill (*Lepomis macrochirus*)  
yellow perch (*Perca flavescens*)

Saltzman Creek: No historic data available. Currently no fish species have been located in the lower reaches. The upper watershed was not inventoried by ODFW when they sampled the lower end of the creek during the summer of 1990.

#### Miller Creek

Historic populations: Information not documented. Likely historic species would include:

that coho salmon still exist in this watershed along with a few steelhead. ODFW personnel report that they have been unable to locate juvenile steelhead in the stream.

Water quality in Tryon Creek is poor due to leaky sewers that run next to and through the creek at various points. In addition there may be coliform pollution from horse pastures in the upper reaches.

### EASTSIDE DRAINAGES

#### Johnson Creek Drainage

Historic Populations: coho salmon (Oncorhynchus kisutch)  
steelhead (Oncorhynchus mykiss)  
cutthroat trout - both searun and resident  
(Oncorhynchus clarki)  
sculpin species - Cottidae spp. likely  
includes reticulate sculpin (Cottus  
perplexus) and others  
dace  
redside shiner (Richardsonius balteatus)  
largescale sucker  
(Catostomus macrocheilus)  
pacific lamprey (Lampetra tridentata)  
western Brook lamprey (L. richardsoni)  
n. squawfish (Ptychocheilus oregonensis)  
chinook salmon (Oncorhynchus tshawytscha)  
an occasional fall chinook would be found  
spawning in lower reaches of the creek.

Current populations: add to the above list the following species;

brown bullhead (Ictalurus nebulosus)  
mosquito fish (Gambusia affinis)  
rainbow trout, other than steelhead,  
(Oncorhynchus mykiss)  
carp (Cyprinus carpio)

There are possibly other warm water species within this drainage such as crappie (Pomoxis sp.), bluegill (Lepomis macrochirus), largemouth bass (Micropterus salmoides and smallmouth bass (Micropterus dolomieu).)

The Johnson Creek drainage is very much disturbed through channelization and silt impaction from agriculture areas in the upper reaches. Flows in summer are low. The habitat continues to degrade and the impact on fish populations of the currently proposed flood control plan is unknown.

Note: No data available on Kelley and Mitchell creeks, upper

steelhead (Oncorhynchus mykiss)

Kellogg Creek contd.

cutthroat trout - both searun and  
resident (Oncorhynchus clarki)  
sculpin species - Cottidae spp.  
redside shiner (Richardsonius balteatus)  
largescale suckers  
(Catostomus macrocheilus)  
western brook lamprey (L. richardsoni)  
northern squawfish  
(Ptychocheilus oregonensis)

Current populations: add to the above list the following species;

mosquito fish (Gambusia affinis)  
carp (Cyprinus carpio)  
Possible additional species would  
include: bluegill (Lepomis macrochirus)  
brown bullhead (Ictalurus  
nebulosus.)

Clackamas River Drainage

Historic populations:

coho salmon (Oncorhynchus kisutch)  
chinook salmon (Oncorhynchus tshawytscha)  
spring and fall runs  
steelhead (Oncorhynchus mykiss)  
cutthroat trout - both searun and resident  
(Oncorhynchus clarki)  
sculpin species - Cottidae spp. likely  
includes reticulate sculpin (Cottus  
perplexus) and others  
redside shiner (Richardsonius balteatus)  
largescale suckers  
(Catostomus macrocheilus)  
pacific lamprey (Lampetra tridentata)  
western brook lamprey (L. richardsoni)  
northern squawfish  
(Ptychocheilus oregonensis)  
bull trout (Salvelinus malma)  
chiselmouth sucker  
(Acrocheilus alutaceus)

Current populations: add the following to the above list:

shad (Alosa sapidissima)  
carp (Cyprinus carpio)



### **Acknowledgements**

The preponderance of information contained in this report was garnered through personal communication with the following people: Wayne Bowers, Salmon and Trout Enhancement Program (STEP) Director, Oregon Department of Fish and Wildlife; Bill M. Bakke, Executive Director, Oregon Trout; Roger Bachman, longtime resident of Welches, Oregon; and unnamed individuals who contributed indirectly to the body of historic and current knowledge of fish species found in urban streams in the greater Portland metropolitan area.

### **Literature Cited**

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This report was prepared for the Portland Audubon Society's Metropolitan Wildlife Refuge Systems Project with funding from the Environmental Protection Agency under Section 319 of the Clean Water Act.

## PLAN METHODOLOGY

*Roger Hart, Director Children's Environmental Research Group:*

*"Part of being a responsible adult is having a sense of responsibility for the environment . . . And you can only care for something you've grown to feel a part of."*



## **PLAN METHODOLOGY:**

### **Data Collection:**

The Natural Area Protection and Management Plan is based on data collected through the Metropolitan Greenspaces Program, a regionwide, cooperative effort to identify and evaluate the region's remaining natural areas. The study area included all of Multnomah County except for that portion inside Mt. Hood National Forest.

A map (scale of 1:24,000) was developed from color infrared aerial photographs taken in May 1989. Natural areas over ten acres in size (wetlands over one acre) were identified and included on the map. Each natural area was given a four part letter and number code to identify the site and describe its vegetative structure. The map has been digitized and entered into the Geographic Information System (GIS).

Field inventories were then conducted at 55 of the mapped sites in June 1990. Sites were chosen on a random basis. Biologists surveyed the sites for the presence or sign of birds, mammals, amphibians and reptiles. Data was also compiled on the plant species observed and the dominant plant species within each area. A sample of the Natural Area Information Database is on Pages 37-44. All scientific data collected on the survey form has been computerized by Metropolitan Service District. This information is being analyzed in order to understand the range and health of the remaining natural areas and their relative significance from a regional perspective. This data analysis will be an ongoing component of the Metropolitan Greenspaces Program of which Multnomah County is a participant.

Biologists also filled out Site Evaluation Forms on the randomly selected sites. This evaluation addressed basic site information needed to determine a site's priority for acquisition. In addition to the randomly

## NATURAL AREA NOMINATION

*Childhood's Future, Louv, Richard:*

*"The relationship between children and nature today is a puzzling one. On one hand, children's sophistication about global environment issues is very high - and intensely felt. On the other hand they have much less physical and unstructured contact with nature than my generation did. With the steady disappearance of farmland and woods and fields adjacent to housing, and the evolving high-tech fantasies and obsessions of the nation's culture, nature - for children and adults - is becoming something, to watch, and to consume."*

## RESOLUTION

*Nature Conservancy May/June 1991:*

*"To attain excellence, you must care more than others think wise, risk more than others think safe and dream more than others think practical."*

THEREFORE BE IT FURTHER RESOLVED, that the only disbursements made from the Natural Areas Acquisition and Protection Fund are to be related to the acquisition, protection, and management of natural areas included in the Natural Areas Plan adopted by the Board of County Commissioners.

THEREFORE BE IT FURTHER RESOLVED, that the Board will review the use of the funds and the division of money between the funds in five years.



ADOPTED THIS 19th DAY OF APRIL, 1990.

BOARD OF COUNTY COMMISSIONERS  
FOR MULTNOMAH COUNTY, OREGON

By

Gladys McCoy  
Gladys McCoy, Chair

REVIEWED

Laurence Kressel  
Laurence Kressel, County Counsel

1926

## DEFINITIONS



**Natural landscape-** An area where human effects, if present are not ecologically significant to the landscape as a whole.

**Natural resource -** Air, land and water and the elements thereof which are valued for their existing and potential usefulness to man.

**Preserve -** To save from change or loss and reserve for a special purpose.

**Protect -** Save or shield from loss, destruction or injury.

**Riparian -** Relating to, living, or located on the bank of a natural water course (stream, river, etc.).

**Seral Stage -** A characteristic association of plants and animals during succession and before climax.

**Structural -** Different habitat types within a Natural Area (i.e., Diversity; grasslands, forest, open water, etc.).

**Wetlands -** Lands transitional between terrestrial and aquatic where the water table is usually at or near the surface or the land is covered by shallow water. Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.