A TEACHING GUIDE TO OXBOW PARK

prepared by

Charles Ciecko

MULTNOMAH COUNTY OREGON

SPECIAL THANKS TO OREGON PARKS FOUNDATION WHOSE GENEROSITY

HAS MADE THIS PUBLICATION POSSIBLE

MULTNOMAH COUNTY OREGON

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DONALD E. CLARK
COUNTY EXECUTIVE

Dear Friends: (November, 1982)

I am proud to introduce to our community this excellent teaching guide to Multnomah County's Oxbow Park. Among the most important resources we have to offer our residents, and indeed the visitors from throughout Oregon and other states, are our parks. Oxbow Park is one of the outstanding regional parks in our system and has been preserved for us by the continuing commitment of many individuals, including Charles Ciecko, the Regional Park Supervisor who directed this project.

The publication of this teaching guide reminds us all of the importance of preserving natural areas where we can experience nature's majesty and bounty. In surroundings like Oxbow Park, we can see ourselves in the perspective of millions of years of natural history-- and learn something about our role in nature.

This teaching guide, with its wealth of information about the plants, trees, birds, and animals we find in the park, and the well-organized plans for viewing and studying them, offers teachers and students a rare opportunity to enhance the experience of visiting Oxbow Park.

Our ancestors knew and understood nature simply by living with it and in it; we must take time out of our daily lives to know it. This publication will help teachers pass along to students an understanding of the precious heritage of the natural areas of the Pacific Northwest.

I'm especially pleased that the format and the style of the guide transmit the values we want to communicate to our children-- wonder, awe, respect, and fascination with the gifts of nature.

Sincerely,

Donald E Clark

DONALD E. CLARK
County Executive

PROJECT DIRECTOR

Charles Ciecko, Regional Park Supervisor, Multnomah County Parks

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"Teach your children what we have taught our children, that the earth is our mother. Whatever befalls the earth, befalls the children of the earth. If we spit upon on the ground, we spit upon ourselves. This we know: The earth does not belong to us; we belong to the earth....."

Chief Seattle

Duwamish and Suquamish Tribes

(1786 - 1866)

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INTRODUCTION

Prior to the industrial revolution, the majority of Americans lived in rural rather than urban areas. People lived close to the land and, therefore, they were acutely aware of their environment and its restrictions. As we approach the year 2000, we find our lifestyles dramatically altered. Today, the vast majority of the population resides in urban areas. No longer must we hunt, cut our own firewood, or grow our own vegetables and fruits to survive. Yesterday's necessities are today's hobbies. Although our lives are more complex, survival is easier for most of us. As a result of our nation's abundant natural resources, technological advancements, and a strong economy, most Americans live in relative comfort. But, what has been the price of this progress?

Certainly, air and water pollution, exploited natural resources, energy shortages and vanishing open space and wildlife must be considered as part of the price. But perhaps more importantly, too many Americans have lost touch with the environment. Increasingly, we fail to understand our utter dependence on nature's cycles, checks and balances, restrictions and limitations. Without a basic appreciation of the effect of our lifestyles on natural processes and resources, we cannot expect citizens to make responsible decisions in this era of unprecedented change.

The National Park Service defines Environmental Education as, "the process of experiences and observations which makes a person aware of his relationship to the total environment and his responsibility to it. It is a life-long learning process which influences behavior patterns in a way which promotes a life of quality with survival potential... environmental education is man-centered, not because man is the center of the world, but because he is an indivisible part of world dynamics and because he alone has the conscious ability to alter the world's balances".

PROGRAM OBJECTIVES

The objective of Oxbow's program is to leave the teaching to those most qualified. Although many resource managers interpret their resources to the public, they are not teachers. As a teacher, one has specialized training, regular contact with students, and an opportunity to establish a rapport with class members. With these advantages, a teacher has the opportunity to influence environmental awareness, values and behavior of students far more effectively than resource managers.

Hopefully, this guide will serve to orient teachers to the resources of Oxbow Park and motivate them to leave their classrooms to investigate the world first-hand. Additional encouragement is offered at the Teacher's Library located in the Park Office. Here you will find a variety of lesson plans, activity suggestions, reference materials, audio-visual

aids and park staff to answer your questions.

GENERAL INFORMATION

WHERE IS OXBOW? Only eight miles (12.8 Km) east of Gresham. Follow S.E. Division four miles (6.4 Km) east of Gresham to where it intersects Oxbow Parkway; follow Oxbow Parkway three miles (4.8 Km) to where it intersects Hosner Road; turn left and proceed one mile (1.6 Km) to Park gate. The Office is on the right, just beyond gate.

WHAT'S THERE? Oxbow is a 1,000-acre natural area with recreational facilities. The Sandy River (a component of the National Wild and Scenic River System) flows through the Park for three miles (4.8 Km). The diverse topography and vegetation make Oxbow a haven for a myriad of wildlife and provides an ideal setting for environmental education activities.

WHAT KIND OF FACILITIES DOES THE PARK OFFER? Recreational facilities include picnic areas, shelters, pit-type toilets, play areas, fire pits, campground, boat ramp, trails and sufficient parking. The Park is open all year, from 7:00 a.m. to dusk.

Teachers: you'll find it helpful to take the time to visit and orient yourself to the park facilities and trail layout prior to bringing a class for a field trip.

PLANNING YOUR TRIP

1) Make an appointment to visit the Park and Teacher's

Library. Plan your day's activities. Pick a date for the field trip, and notify park staff. Phone number is 663-4708--Jim Lind is Park Supervisor; Deb Scrivens is Park Naturalist.

2) Start preparing the class for the field trip. Gather needed materials and construct some of the implements that will be used; show a slide show or movies; conduct discussions regarding appropriate food, clothing, and behavior. All these suggestions will help prepare the students for the trip. As a preview, show the Oxbow Park filmstrip or slide show, available through Multnomah County ESD, 257-1630. Ask for Carol Skibba.

3) Contact parents of students about serving as volunteer helpers. Ideally, there should be at least one adult for each group of five or six students.

4) Send a flyer home with students to show their parents, describing what food and clothing the student should bring on the field trip. For example:

Clothing: rain coat, sturdy shoes (not tennis shoes), a warm sweater or coat (layers of clothing are more efficient and can be removed if necessary), extra socks, mittens, a hat, etc.

Food: sandwiches, candy bars, fruit, soup, fruit juices, cheese, etc.

Misc.: notebook, pens/pencils, small camera, etc.

All of the above items can be easily carried in a small day pack or a shopping bag with the student's name on it.

5) Make transportation arrangements.

6) The night before your trip, contact your parent volunteers to remind them of their responsibilities and schedule for the trip.

Go over your activity plans and make sure you have all the materials you need packed (water kit, nets, hand lenses, paper, camera, pencils, etc.)

7) Prior to leaving...

-do you have your watch? Set to school time?

-does each instructor/leader have a list of students?

-have students had an opportunity to use the restroom?

-are there any students with special medical considerations?

-do students know who their instructor/leader is?

-have you checked to see that students have proper food and clothing?

8) Arrival at Oxbow --

-proceed to the area you have selected for opening activity;

-group students with instructors;

-let students choose a "buddy" to work with that day;

-give them an opportunity to use the restrooms;

-give any last-minute reminders about appropriate behavior (stay on trails, keep quiet, no littering and explain why);

-you are on your way to your first activity.

9) Before leaving--COUNT YOUR STUDENTS! Fill out evaluation form.

EMERGENCIES

If a member of your group is injured or becomes very ill, leave one adult with the student and send another adult back to the bus and proceed to Park Headquarters. Notify park staff of the location and disposition of the problem or use the pay phone on the Office porch to contact the Sheriff's Office (255-3600) or the Fire District #10 (232-2111). All park staff are trained in first aid methods and CPR.

The Park is staffed during all open hours. Look for

a Park Ranger in the Park if one cannot be found at the office.

If you become lost in the park, stay where you are, shout often. You will be found. If a member of your group is lost, contact a Park Ranger for assistance.

DEVELOP A PRESERVATION ETHIC

The well known "conservationist," Aldo Leopold, wrote in 1949, "The swoop of a hawk is perceived by one as the drama of evolution. To another it is only a threat to the full frying pan. The drama may excite a hundred successive witnesses, the threat only one--for he responds with a shotgun."

The goal of the well-planned environmental education outing centers around developing a "perception" of the natural processes which have shaped our lifestyles, as well as the effects our lifestyles have had on natural processes.

It should be emphasized to your class that each year hundreds of thousands of people come to enjoy Oxbow (320,000 in 1979). Many visitors contribute to damaging the park environment. Plants get crushed and trampled, flowers picked, the soil becomes eroded or compacted, litter piles up, trees are chopped down, and animals are frightened from their homes. Just like Leopold's hawk, the natural resources of the Park that are accidentally or purposely destroyed each year are no longer around to be enjoyed by next year's visitors.

Ask your students how they would feel if strangers constantly came to visit their homes and accidently damaged or broke sometning or made a mess and didn't clean it up. Point out that not only would this quickly become annoying, before long, nothing in the house would work the way it used to. A sample question could be...

> What plant doesn't bloom again for seven years after it has been picked? Answer: Trillium
>
> How long do you think there would be trilliums in Oxbow Park if even 1/2 of the visitors picked one trillium?

You can best assure that Oxbow will always be an outstanding site for a field trip by...

- -staying on the trails so delicate plants are not crushed and erosion is not given an opportunity to develop.
- -confining your "gathering" activities to fallen leaves, seeds, cones and berries. Picking wild flowers and fungi is NOT permitted.
- -Deposit all litter in garbage cans at trail heads or picnic areas.
- -Leave moss and lichens on trees and rocks.
- -Don't dig in the soil.
- -Release unharmed, any insects or small animals that have been captured for close observation.

HINTS TO ASSURE A SUCCESSFUL FIELD TRIP

- -Familiarize yourself with the trails and areas you plan to use. Know in advance where specific activities will occur, as well as where restrooms and picnic shelters are.
- -Communicate with room parents. They should be aware of schedule, objectives of the activities, trail route, their responsibilities and emergency procedures.

-Prepare your class. Objectives will be easier to attain if class members are aware of their responsibilities and prepared for the activities. You can do this by taking a nature walk around the school, showing a movie or slide show, class discussions, reading a childrens' story about the forest, orienting students to who and what lives in the park.

-Teachers should make frequent short stops to explain points of interest. Choose a place where the group can gather around you. Talk to the whole group; ask probing questions; make comparisons; be open to feedback; and try to involve all members of the class.

-While hiking, keep about 50 feet (15.24 m) between groups of five to six. This will prevent students from being easily distracted by peers.

-Don't worry about names. If you come across an unfamiliar plant or animal, gather the class and make up a name for the specimen based on its natural characteristics.

-For the hyper-active child, devise some way that s/he has a responsibility to fulfill. For instance , this student will probably be the worst offender when it comes to staying on the trail. Appoint this student as the one in charge of keeping the other four or five students on the trail. Suggest that he make his "command" by using a pre-arranged code word for "stay on the path".

-Too much talk will divert the students' attention from their surroundings and scare away wildlife. Stealth is the secret of seeing wildlife.

-If boredom becomes evident, change the subject. Step up the pace, or play a game.

-On the trail, furnish a treat at one of the stops (i.e. raisins, fruit, lifesavers, graham crackers, etc.)

Department of Resource Recreation Management

Oregon State University

Environmental Interpretation RR 493
Dr. Mike Freed
Oregon State University

THE INTERPRETER'S KNAPSACK

GIMMICKS, GADGETS AND GOODIES FOR FIELD NATURALISTS

1. Binoculars, monoculars, spotting scopes, telescopes
2. Camera and equipment (extra film, various lenses, lens brush, tripod, strobe light, etc.)
3. Field books and local keys (bird, mammal, insect, fish, amphibians and reptiles, clouds, stars, rocks and minerals, snow crystals, animal tracks, wildflowers, trees, etc.)
4. Small waterproof notebook (favorite quotes, poems, to note questions, etc.)
5. Small cardboard picture frame (to use in locating good shots)
6. Collecting jars and vials
7. Hand lenses
8. Vials with magnifying sides (bring along specimens of insects, feathers, scat, pelts, seeds of flowers, "web of live" in aquatic systems, stuffed animals, pocket displays, seashells cut in half, cones and rocks cut in half).
9. Bibliography (for those interested in further explorations)
10. Watercolors, India ink, blank paper or 3x5 cards (for group poetry, painting pictures, using twigs, confier needles)
11. Animal squeakers (demonstrations and hopefully attraction)
12. Fish nets (seines, kick nets)
13. Plastic bags (collecting, also good if boots are forgotten)
14. Pocket knife
15. Plaster of Paris, tin can (animal tracks, leaf prints)
16. Spray Bottle (for photographic effects)
17. Eye dropper
18. Tape recorder (with optional parabolic disk, tape recordings of local birds, to record noise of group)
19. String (web of life, repairs)
20. Wire net (dragging bottom of stream)
21. Tape (to tape thumbs for crab and squirrel games)
22. Ruler (English and metric)
23. Tape measure
24. Diameter tape
25. Collection nets (for airborne or aquatic insects)
26. Snake stick
27. HCL (rest for limestone)
28. Glass (put to ground for listening)
29. Compass
30. Altimeter
31. Barometer
32. Cobalt chloride paper (to detect moisture, e.g. transpiration)
33. Tweezers
34. Earplugs
35. Small shovel, trowel, or spoon
36. Blindfolds
37. Dye (to show stream currents)
38. Vials of sand (for miniature rock gardens)

39. Rags
40. Flagging tape
41. Photos (historical, rare plants in area, detailed structure of plants, insects, seasonal changes)
42. Soil and air therometers
43. Stopwatch
44. Materials for spider web prints
45. Materials for mushroom spore prints
46. Killing jars
47. Scissors
48. Straight and safety pins
49. Colored tooth picks (adaptation exercise)
50. Petri dish, paper cups, milk cartons (passing specimens around)
51. Single-edged razor blade or scalpel
52. Pocket wind meter
53. Increment borer
54. Small live mammal traps
55. Rope or nylon cord
56. Maps (topographic, aerial photos, geology, vegetative)
57. Flashlight (star gazing, with red cellop cellophane for night hikes)
58. Mirror (pointing and signaling)
59. Geology pick
60. Paper towels or Kleenex or toilet paper
61. Labels
62. Plant press materials
63. 8x10 charts (diagramming concepts)
64. Clipboard
65. Litterbag
66. Canteen (thirst, wash away soil to show fragile roots)

PLANNING TIME

Questions a teacher needs to answer before the field trip.

1. When is my field trip? Have I contacted Park staff?

2. My pre-field trip activities are:

3. Number of kids _____

   Number of adults _____

   Student/Instructor ratio is: _____

4. Time schedule: Are the groups going to rotate leaders?

5. The field trip activities we will do are:

6. Materials needed:

   a. Who is packing the field trip equipment and when?
   b. What equipment am I responsible for bringing? e.g. First Aid kit, extra pencils, extra raingear.
   c. What are the students supposed to bring? e.g. lunch, coat, etc.
   d. What are the adult leaders supposed to bring?

7. Adult instructors

   a. I will have them identified by _____
   b. What are their major responsibilities? e.g. lunch supervisors or activity instructors
   c. Training
      Outline of instructions
      After school meeting
   d. My adult instructors need to know:
      1. When and where to arrive for the field trip
      2. What to bring-- raingear, day pack, clip board, pencil, lunch
      3. Schedule for field trip
      4. Emergency procedures
      5. Who to go to for help or instructions

6. Exactly what their responsibilities are
   a. Group control - expectations, hints on how to...
   b. Instructor role - lesson plans, equipment
7. Physical area they will be working in
8. What time to quit activities and start clean up
9. Clean up procedures for end of trip
10. Approximate time they will be finished and can leave

EVALUATION FORM

TEACHERS: We need your help! Please take a minute to answer the following questions after your visit. It is our goal to provide you with useable information and adaptable lesson plans. Your comments are the only way we can constantly evaluate and update the program. Forms can be dropped off at the office or mailed to Oxbow Park, 3010 S. E. Oxbow Parkway, Gresham, Oregon, 97030.

	Ineffective				Effective
TEACHING GUIDE (overall)					
Planning information	1	2	3	4	5
Old Growth Loop	1	2	3	4	5
Flood Plain Loop	1	2	3	4	5
Acclimation Loop	1	2	3	4	5
History	1	2	3	4	5
Geology	1	2	3	4	5
Plants	1	2	3	4	5
Animals	1	2	3	4	5

SUGGESTIONS/COMMENTS _____

_____

_____

TEACHER LIBRARY (overall)					
Accessibility	1	2	3	4	5
Reference Materials	1	2	3	4	5
Activities/Lesson Plans	1	2	3	4	5
Audio-visual aids	1	2	3	4	5
Staff assistance	1	2	3	4	5

SUGGESTIONS/COMMENTS _____

_____

_____

PARK FACILITIES (overall)	Inadequate				Adequate
Trails	1	2	3	4	5
Shelters	1	2	3	4	5
Restrooms	1	2	3	4	5
Parking areas	1	2	3	4	5

TEAR OUT

RETURN TO OXBOW PARK

EVALUATION FORM
Page 2

PARK FACILITIES Cont'd.

SUGGESTIONS/COMMENTS _____

_____

_____

_____

What is the Program lacking?

Further comments:

TEAR OUT

RETURN TO OXBOW PARK

GENERAL GEOLOGY

By Charles Ciecko
January, 1983

During the early Cenozoic Era (36 to 63 million years ago), the Sandy River was non-existent. Imagine, if you can, this area (and all of western Oregon for that matter) covered by a warm sea. The western shore of this sea ran parallel to the location of today's Cascade Range. There were no mountains to block the eastward flow of moisture. Consequently, eastern Oregon was a lush, humid area covered with metasequoia, maple, sycamore and ginko trees. Wildlife included small three-toed horses, camels, pigs, and small saber-toothed cats.

The same processes of sedimentation and uplifting that had brought eastern Oregon above the surface of the ocean continued to push the shore westward. This slow but steady process was accelerated during the Miocene Epoch (25 million years past) when thick layers of lava were extruded from the surface of the earth. The great volcanoes of the Cascades were yet to be born. Lava just oozed out of cracks or "fissures" in the surface.

As the basaltic lavas accumulated 6 to 16 million years ago, they flowed down a great valley through the Cascade Range, south of the present Gorge. From two to six million years ago, new volcanoes built up low peaks of the young range and grew to eventually give rise to the Sandy River.

By Pliocene times, (approximately 2 to five million years past) the Cascades had reached great heights. They had become a significant barrier to the eastward flow of moisture-laden clouds and eventually the lush, humid forests of central and eastern Oregon gave way to semi-arid grasslands. During the same time, the Sandy grew in size, due to increasing amounts of precipitation resulting from the rising and cooling of air masses over the western slopes of the Cascades.

While numerous lava cones erupted for the next several million years, the Cascade Range grew larger. The Sandy maintained its course with the help of large loads of abrasive sand and rock, which cut the path of the River deeper.

It wasn't until the Pleistocene Epoch (approximately one million years past) that the snow-covered volcanoes and the Sandy River we know today emerged. Increased volcanic activity in the headwaters area of the Sandy River spewed molten lava which slowly took the shape of Mt. Hood. This long process produced a peak which was estimated to have been in excess of 12,000 feet (3,657.3 meters).

As the volcanic activity subsided temporarily, the entire world experienced a dramatic cooling of the climate. On Mt. Hood, annual snows did not completely melt. Under its own weight, this snow eventually turned to ice. Responding to the call of gravity, these massive blocks of ice began to move down the flanks of the mountain. The ice age was born.

During a period which spanned many thousands of years, glaciers advanced and retreated with minor climatic changes

and eruptive periods. The last major advance of glaciers on Mt. Hood began about 29,000 years ago and ended approximately 18,000 years ago. During this time, it is believed that glaciers covered the Sandy River valley to a point near the village of Brightwood.

Along with volcanic activity, glaciation has played an important role in shaping the Sandy River and Mt. Hood. Consider the weight of huge glaciers ripping and tearing at the sides of the mountain, gouging stream and river valleys and then releasing the accumulations of silt, sand, rock and boulders. Huge glacial floods and volcanic mudflows poured through the Sandy Gorge during this period of alternating volcanic activity and glaciation.

It is probable that the Sandy River often looked like the Toutle River in the wake of the eruption of Mt. St. Helens in May of 1980. It is also likely that like Mt. St. Helens, Mt. Hood will one day awaken from its long slumber. It has been 200 to 300 years since Mt. Hood's last major eruptive period. During the mid 1800's, The Oregonian carried accounts of men who had seen flashes and columns of black smoke on Mt. Hood and felt earthquakes rumble beneath their feet.

Today, occasional tremors are felt near Mt. Hood. Climbers are surprised to find the air near the summit thick with the odor of sulfur emerging from various fumeroles and gas vents. The area around these vents is so warm that it remains snow free, even during the winter months. Temperatures in the vents have been measured at 193° F.

Glaciers also continue to change the face of the Mountain. Today, ten glaciers cover the upper slopes of Mt. Hood. Two of these glaciers (Ried and Sandy) are located on the western side of the Mountain. Together they form the headwaters of the Sandy River. Each summer, when the annual accumulation of snow disappears and exposes the glacier to the warmth of the sun, large amounts of "glacial flour" are released into the River. The entire River turns murky and the water varies in color from greenish white to greyish brown. These tiny rock particles were once part of Mt. Hood. They have been reduced to dust by the tremendous pressures of ice and rock slowly grinding their way down the Mountain.

In the Sandy River Gorge (Dodge Park to Dabney Park) there are four major geologic formations visible. The Columbia River Lava which flowed from fissures in the earth's surface some six to 12 million years ago and formed the Columbia Gorge, is buried beneath the exposed formations along most of the Sandy. A small outcrop is located in Oxbow near the mouth of Buck Creek on the east side of the River.

The Rhododendron Formation is the oldest exposed geological formation. This is a combination of basalt and andesite in flows that resulted from volcanic activity in the late Miocene Epoch. This formation is identified by its light to medium grey color, massively jointed vesicular lava and lighter weight than Columbia River Basalt.

Sandy River Mudstone covers the Rhododendron Formation. The Sandy established its course on this formation eight to five million years ago. Sandy River Mudstone tends to block

the downward movement of ground water. Consequently, where this formation is exposed, one will usually find year-round seepage from the top of the formation. The upper portions of this formation contain numerous plant fossils. It is believed these fossils date back nearly 13 million years.

Over the Sandy River Mudstone is the Troutdale Formation. This is a stratified mass of cobbles and pebbles cemented together with sandstone. Up to 30% of this conglomerate consists of quartzite pebbles that were probably carried to this area by the ancient Columbia River from northeastern Washington. This formation is approximately three to five million years old.

The final major formation is Boring Lava. Three to six million years old, this lava was the result of sporadic volcanic activity in the area. Boring Lava is characteristically a light grey basalt with microscopic openings to small cavities.

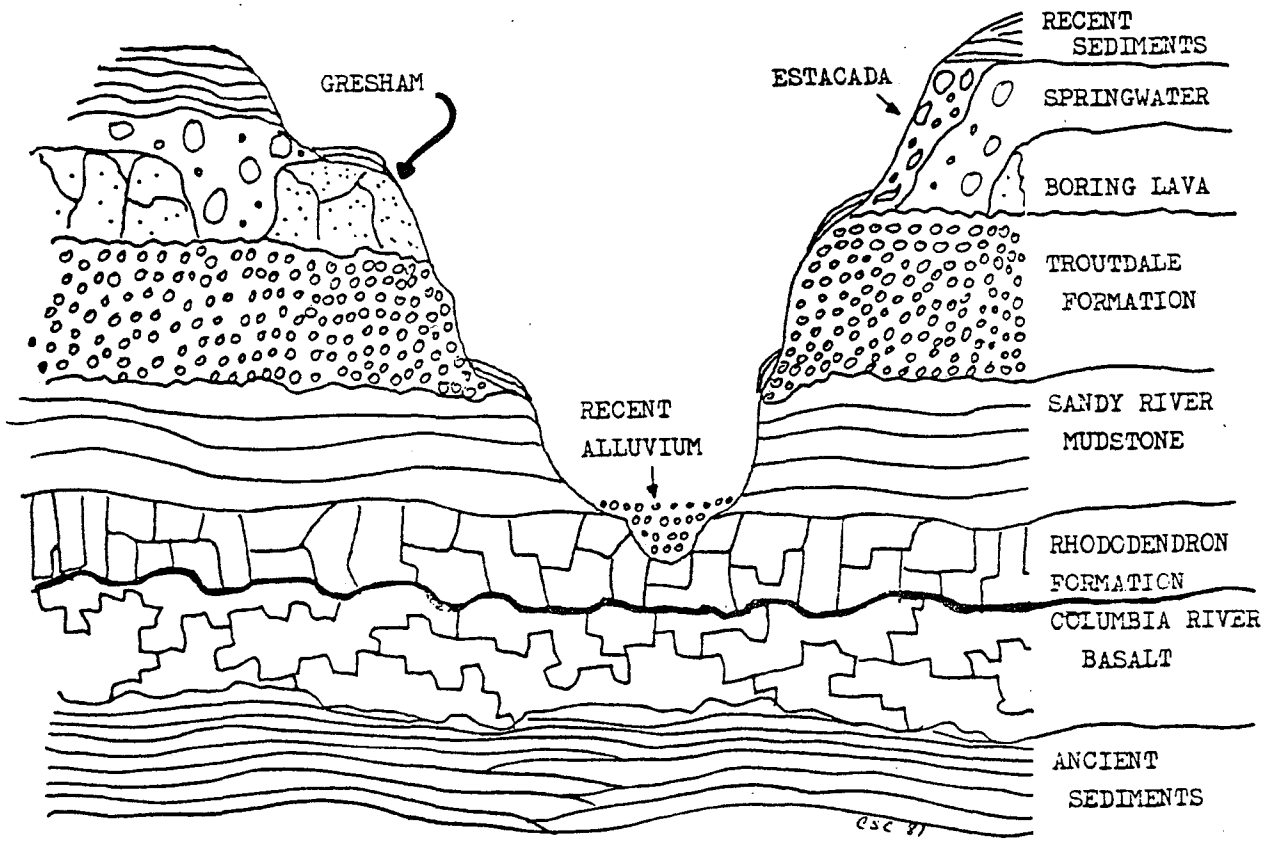
Three minor geological formations once filled the old Sandy River Valley. The Springwater, Gresham, and Estacada formations are results of alluvial gravel and mudflow deposits. These formations lack the abundant quartzite and well-stratified gravels of the Troutdale Formation. They are one quarter to two million years old. A variety of recent sediments which have accumulated over the last one million years form the last layer.

The alteration of our landscape continues today. Old mountains are constantly worn by glaciers, wind, rain, freezing and warming, while new mountains are being formed by sedimentation, uplifting, faulting, folding and volcanic activity. Floods will continue, as they have in the past, to alter this area. What

the Sandy River Gorge will look like in a million years is unpredictable. However, the murky color of the Sandy during the summer, along with the fact that only 11,245 feet (3,724 meters) of Mt. Hood's original 12,000 feet (3,657 meters) remain today, reminds us of the fact that all things are truly dynamic.

Many geological processes continue yearly-- while others occur only occasionally, over time periods longer than our lifetime experience. The evidence in the geological materials helps us know which processes to expect even though we don't see them all in process.

SIMPLIFIED CROSS-SECTION :
SANDY RIVER GORGE



THE RECENT HISTORY OF OXBOW PARK

By Charles Ciecko
February, 1981

As early as 9,000 years ago, man inhabited the area around Oxbow Park. It is currently believed that Indians used areas around the park to hunt and gather nuts and berries. Several terraces above the river have produced artifacts such as mortars and pestels and one very old camp has been discovered several miles upstream from Oxbow. These areas were probably used only for temporary or seasonal camps.

The first white man to lay eyes on the Sandy River is believed to have been Lt. William R. Broughton of the British Navy. In 1792, he sailed up the Columbia from the Pacific. Near the mouth of the Sandy, he sited a snow-capped mountain to the southeast, which he named "Mt. Hood", for Samuel Hood, a Vice Admiral in the British Navy. He called the river, "Barings River".

Lewis and Clark's expedition landed at the mouth of the Sandy on November 3, 1805. They named it the "Quicksand River", because "this river throws out immense quantities of sand and is very shallow, the narrowest part 200 yards wide, bold current resembling the River Plat (Platte River)". Lewis tried to wade the River, which looked as though it were not more than 4" in depth. Later, he wrote in his

journal, "... and to my astonishment, found the bottom a quicksand and impassable". The Indians called this River, "Ye-ki-oo". So substantial in size at the time, Lewis and Clark believed the Sandy to be the river which drained the Willamette Valley. It wasn't until their return trip from the coast the following spring that they discovered their mistake. Lewis made the following entry in his journal for April 1, 1806:

> "... the Indians who encamped near us last evening continued with us until about midday. They informed us that the Quicksand River, which we have heretofore deemed so considerable, only extends through the Western Mountains as far as the southwest side of Mt. Hood, where it takes it source. This mountain bears east from this place and is distant about 40 miles. This information was corroborated by that of sundry other Indians who visited us in the course of the day. We are now convinced that there must be some other considerable river which flowed into the Columbia on its south side below us which we have not yet seen, as the extensive valley on that side of the river lying between the mountainous country of the coast and the Western Mountains must be watered by some stream which we heretofore supposed was the Quicksand River. But if it be a fact that the Quicksand River heads in Mt. Hood, it must leave the valley within a few miles of its entrance and runs nearly parallel with the Columbia River upwards. We endeavoured to ascertain by what stream the southern portion the Columbian (Willamette) valley was watered but could obtain no satisfactory information of the natives of this head. They informed us that the Quicksand River is navigable a short distance only in consequence of falls and rapids; and that no nation inhabits it. St. Pryor returned in the evening and reported that he had ascended the River (Quicksand) six miles; that above the point at which it divides itself into two channels, it is about 300 yards wide, though the channel is not more than 50 yards and only six feet deep. This is a large volume of water to collect in so short a distance; I therefore think it probable that there are some large creeks falling into it from the southwest. The bed of this stream is formed entirely of quicksand; its banks are low and at present overflown. The water is turbid and current rapid."

Subsequently, Captain Clark returned down the Columbia along the south bank, and with the help of Indian guides, found the mouth of the "Mult-no-mah" (Willamette) River behind Sauvie Island.

Aside from an occasional trapper or Indian hunting party, the Sandy Gorge remained wild and unsettled. The open lands near the Columbia and Willamette Rivers were the areas first to be homesteaded during the 1850's. The first white settlers did not appear in the Oxbow area until approximately the mid-1870's.

Boat Ramp Area

One pioneer in the Oxbow area was Anderson F. Johnson. He was born in 1833, in Illinois. Anderson's parents and his nine brothers and sisters made their way to the Oregon Territory in a covered wagon by way of the Oregon Trail in 1851. The family originally settled near Woodburn but was lured to Baker, Oregon in 1861 by the discovery of gold.

Anderson returned to Portland in 1870 and then moved to East Multnomah County in 1880. In 1883, he homesteaded 40 acres near the location of the Oxbow boat ramp. (Most of this property is directly opposite the ramp.) The land was heavily timbered, but Anderson and family cleared some land and built a cabin on the bluff almost directly opposite the Oxbow boat ramp. Anderson was a carpenter by trade, but he grew his own vegetables and enough feed for a few cattle.

In 1905, Anderson's younger brother bought an adja-

cent 40-acre parcel from the Oregon and California Railroad Corporation (see Bureau of Land Management Land section) for a mere $116.75. In 1920, Anderson's son, Morris, purchased most of this tract for $500. The remaining portion was purchased by Morris' sister and remains the home of her niece, Arlene Marble, and her husband, Harold. Arlene is very active in researching and recording the history of the area.

In 1934, Morris Johnson sold 23 acres of river front property to a developer by the name of Granlin for $1,700. Granlin had intended to construct summer homes along the river opposite the park campground. For unknown reasons the development never materialized; and when Morris' son, Norwood, and his wife, Elizabeth, assumed ownership of the homestead in early 1950, they raised $3,000 and purchased the land back from Granlin. At this time, this portion of the river gorge was still in virgin timber. Although Norwood operated a mill a short distance from the homestead until 1954, the timber on this parcel was too large for the mill. It wasn't until 1956 that this 54 acres was logged.

In the early 1960's, when Oxbow Park was first conceived, Multnomah County purchased those portions of the Johnson property that were on the south side of the Sandy.

In the late 60's, the County tried to purchase an additional 40+ acres from the Johnsons. However, after a court decision in favor of the Johnsons placed the value of this land at $65,610, the County decided against the pur-

chase. It wasn't until 1978 that the state purchased the parcel and turned it over to the County for inclusion in Oxbow. Norwood and Elizabeth Johnson still reside on what remains of the homestead, as well as their daughter and her husband.

Buck and Gordon Creek Area

During the prohibition era of the 1920's, Gordon Creek acquired quite a reputation because of the large number of illegal "stills" located along this isolated stream that empties into the Sandy from the north, approximately 3/4 of a mile (1.2 Km) upstream from the boat ramp. Norwood Johnson's mother once attended a vaudeville stage show in Portland. She later related to the family these lines from the show:

> First man: "I was out to Gordon Creek today."
> Second man: "Oh? What were you doing out there?"
> First man: "I was looking for a location for a still."
> Second man: "Did you find one?"
> First man: "No. They were all taken!!!"

The lower portion of Gordon Creek was also the site of a County-operated rock quarry and crusher during the early 1920's. The rock was removed from the upper portion of the slope above the Creek and then lowered down in two trolley cars that were attached to each other with cable. As the full car was lowered down the slope to the crusher, the empty car would be pulled back up the slope. This operation ended in the mid 1920's, but the scars of this extraction remain visible today.

Both Gordon and Buck Creeks were excellent trout

fishing streams and were utilized by Chinook and Coho Salmon, as well as Steelhead. Bear were quite common in the area, especially in the fall when large numbers of salmon would make their way up the Sandy and tributaries to spawn. Norwood Johnson's father trapped many bear for food in this area. Norwood said his dad always tried to trap his bear before they could get to the river and gorge themselves on salmon. The meat of a bear that had recently fed heavily on salmon was usually thrown out because of the smell and taste of fish in the meat.

In the late 1940's, the County contracted with a small business to operate another gravel extraction and crushing operation at the mouth of Buck Creek. With the aid of caterpillar tractors, the river was forced into a narrow, deep channel while rock was removed from the rest of the river bed in the area. At one point, a small bridge was built across the Sandy to haul rock from the south side of the river back to the crusher on the north side. This was the only bridge ever constructed in the Oxbow area. The winter current of the Sandy is a powerful force, and today no signs of this channelization are visible.

This small quarry operation was replaced by a County operation in the early 1950's. A large dragline was placed on the terrace adjacent to Buck Creek. "Tail-holds" were placed across the river on the south side which allowed the dragline to remove gravel from the river

channel without diverting the water. This operation only lasted a few years, and in 1965 the land on which the gravel extraction had occurred was transferred from the County Road Department to the Parks Department for inclusion in Oxbow Park.

Bureau of Land Management (BLM) Lands:

The lands occupied by the campground at the upper end of the park, and the "old-growth" forest in the central area of the park, are leased from the Bureau of Land Management. These 280 acres in Oxbow, as well as approximately two million acres throughout western Oregon are referred to as "O & C revested lands" and their history is rather unusual.

In 1865, Congress made a grant of 2.5 million acres to the Oregon California Railroad Corporation to finance the construction of a north/south railroad between Portland and California. Through this grant, Congress intended to provide a right-of-way for the railroad and to encourage settlement of the area by allowing the railroad to sell 160-acre tracts of land to settlers for $2.50 per acre to finance construction.

Twenty square miles of federally owned lands were given for each mile of railroad built. The land consisted of odd-numbered Sections in various Townships through the Willamette Valley and Siskiyou Mountains.

The lands granted to the O & C Railroad were usually heavily forested. The terrain was hilly to mountainous, access poor, and as such, was not easy to sell to settlers looking for farmable land. The company experienced finan-

cial difficulties. By 1883, construction had only reached Grants Pass. It wasn't until 1887 that the first train ran between Portland and California. Soon after, the O & C Railroad went bankrupt and the Southern Pacific Railroad Corporation took control of the O & C and some 2.2 million acres that had not been sold. The Southern Pacific decided not to sell any more federally granted land and began instead to exploit the timber resources.

This action brought a tremendous outcry from the public; and in 1916, Congress acted to "revest" the land back to government ownership. They appropriated funds to pay back taxes and to pay the Southern Pacific Corp. $2.50 per acre. It was Congress' intention to sell timber by competitive bidding and then dispose of the cut-over land for $2.50 an acre.

In 1937, further Congressional action provided for conservation and management practices to guarantee perpetual forests and revenues to be shared with the counties in which O & C lands were located.

Finally in 1946, Congress formed the Bureau of Land Management to administer the O & C lands, as well as several other tracts of "revested" lands in the western United States.

Today, most of the O & C lands are still managed for timber production and the revenues are still shared with Oregon counties. In southwestern Oregon, where large tracts of O & C land exist, some counties derive most of the funds required to operate from O & C timber receipts.

Very little logging has occurred on the O & C lands in the Sandy Gorge. This was originally due to the rugged terrain of the gorge; however, since 1972, these lands have been protected by BLM because of their inclusion in the State Scenic Waterway System.

BLM is currently formulating a comprehensive management plan for lands it administers. It is anticipated that Sandy Gorge tracts will be classified as "Outstanding Natural Areas" due to the rapid decline of remaining "old growth" fir forests in western Oregon and Washington. These tracts of "old growth" provide critical habitat for several "rare/ endangered" plants and animals. In the Sandy Gorge these include the northern spotted owl; phantom orchid, spotted coral-root orchid, and Douglas Selaginella.

Multnomah County's management policies have echoed the BLM commitment to protect these unique areas by managing the "old-growth" forest in Oxbow for full preservation. Development is kept to a minimum (trails and several restrooms), logging and road construction avoided, pesticides not used, snags left in place wherever possible, and some picnic facilities have been removed from the area.

Oregon Fish and Wildlife Department Properties:

Nearly half the land comprising Oxbow Park was either purchased from, or is currently leased from the Oregon Fish and Wildlife Department by Multnomah County for park purposes. Between 1957 and 1959, the Department spent $24,000 from angling/hunting license fees to purchase 221 acres from four

landowners to provide public angling access to the Sandy River. In 1962, the OFWD sold Multnomah County the entire 221-acre tract for $12,000. To guarantee perpetual access for anglers, the State put restrictions on the deed which required the County to assure free access for anglers and to maintain a small boat ramp. Should the County violate these restrictions, all land would revert automatically back to OFWD.

In addition to the 221 acres sold to Multnomah County, OFWD also leases to the County 222 acres located on the north side of the river, which is known as the "Houck Tract" or "Floss Point". As in the deed, the lease agreement includes strict provisions which guarantee public access for angling.

Limited information on the history of these five land parcels (totalling 443 acres) follows:

"Houck Tract" or "Floss Point":

Located directly across the river from Hossner Hole (one third mile east of park gate) is the area known to locals as "Floss Point". Norwood Johnson remembers the remnants of two homesteads on the terrace high above the river (now the location of a fire access gate and small parking area).

The Floss cabin was a small log structure located very near the fire access gate. The hand-dug well still exists nearby and still produces water. Over the years, this well has provided water not only to humans, but also to a

myriad of wildlife.

The second cabin was located approximately 300 yards (274 meters) north of the Floss cabin and was inhabited by a man named "Cosmus" and his flock of pidgeons. The site of this frame structure is still visible among the alder and maple. A third cabin was located south of the fire access gate at the bottom of the gorge near the river. As a young boy, Norwood Johnson and his brother helped some friends build it to serve as a weekend hide-away. It was not occupied year round until sometime during the depression years, when a local character by the name of "Hank, the Hermit" took up residence after his medical discharge from the Navy. The cabin was located on the flood plain and in due time, the cabin and Hank's best friend, his dog, were washed away in a sudden flood. Norwood remembers that Hank was not nearly as upset about losing his home as he was about the loss of his pet. The dog, which had been leashed to a log at the time of the flood, miraculously returned several days later. Using material from a nearby log jam, Hank, Norwood and friends built a new cabin on a nearby terrace. Several years later, "Hank, the Hermit" moved to Colorado where he lives today. He is nearly 90 years old.

Oxbow's one and only sawmill was located directly across from the lower portion of Hossner Hole. It was a dream that was never realized. Floss Point was logged for the first time during World War Two. Apparently, there was an excessive number of waste logs left on the slopes, near the river.

This prompted a Troutdale machinist, named Chase, to purchase the property and build the small mill near the river. Chase intended to supply the mill with salvaged logs from the area, however, he encountered many problems with skid-road construction and log retrieval. By the time the project was abandoned a few years later, only several thousand board feet of lumber had been produced.

When the Houck family bought this land in the early 1950's, the mill was still in place. They worked the mill for a while, but were unable to keep it in operation because of the sparse timber supply. The Houcks didn't live on this property, but they did raise potatoes on the meadow near the location of the Floss and Cosmus homesteads. They also logged some second growth fir and alder for pulp. The Oregon Fish and Wildlife Department purchased this tract from the Houcks in the early 1960's.

The Hossner Tract:

In 1901, 200 acres (area around office, terrace south of office, and upstream to BLM property) was purchased by Jake and Anna Hossner. The Hossners primarily used the land for sheep and cattle grazing. They did some logging of fir and cedar, and in 1935-36, large cottonwood and maple were harvested and sold for furniture construction.

In addition to the farm house and barn located on the terrace south of the office, there were two cabins on the Hossner tract. Both were occupied by "woodcutters" who worked for the Hossners.

Jake's grandson, Walter Hossner, remembers stories his father told him of Indians who, during the early 1900's, came annually to the area just upstream from YMCA Camp Collins to pick huckleberries. Indian artifacts such as arrowheads and a mortar and pestel have been found in the area. Dr. John Woodward, a Professor of Archaeology at Mt. Hood Community College, speculates that the Indians that Walt's father remembered were probably from the Warm Springs Reservation. They came to the Willamette Valley annually to work in the berryfields and gather wild huckleberries. Dr. Woodward also speculated that the artifacts found in the area could be up to 9,000 years old, left by a primitive tribe that once inhabited this vicinity.

Anna Hossner, it is said, once found a gold nugget in the craw of a freshly-slaughtered chicken. Some might say that was just a lucky coincidence; however, it's also said that Anna found a second gold nugget in a unnamed stream that enters the Sandy in the Oxbow area. Fortunately, a gold rush did not follow this discovery.

In the early 1960's, the Hossners sold 40 acres to the Oregon Fish and Wildlife Dept. and the remainder of the farm was sold to Clifford Orth, who subdivided the Hossner Terrace area. Mr. Orth sold a portion of the river bottom land to Multnomah County in 1960 and three years later traded the rest for land of equal value in another location.

Murray and Scales Tract (Alder Ridge)

Little information is available about this parcel of

property. "Murray and Scales" was a logging company which purchased the land from an absentee landowner (McCarthy??) in the early 1950's. The company then logged 169 acres of old growth fir and cedar and shortly thereafter, sold the land to the Oregon Fish and Wildlife Department. The scars of this logging operation are still visible on all parts of the ridge.

Woolard/Akin Tracts

A total of 12.5 acres-- no information available. Purchased by Oregon Fish and Wildlife Department in the late 1950's.

Multnomah County Properties

The remaining parcels of land that make up Oxbow Park (approximately 120 acres) were obtained by the County between 1960 and 1973. Some federal assistance was sought and received from both the Housing and Home Finance Agency and the Bureau of Outdoor Recreation in the form of matching funds for the acquisition of open space and recreational needs.

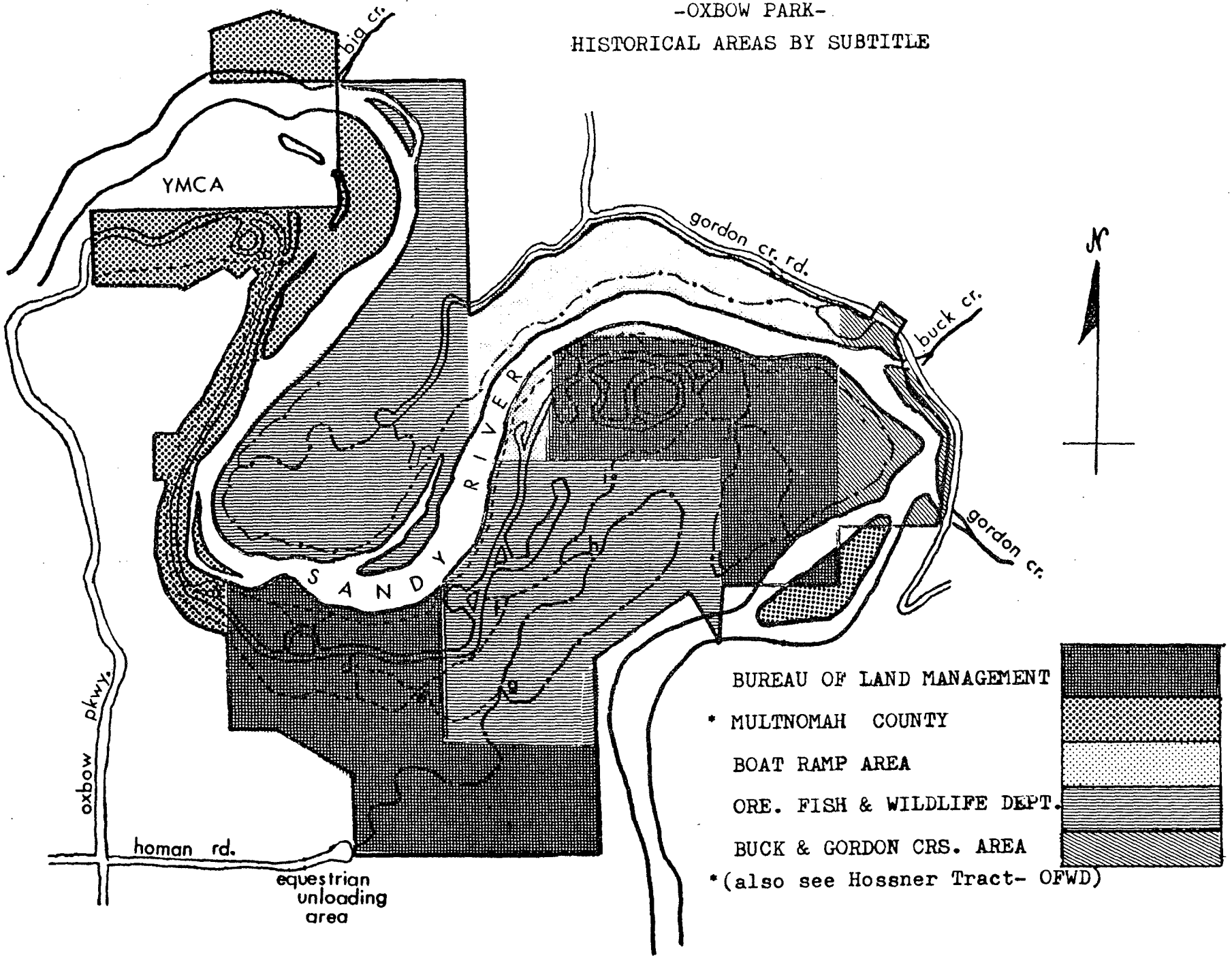
The County expended $111,950, traded at least one landowner property of equal value, and received a 12-acre donation from the Diack family. County funds were part of the Recreational Facilities Fund.

Major development of the park occurred between 1963 and 1968 with much of the initial work being done by the Neighborhood Youth Task Force, with assistance from the Bureau of Land Management.

With the inclusion of portions of the Sandy River into the Oregon Scenic Waterways Program in 1973, management priorities at Oxbow began to shift away from development. A phenomenal increase in the number of visitors, and various social and resource management problems during the early 1970's, threatened the wild beauty of the park and the welfare of resident wildlife. Managers soon realized that visitors were attracted, not by fancy campsites and picnic shelters or paved parking areas and trails, but by the unique natural resources and undisturbed qualities of the Sandy Gorge. Today, Multnomah County's management policies try to balance heavy recreational use with the preservation and protection of this outstanding natural area.

-OXBOW PARK-

HISTORICAL AREAS BY SUBTITLE



"OLD GROWTH LOOP"
Approximately .05 miles (.8 Km)

By

Charles Ciecko

(Note: There are endless topics that can be discussed on this loop. The following outline only covers a few of them. Do not feel bound to this outline. Feel free to use all or none of the outline. Add activities (suggestions available at Teacher's Library) desired or side trips to the River, Dismal Swamp or Bee Tree.)

After your class has had an opportunity to stretch after the bus ride, assemble your group in the meadow adjacent to the parking area. Before starting into the forest, take a few minutes to consider this meadow...

Stop 1

Q. Has this always been an open field? (No)

Q. Can you find evidence of a vanished forest in this area?

Yes, there are several stumps cut off even with the ground. Also, look for shallow depressions, called "sink holes", which mark the location of now rotted tree trunks. Finally there are a few trees left standing in the meadow.

Look closely at the ground. Although there is some grass, there are also many "broad-leafed" weeds or "forbes". In a yard, "forbes" are often considered pests. However, wildlife such as deer, elk, and ground squirrels feed on the leaves and flowers of these plants. Some small birds feed on the seeds from forbes in late summer and fall (white crowned sparrow, Oregon junco, rufous-sided towee). In

nature there is no such thing as a "weed". All plants are used some way or another by insects, animals, birds and reptiles.

Also notice moss and mushrooms (fungi), indicates acidic soil, low in nutrients.

Q. What would happen if this area were no longer mowed?

A process called "succession" would begin. At first the only change you would notice would be taller, raggedy looking grass. But slowly, over a few years, shrubs like the ones you see along the River bank (scotch broom), blackberries, salal, and bracken ferns would begin to invade the meadow. These plants would shade out the grass and forbes that you see here now. Eventually, young deciduous trees (alder, maple, cottonwood) would emerge from beneath the layers of shrubs. These trees would shade out some plants like scotch broom and blackberries and they would be replaced by some plants that can tolerate the shade (sword fern, vine maple). Even later, young conifer seeds, transported to the area by wind or animal would sprout and eventually they would catch up and over-take the deciduous trees. As the conifers grew, they would, in turn, shade out the deciduous trees, and the evolving forest would begin to look like the one across the parking area. Standing where you are, one can see almost all the phases of "succession".

BARE SOIL... MEADOW... SHRUBS... DECIDUOUS FOREST... MIXED CONIFER DECIDUOUS FOREST... OLD GROWTH CONIFERS... NATURAL OR MAN-CAUSED DISTURBANCE... BARE SOIL

Q. What types of man-caused or natural phenomena might interrupt the process of "succession"?

Fire, logging, wind, flood, ice, snow, disease, mowing.

Q. Now that you know a little bit about "succession", what can you say about all forests?

They are always changing.

Proceed-- across parking area to left corner (opposite

the River) and down wide trail. Notice the change in lightness and temperature. You are walking on what used to be the main park road. In 1964 and 1965, large floods washed out this road in several places. Approximately 30 acres of park land was also washed away.

Q. Can you find one of the spots where the road was washed out?

Just ahead of you-- large ravine.

Q. Why do you think these tree limbs were dumped over the bank in front of you?

To divert pedestrian traffic from this eroded area so the process of succession can begin by allowing vegetation to stabilize the soil.

Follow trail to left around ravine. Stop near upper end of the ravine.

Stop 2

You are standing in a small opening in the forest canopy.

Q. What caused this opening?

During floods previously mentioned, large volumes of water roared down the slopes of the gorge and washed the large trees which once stood here away.

Q. Can you discover differences in vegetation of the opening and that of the forest?

Yes, open area is shrubby and overgrown with vines, deciduous trees and young conifers. Forest floor is largely covered by sword fern.

Q. Can you explain this difference?

Dense vegetation of opening caused by sunlight penetration to the ground.

Proceed-- on trail back towards River to small grassy area overlooking the River, approximately 30 yards (25.9 m.).

Stop 3

Look at the River bank below you. There are lots of young trees and many shrubs.

Q. Is succession occurring here?

Yes, the River has caused a disturbance to soil by flooding and removing the forest that once occupied this area. These young trees and shrubs represent an early stage in succession.

Look at the soil that makes up the River bank.

Q. What is it? Coarse sand.

Q. Where did the sand come from?

Deposited by the River thousands of years ago during a tremendous flood which might have been caused by an eruption of Mt. Hood.

Q. Could the Sandy River have looked like the Toutle River after Mt. St. Helens recently erupted?

Yes.

Q. Do you think plants grow well in this sandy soil?

No, occasional high water washes plants and soil away. Sand dries out rapidly during summer. Heavy pedestrian traffic pushes sand down the slope which buries plants. Sand is low in nutrients and organic material.

Q. Did you spot the man-made "lining" along the River's edge?

It is called "rip rap" and is made of sand and cement in burlap bags. It was installed after the large floods eroded the bank to protect the bottom of the slope from further erosion by the River.

Q. Do you think the "rip rap" has helped?

Partially, but the slope is still being eroded from the top by pedestrian traffic.

Look for signs of pedestrian traffic on the slopes as we proceed along the River. Continue to top of small rise in

trail. There are three large fir trees on right.

Stop 4

Examine the large number of young conifers on the River side of the trail...

Q. Are all these young trees the same type? No.

Q. How are they different from each other?

Some have equal sized needles all around the branch and the tops of these are straight. They are Douglas Fir. Others have smaller needles that only grow from two sides of the branch. The tops of these tend to droop to one side or the other. These are Western Hemlock. The parents of these young trees tower above you. The Douglas Fir have the thick looking bark with deep ridges. The Hemlock has thinner bark with shallow ridges.

Q. Can you find any cones on the ground from these large trees?

Tiny cones from Hemlock, larger cones with three-pronged "pitchforks" between cone scales are from Douglas Fir.

Q. Why do so many young trees grow here?

Sunlight penetration. Many seeds from nearby trees.

As we continue into the forest, note the differences in ground vegetation between the exposed river bank and the shaded forest floor. The shaded area is predominately covered with sword ferns. There are relatively few shrubs in the shaded area and noticeably fewer young conifers.

Turn left at the small stump with flat top on left side of trail. Stop at large rock next to large Fir tree on left side of trail.

Stop 5

Look at the black marks on the side of this old Douglas

Fir next to the rock.

Q. What caused these marks? Fire.

Q. Did the fire hurt the tree?

Apparently, no harm came to the tree.

Q. Why?

The bark on the trunk of this tree is very thick, 4-6" (10-15 cm.) and fire resistant to a degree. The needles were high above the fire, and they were probably not seriously damaged by heat.

Q. Do you see any fire scars on smaller trees in the area? No.

Q. Why?

Apparently, fire occurred before young trees began to grow. Any young trees that were in the area at the time were probably destroyed.

Q. Do you think fire has a role in nature's plan (ecology)?

Yes, in a forest like this one, small and regular fires eliminate accumulations of fallen trees and limbs and quickly release nutrients back to the soil. Fire also kills plants that grow close to the ground which reduces competition for water and nutrients. A large fire, however, could return this forest back to the meadow stage of succession in a matter of minutes.

Consider the size and age of this tree. It is probably 300 to 400 years old. This tree was here well before Columbus discovered America. Think of all this tree has seen, how many fires have burned it, birds nested in it, Indians camped under it...

Proceed to road and cross to trail head on other side. Stop near garbage can.

Stop 6

Examine the young conifers growing around you. There are

two types; one is the Hemlock which we saw earlier.

Q. What if the new type?

Western Red Cedar. It has scale-like leaves in opposite pairs. If you look at the bottom of these leaves, the scales look like "butterfly wings." The parents of these young cedars are the large trees with thin, greyish-brown, stringy bark.

Q. Although there are large Douglas Fir in the area, there are no young Douglas Fir. Why?

Young Douglas Fir need some direct sunlight to grow. Cedar and Hemlock, however, do not require direct sun. They thrive in areas that are always shaded.

Q. Considering the fact that there are no young Douglas Fir growing up to replace these old Douglas Firs as they die, what do you think will eventually happen to this forest?

Succession is occurring here. Slowly, the old Douglas Fir are being replaced by Hemlock and Cedar. Since both Hemlock and Cedar can reproduce in constant shade, we can assume that if left undisturbed, there will always be young Hemlock and Cedar growing up to replace older generations. The forest would reach a state of equilibrium or "climax."

Turn left at trail marker "D" and proceed to restrooms on left. BREAK.

Reassemble groups around large Fir tree between two restrooms. Stop.

<u>Stop 7</u>

Study the trunk of this tree.

Q. Do you see anything unusual on the trunk?

Notice the small "shelves" attached to the trunk. They are called "conks" and they are the "fruiting body" of a fungus that grows under the bark of this tree.

Look at the top of this tree.

Q. What can you tell about it?

It's dead.

Q. Do you think the fungus growing in the tree had anything to do with killing this tree?

Maybe, but insects or another disease could have killed this tree before the fungus started growing.

Q. What good are dead trees (called "snags") in the forest?

Snags are extremely important to many types of insects and animals. For example, 85 species of North American birds excavate nesting holes, use cavities created by decay and storm damage, or use holes created by other species. Most woodpeckers feed on the insects that live in snags. Birds of prey (hawks, eagles, owls) perch on or build their nests in snags. You might find any of the following using a snag in Oxbow Park:

northern flying squirrel, weasel, opposum, raccoon, wood duck, merganser, osprey, bald eagle, pileated woodpecker, great horned owl, pygmy owl, bobcat, and many others.

Proceed-- at top of short rise in trail, two trails join from the right. If you wish to take a side trip to "Dismal Swamp" or "Bee Tree", turn right at the second trail. Both features are only 30 seconds away. Dismal Swamp is an excellent place to pursue some water activities (see Teacher's Library). Please refrain from trampling vegetation on the banks of the swamp-- stay in the area provided.

Proceed to single restroom on left side of trail at edge of old-growth forest. (May be partially obscured by vegetation.) Stop.

Stop 8

Look around you. The forest has suddenly changed.

Q. How is it different from the old growth forest?

(The trees are not conifers. They are smaller and closer together. Vegetation on the ground is much denser, and there are fewer sword ferns.)

Take a closer look at the deciduous trees.

Q. Are they alike?

(No. The larger trees with moss-covered trunks and very large leaves are Big-Leaf Maple. Look on the ground for "helicopter"-like seeds from this tree. The small ferns growing from the moss-covered trunks are called "Licorice Ferns". Their roots have the flavor of licorice. Taste? The smaller trees are Red Alder. Look around for some leaves and tiny "cones" from this tree. Bacteria that live on the roots of Alder have the ability to capture nitrogen gas from the atmosphere and "fix" it into the soil so other plants can use this vital element. Many birds feed on the "catkins" or flowers of the Alder. Examples are the ruffed grouse, kinglets, chickadees, etc.

Q. Why are so many of these Alders broken off or bent over?

(This damage was caused by the immense weight of ice which accumulated on everything in January of 1978.)

Q. Why didn't the trees in the old growth forest look like these?

(The conifers have evolved to survive in an environment of frequent ice and snow. Their wood fibre is more flexible, and the limbs bend down rather than break under the weight of ice or snow.)

Proceed a short distance to pile of large logs on the left. (May be partially obscured by vegetation.) Stop.

Stop 9

This is an excellent spot to investigate life on a rotting log. (See activity sheets at Teacher's Library.)

Q. Where did these logs come from?

This is what remains of logs that were harvested some 30 years ago from the slopes above you. Notice the ends of the logs are smooth. This indicates they were cut with a chainsaw.

Q. What makes a log rot?

The combined action of fungi, insects, weather, and micro-organisms breaks fibre down to its component parts so they can be reused by the green plants around you-- recycling. These decomposers are always at work wherever there is organic matter (dead trees, leaves, grass, animals, insects, fish, etc.) exposed to air. Were it not for decomposers, our planet would quickly fill up with "garbage". We depend on decomposers to keep the earth liveable.

Proceed short distance. Turn left on trail that takes you out to road. Follow road short distance to the right. Entrance to parking area where you started is on the left. Stop once more in meadow.

Stop 10

Take one last look at the large conifers in the old growth area. Scan the tops of the trees bordering the parking area.

Q. Can you spot the large cluster of sticks in a tree some 175 feet (53 m.) above you? What is it?

Osprey nest.

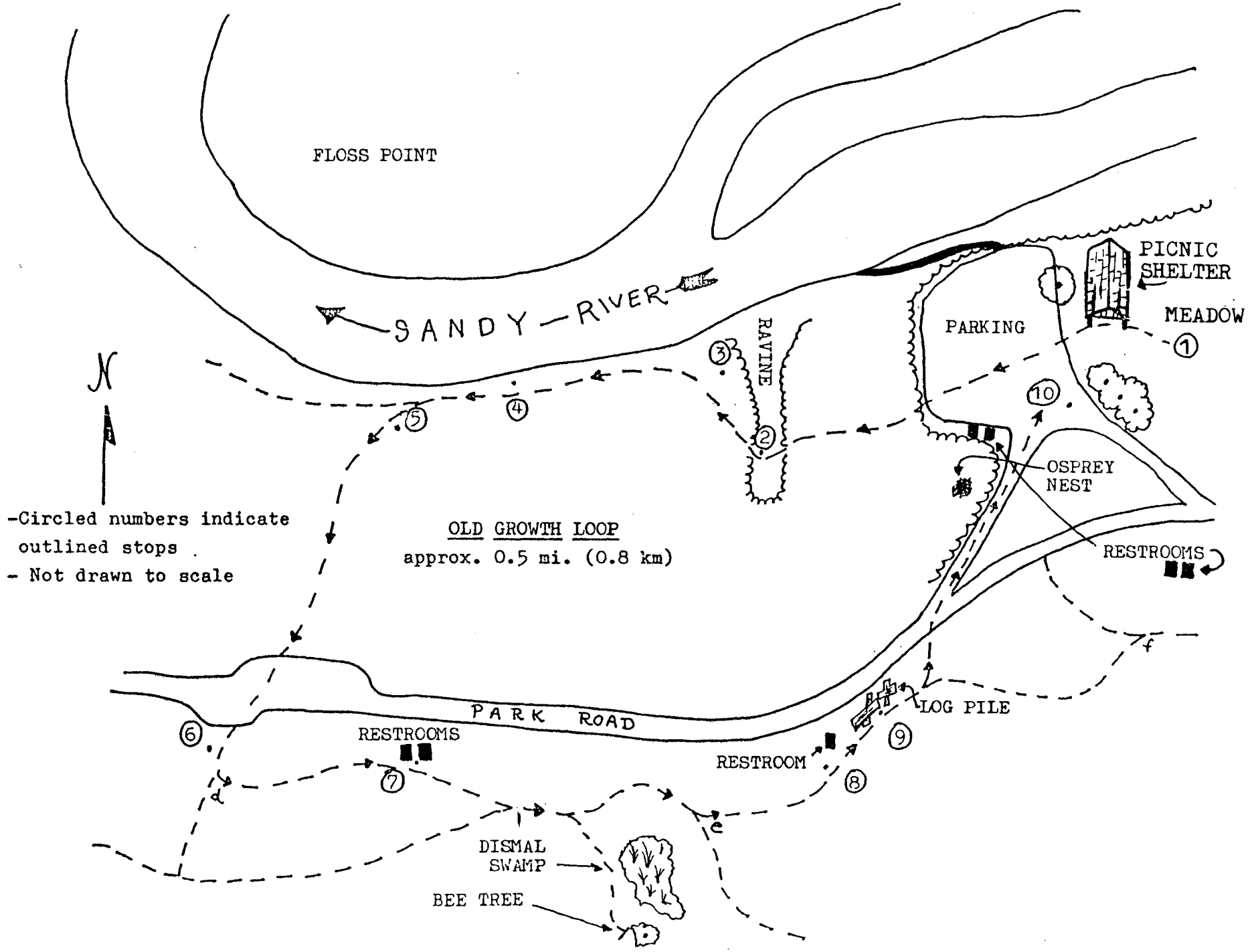
Q. Do you know anything about osprey?

They are a large fish-eating hawk. They catch their prey by diving at high speeds into the water and grabbing fish with their talons (feet). Osprey have very keen eyesight which enables them to see their prey in the water from great distances.

Osprey migrate as far south as South America during winter months and return in the early spring. This nest has been active since 1977 and is one of several in the Sandy Gorge. Not too long ago,

Osprey populations were threatened by DDT (an insecticide) which caused the egg sheels of Osprey to be too thin to support the weight of the female during incubation. DDT has been banned in the USA, but it is still widely used in other areas of the world.

END


FLOSS POINT
SANDY RIVER
PICNIC SHELTER
MEADOW
PARKING
RAVINE
OSPREY NEST
RESTROOMS
OLD GROWTH LOOP
approx. 0.5 mi. (0.8 km)
-Circled numbers indicate outlined stops
- Not drawn to scale
PARK ROAD
RESTROOMS
RESTROOM
LOG PILE
DISMAL SWAMP
BEE TREE

ACCLIMATION LOOP
Approximately 1.0 miles (1.6 Km)

By

James Underwood

(Note: This outline is best for younger students, who are not so keen on identification and facts.)

INTRODUCTION

An understanding of the natural processes is greatly enhanced by obtaining a "feeling" for our part in the scheme of things. To feel our connection to the natural world can rekindle a spark within us, making us more at one with the world we live in. For many of us, our lives have been so far removed from the natural cycles and balances that we have forgotten that they significantly influence our lives.

What I propose for this walk is that you try to rekindle that spark within the students. Guide them into space where they can feel with all their senses, the awe and mystery of life. Let's temporarily forget about textbooks and ecological definitions and for that matter, even the names of plants and animals. Proceed with the goal of re-establishing the connection with nature from an intuitive perspective.

As a guide, it is important for you to feel enthusiasm or you will not succeed with the goal of this walk. Let down your inhibitions and let your intuition guide you. Try getting down on your hands and knees. Become a part of the

miniature world of insects, moss, lichens, wildflowers, and fungi. Let your mind drift off into the clouds while listening to the sounds around you.

There is always something interesting happening, just let the spirit of the moment capture you. Open all your senses-- touch, smell, hearing, taste (only what you are sure of), and sight. Follow the natural interests of the group but be on the lookout for things to focus on if attention gets too scattered. Too much talk will deprive the other senses. Most of these feelings are beyond words anyway. Use words to focus attention, create a sense of wonderment or point out connections.

A walk of this nature could be taken anywhere. Ideally, groups should be small (not more than five). On the following pages, I have outlined one route and have included some ideas and observations. Don't be confined by them. Feel free to expand or change the route, add activities or utilize the group's own ideas, observations and perspectives.

A. Communicate the goals of the walk to the group, then proceed into the forest and find a quiet spot among the ferns to sit for a few moments. Feel the growth energy around you, hear the interaction of wind and trees. Look at the different types of vegetation around you; all different shapes and textures, big and small, narrow and wide, climbers and creepers, all reaching for the source of all energy-- the sun.

At trail marker "J", turn right.

B. Flowers, berries, and butterflies are common here. Stop and examine closely a mossy tree trunk or stump. Feel the rocks beneath your feet, smell the sap from a tree wound, notice patterns and textures, similarities and differences. Can you hear the

River yet?

Turn left at trail marker "L" and drop into the "seasonal channel," follow it to the right to the River's edge.

C. As you gaze at the River, watch its movement. See the way the light plays on the surface and how the water interacts with the rocks. Listen to it, feel it. Water! Without it, there would be no life. Everything living shares it. Our bodies are over 76% water. We all have a lot in common with the River. Water flows in and out of all life, past, present and future. The water you drink today may have once been dinosaur urine or passed through the baleen of a great whale. Many are the forms of water.

D. As you walk along the spur trail back towards the main trail, notice the tubular, leafless plants in the area. Pretend you are the first to discover this plant. Study it closely, feel the texture of the stem. Does it remind you of anything? What name would you give it? Pioneers used it to scrub pots and pans. They called it "scouring rush." Indians used it to polish the shafts of arrows and arrowheads and had their own name for it. Back in the prehistoric times this type of plant dominated the landscape and grew as trees up to 50' (15.2 m.)

E. After you have rejoined the main trail, stop and take a look around. The big trees are no longer conifers. There are many varieties of shrubbery. Each plant has a place where it can grow best. How is this environment different from the upper portion of the trail?

F. Examine the eroding banks of the River. Our whole world is constantly changing. Mountains are being formed while others are being washed to the sea; stars are burning out while others are being born. The world may seem unchanging to us because we are experiencing it at such a small point in time. Here on the River bank, however, we can see evidence of the changing earth. Sit here long enough, and you will see soil and plant communities tumble down into the River's path. Look closely into the water and you will see bits and pieces of Mr. Hood, ocean-bound. Have you noticed some cables attached to any of the shoreline trees? Why do you think the fallen trees have been cabled? How do they affect the current along the shoreline?

G. There are many small clearings in this area to lie down in and gaze at the sky. The sun, source of all energy, 93 million miles away (148,000,000 Km). Can you feel it today?

Or roll over and examine the ground. Study the variety of tiny plants that would normally go unnoticed. See any insects? How do you think this spot looks to an insect? How large is their world?

H. Explore the fields around the shelter for small flowers (spring) or seeds (fall).

This area is heavily used by people. Do you see signs of this? What do you think people do here?

I. As you leave the meadow, head back towards the parking area. Notice the axe wounds in the trees along the trails. Think about the shelter, trails, stream crossings, etc. Think about man's influence on the environment. Vast forests like these once stretched from here to the ocean. Now we have cities and farms. Even the farmlands are diminishing as cities continue to expand their boundaries. What effect does this have on our lives? What good are parks and natural, unspoiled areas?

J. Back at the parking area, look at the plants coming up through the road gravel. Examine the mosses and lichens growing on the cement parking barriers and see soil being formed as fir needles decompose along the roadside. What do you think would happen if people suddenly dissappeared from this area? From this planet?

Here's a short list of things to experiment with to exercise your senses. The list could be endless. These are just a few. Use your imagination...

TOUCH/FEEL

mosses
ferns
tree bark
leaves (green/dry)
soil
sand
mud
driftwood
water
thorns
warmth of the sun
wind on the face
coolness of water

SMELL

soil
fungi
decaying wood/leaves
flowers
sap
cottonwood buds
mint
fresh air
leaves and needles

SIGHT

clouds
river movements
patterns and shapes
sunlight and shadows
colors
tree movement caused by wind

SOUNDS

birds
plants
autos
wind
foot steps
own heartbeat
breathing
insects

TASTE*

salmonberries

huckleberries

oxalis

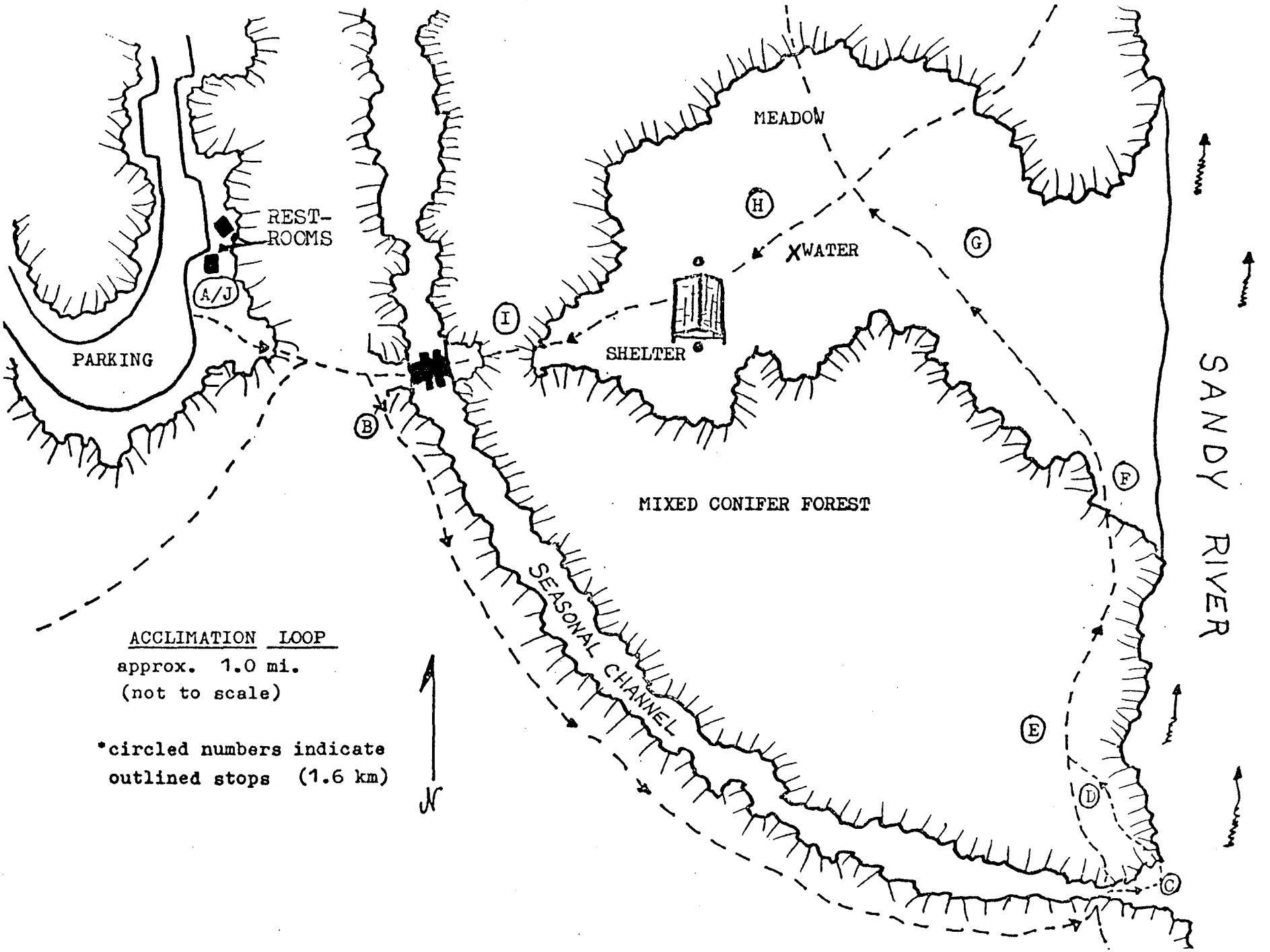
blackberries

mint

chickweed

Oregon grape

*Taste only those plants that you have positively identified as safe to eat. Try only small amounts.


REST-
ROOMS
A/J
PARKING
MEADOW
H
G
WATER
I
SHELTER
B
MIXED CONIFER FOREST
F
SEASONAL CHANNEL
E
D
C
SANDY RIVER
ACCLIMATION LOOP
approx. 1.0 mi.
(not to scale)
*circled numbers indicate
outlined stops (1.6 km)
N

"THE FLOOD PLAIN LOOP"
Approximately 1/2 mile (.8 Km)

By

Charles Ciecko

(Note: This loop may be inaccessible occasionally due to high water.)

The following outline provides the group leader with some basic information regarding the formation of flood plains, common vegetation, wildlife and suggests possible activity topics. It is up to the group leader to select the activities (available at park library) and to determine the best location for each activity.

Definition of a "flood plain": low-lying flatlands, bordering a river and made up of sediments carried by the river and deposited during floods.

1) Trail head introduction:

The terrace you're standing on, once extended far beyond this bank towards the River. Like the unmowed areas behind you, it was covered sparsely with small Douglas Fir and quite heavily with red huckleberry. Around the turn of the century, Indians were coming here to pick the huckleberries each summer. They camped on the now vanished terrace.

In the 1940's, a large flood washed the terrace, Doug-

las Fir and huckleberries away. This flood left much of the area you will walk on a barren, rocky plain.

Subsequent floods have further altered this site but not by removing more soil. Rivers are well known for their destructive capabilities, but their constructive aspects are often overlooked.

Rivers surely cut and erode, but they also deposit their loads of silt somewhere. The area that you will walk on is one such place where deposition has occurred on a grand scale since this terrace washed away.

If you've ever floated on a stream or river, you probably have noticed that the banks are steeper and water deeper on the outside of the bends. It is here that the banks are constantly eroded by the current.

Much of the soil that is eroded will not be carried all the way to the ocean. Just as silt settles from water put in a jar, part of this eroded material will settle wherever the current slows. River current is slower around the inside of a bend or behind a large boulder or in the long "lake-like" stretches between the rapids. However, in this area, the current was slowed by the formation of a large "log jam" which lies approximately 1/4 mile upstream (.4 Km) from your location.

The log jam has increased in size with each flood. Because of its location on the outside of a slight bend in the River, large quantities of drifting logs are pushed directly into the pile by high winter flows. The log jam diverts most

of the water, and the water that does flow through the logs has relatively little current and, therefore, silt suspended in the water quickly settles out. As the silt continues to accumulate, more and more vegetation is able to get established.

The vegetation, in turn, holds the silt in place, slows the current even further and acts as a barrier preventing the logs from being washed away. As you walk through this area notice how silt has piled up around the shrubs that line the edges of "seasonal" channels. You will also see portions of the log jam that have been nearly covered with silt and then vegetation.

It is in this way that rivers and streams re-build what they have destroyed and constantly change their meandering course.

2a) Standing in the seasonal channel, observe the signs of flooding and the force of the River. Here one can see large logs piled in the channel, accumulations of silt and shrubs that have been pushed over by the current and floating logs.

2b) On the opposite side of this dry channel, you will notice numerous small sticks and limbs with no bark scattered on the ground. Examine them. The chisel-like tooth marks on the ends indicate that beaver are responsible. The bark was stripped off and eaten. Look for beaver sign on the shrubs around you and throughout the walk, wherever water is close to vegetation. Notice that some stubs are close

to the ground, and others are several feet, up to 6.5 feet (1.8 m.), above the ground. Do beavers climb up into these shrubs to gnaw on the limbs? No, the gnaw marks at different heights indicate the level of the water at the time the beaver did his work. This would be a good place to discuss the ways the beaver has adapted to its environment. (See wildlife profiles for examples.)

3a) You are overlooking a small pond. A large gravel bar separates the pond from the River. The pond is called a "meander scar". It marks another seasonal channel. Each winter, when the water rises, it flows over the gravel bar and this pond becomes a part of the River. Unlike the area protected by the log jam, the current here is too swift to allow the silt to settle out. This is an excellent place to explore the life in a pond. (See water activities.)

(If the water is too high to cross to the gravel bar, proceed upstream on trail to next intersection, turn left. From here you will have access to both the pond and the River.)

3b) From the pond, the River is just a short walk across the gravel bar. Although the pond and River are close to each other, the life forms in each may be different. Consider the differences between the two environments. The River is characterized by alternating deep and shallow spots, swift current and cool temperatures. The pond, on the other hand, is shallow, still and warm.

The fast-flowing River presents a unique set of obstacles to life forms that reside there. Just staying in one spot

would be a sizeable problem, but consider such things as movement, breeding, feeding, breathing, etc. Despite the difficulties, there is an extraordinary variety of life in the fast-flowing portion of the river.

(This area is ideally suited for collecting and studying some of the smaller river inhabitants. A discussion about land use on the flood plain might be appropriate, or an investigation of water quality. You might also talk about food chains and the water cycle. PLEASE RETURN SPECIMENS THAT HAVE BEEN CAPTURED TO THE RIVER UNHARMED.)

Some common birds you might see in this area are: common merganser, dipper, great blue heron, belted kingfisher, or seagull. Although they are vastly different from each other, all these birds have one thing in common-- they depend on the River for their food supply.

4) Return to the trail and continue upstream. As you walk, notice the partially obscured log jam extending about 100 yards upstream to your left. The logs not only break the current of flood waters, they also provide a home for a variety of insects, fungi, lichens, moss and millions of micro-organisms.

Together with a little moisture, these residents work to break the logs down to their component parts, thus releasing energy and minerals that have been trapped in the wood fibre. Insects and micro-organisms utilize some of the energy and the green plants use the minerals. This process is called "decomposition", and the organisms and plants are called "decomposers".

Decomposers are always at work all around us; and

whether or not we realize it, they are as necessary for survival as water and sunlight. Consider what would happen to the environment if there were no decomposers. Soils would soon be sapped of nutrients, and green plants would cease to grow. Garbage, human and animal wastes, dead animals and plants would soon cover the landscape. Decomposers are the "recyclers" of nature, and we depend on them to keep our world liveable.

(This old log pile is a good spot to take a closer look at life on the rotting logs. See "Soil Activities" at the Teacher's Library.)

5) Green plants have the unique ability to capture and store the sun's energy. Through a process called "photosynthesis", carbon, hydrogen, oxygen and light are combined to produce sugars, starches and fibre. The sugars then combine with minerals (extracted from soil by roots) to make proteins, plant oils, and fats. The wastes from this process consist of oxygen and water vapor which escape from the plant through pores in the leaves. The plant uses starches, sugars, proteins, etc. to grow and reproduce itself.

Animals, in turn, feed on the plants and utilize the proteins, minerals, starches, and sugars for growth, movement, reproduction, etc. All animals, fish, insects, reptiles, amphibians, etc. are ultimately dependent on green plants, not only for energy, but also for the oxygen which is released as a by-product of photosynthesis.

As you look around the flood plain you will notice there is an abundant variety of shrubs. Common species found on

the flood plain include willow, young cottonwood and alder, sweetgale, salmonberry, scotch broom, and blackberry. On the higher areas there are larger alder and cottonwood, hazel, and even a few young douglas fir, which indicates minimal exposure to high water. The ground is predominately covered with a variety of grasses. Equisetum is also common.

It is no accident that these species grow here. Through ages of evolution these plants have adapted to this environment. They actually thrive in the moist (sometimes submerged) shallow, sandy soil of the flood plain. (See "Vegetation Activities" at the Teacher's Library.)

6) The vast majority of the foliage, fruits and seeds of flood plain vegetation is close to the ground-- prolific and palatable to many small birds and mammals that you would not expect to find regularly in a mature forest. Since the flood plain also provides excellent cover in dense thickets or under log piles, and water is readily available, certain species should find this area a desirable home or "habitat". Vegetation and seed eaters like mountain quail, ruffed grouse, mice, California ground squirrel, rabbit, muskrat, beaver, black-tailed deer, and a variety of song birds are examples of common flood plain residents.

Although not as numerous, there are predators, who in turn feed on these plant-eating animals and insects. Examples of predators that reside on or frequently visit this habitat include: frogs, snakes, salamanders, woodpeckers,

swallows, weasel, bats, bobcat, coyote, hawks, owls, mink, and river otter.

Viewing wildlife in its natural habitat is not as easy as Walt Disney has led us to believe. It is even more difficult in a group situation.

As you proceed into the final portion of this walk, notice that "attractors" have been installed that may increase your chances of observing some wildlife. These include:

Ground feeders (2)

Tree feeders (2)

Nesting boxes (6, of various sizes)

Salt lick (2)

The sod around the salt lick has been removed within a 6 foot (1.8 m.) diameter. The exposed sand is an excellent place to cast fresh animal tracks (if not too dry). A rake is provided at the site so you can rake your tracks out when you are finished.

(Note: teachers are encouraged to locate these features prior to taking a class to the area.)

No guarantees can be made, but your chances of seeing birds and mammals will be increased if you follow these hints:

-provide binoculars, view from a distance;

-plan a visit for morning or evening when wildlife is most active;

-dress in subdued colors like tans, browns, greens;

-silence is essential

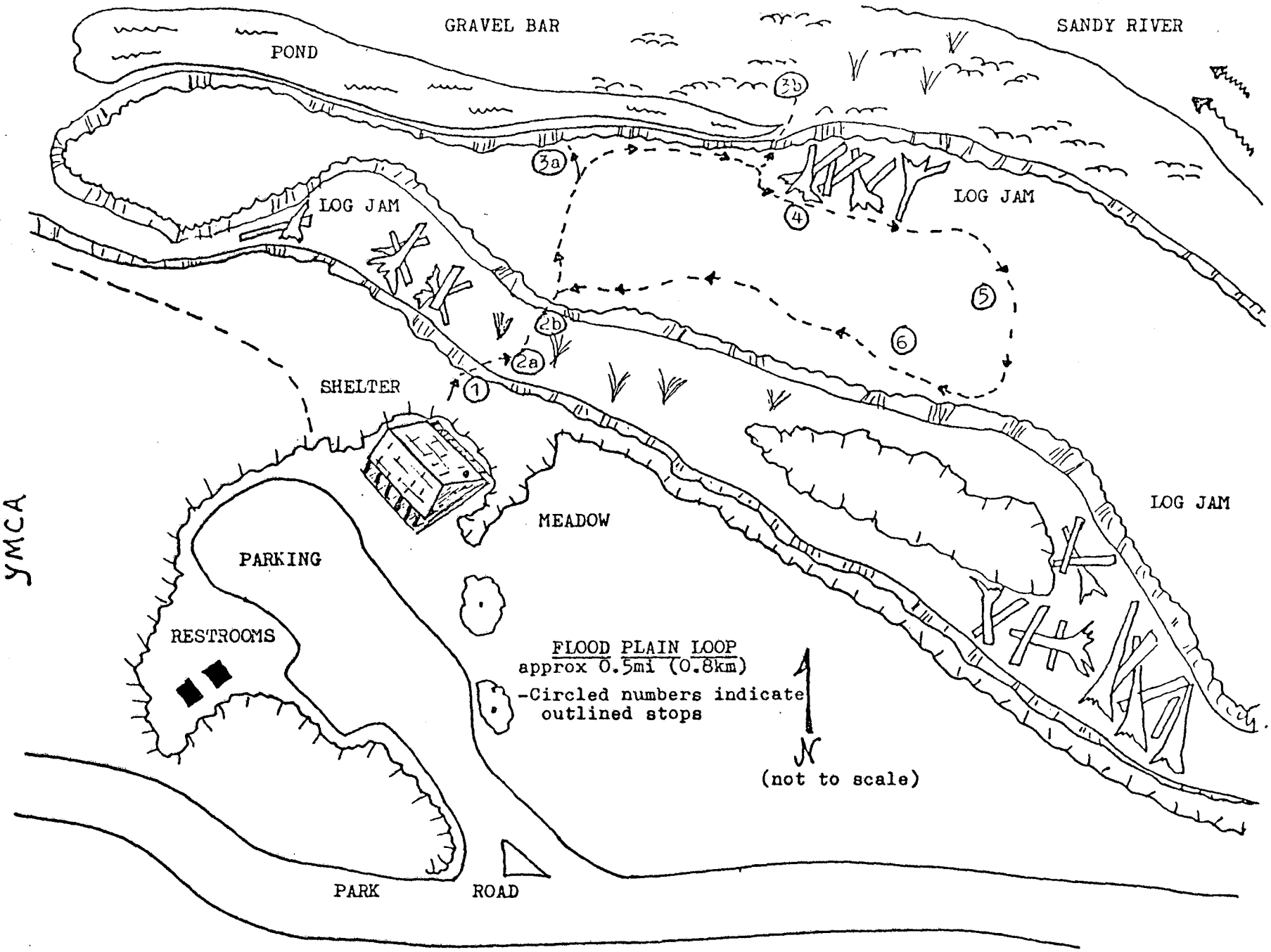
-pick an area to sit quietly and wait, listen and watch;

-stay downwind of the area you're observing

-avoid the use of perfume or after-shave

-move slowly, stay alert

(See "Wildlife Activities" at Teacher's Library.)


GRAVEL BAR
SANDY RIVER
POND
3b
3a
LOG JAM
LOG JAM
4
5
6
2b
2a
SHELTER
1
LOG JAM
MEADOW
PARKING
RESTROOMS
FLOOD PLAIN LOOP
approx 0.5mi (0.8km)
-Circled numbers indicate outlined stops
(not to scale)
PARK
ROAD
YMCA

PROFILES OF HARD-TO-FIND RESIDENTS OF OXBOW PARK

By

Charles Ciecko
1981

INTRODUCTION

> "What is man without beasts? If all the beasts were gone, man would die from great loneliness of spirit, for whatever happens to the beasts also happens to man. All things are connected."
>
> Chief Seattle of the Duwamish and Suquamish Tribes (1786 - 1866)

As important as providing a beautiful setting to pursue our leisure activities, Oxbow Park and the Sandy River Gorge provide "habitat" for a diverse group of plants and animals.

Websters Dictionary defines "habitat" as, "the place or type of site where a plant or animal naturally or normally lives and grows". In other words, "habitat" is the land and water on which wildlife and plants depend for survival.

Man has been meddling with and altering landscapes and habitats since he first appeared. Initially, the human population was relatively small and concentrated. Natural resources and undeveloped land seemed to be in endless supply. So, with little thought for the future or the millions of organisms with which we share this planet, we have cleared and failed to re-plant our forests; drained marshes; filled estuaries; over-grazed prairies; dammed and diverted rivers and polluted our air, water and soil.

Now we find ourselves "picking up the bill" for uncontrolled growth. In 1980, a Global 2000 report to the President esti-

mated that of the five to ten million different types of organisms that inhabit the earth, one half to two million could become extinct in the next 20 years. The two main causes cited by the report were loss of habitat and pollution. The implications of such losses to us are substantial. Man can create intricate works of art, complex computers, reproduce life in test tubes or even put men into space, but he will never be able to re-create an extinct species.

As Aldo Leopold put it, "The first rule of intelligent tinkering is to save all the pieces." If we intend to save all the remaining "pieces", it is critical that we make a commitment to preserving adequate habitat.

BLACK BEAR (Ursus americanus)

The black bear averages 300 pounds (136.07 kilograms) for males and half that for females. They eat just about anything-- examples are carrion, ants, grasshoppers, grasses, nuts, berries, fish, smaller mammals, garbage, etc., etc....

Although one would think this animal is slow and clumsy, do not be fooled!!! Black bears can sprint up to 35 miles per hour (56 kilometers per hour), and they are agile tree climbers.

Black bears build their dens under fallen trees, in caves and sometimes even in tree cavities high above the ground. Dens are used to escape severe winter weather and for rearing young, which may number two to five.

Naturally shy, it is unlikely that you will see a bear in Oxbow Park.


CSC

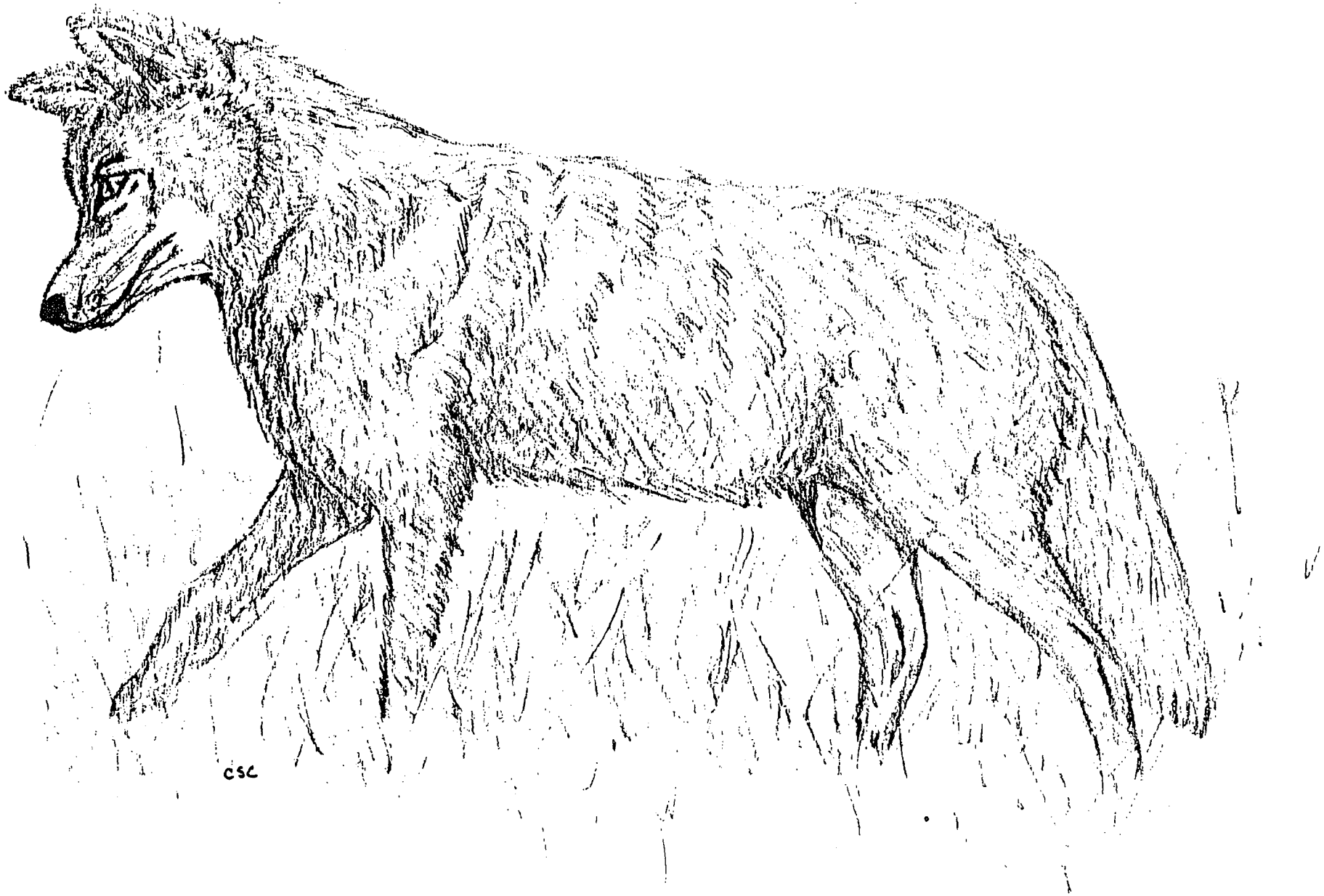
COYOTE (Canis latrans)

In Pacific Northwest Indian mythology, the coyote is either the hero or the villian in most stories. Mark Twain, on the other hand, wrote: "...the coyote is a living, breathing allegory of want.. always poor, out of luck and friendless. Even fleas would desert him for a velocipede".

Despite the fact that every possible method has been tried to eliminate this predator (including: trapping, bounties, livestock baited with poison, electric shock collars, and fences, etc.), the coyote has managed to survive and actually expand its range. One thing can be said for a coyote-- it is adaptable! Coyotes can be found throughout the United States (except in the southeast) in metropolitan areas, as well as rural areas.

Coyotes have been painted as opportunistic killers of sheep, fawns, and calves. However, their most common prey are mice, rats, rabbits, and insects. They will also eat carrion and some vegetation.

Coyotes are monogamous and females bear five to seven pups in the spring. Both parents share the responsibility for rearing the young. Mature coyotes are three and a half to four and a half feet long (1.06 to 1.37 m.) and weigh 20 to 50 pounds (9 to 13 kg.).


CSC

BEAVER (Castor canadensis)

At one time, many years ago, this water loving vegetarian was nearly trapped to extinction. With numbers reduced, the trapping pressure eased; and over the years, the beaver has made a remarkable comeback.

The beaver is quite common along the Sandy River but hard to see since it spends its days sleeping. After sunset, beavers can be heard and seen just about anywhere along the river, if you're patient.

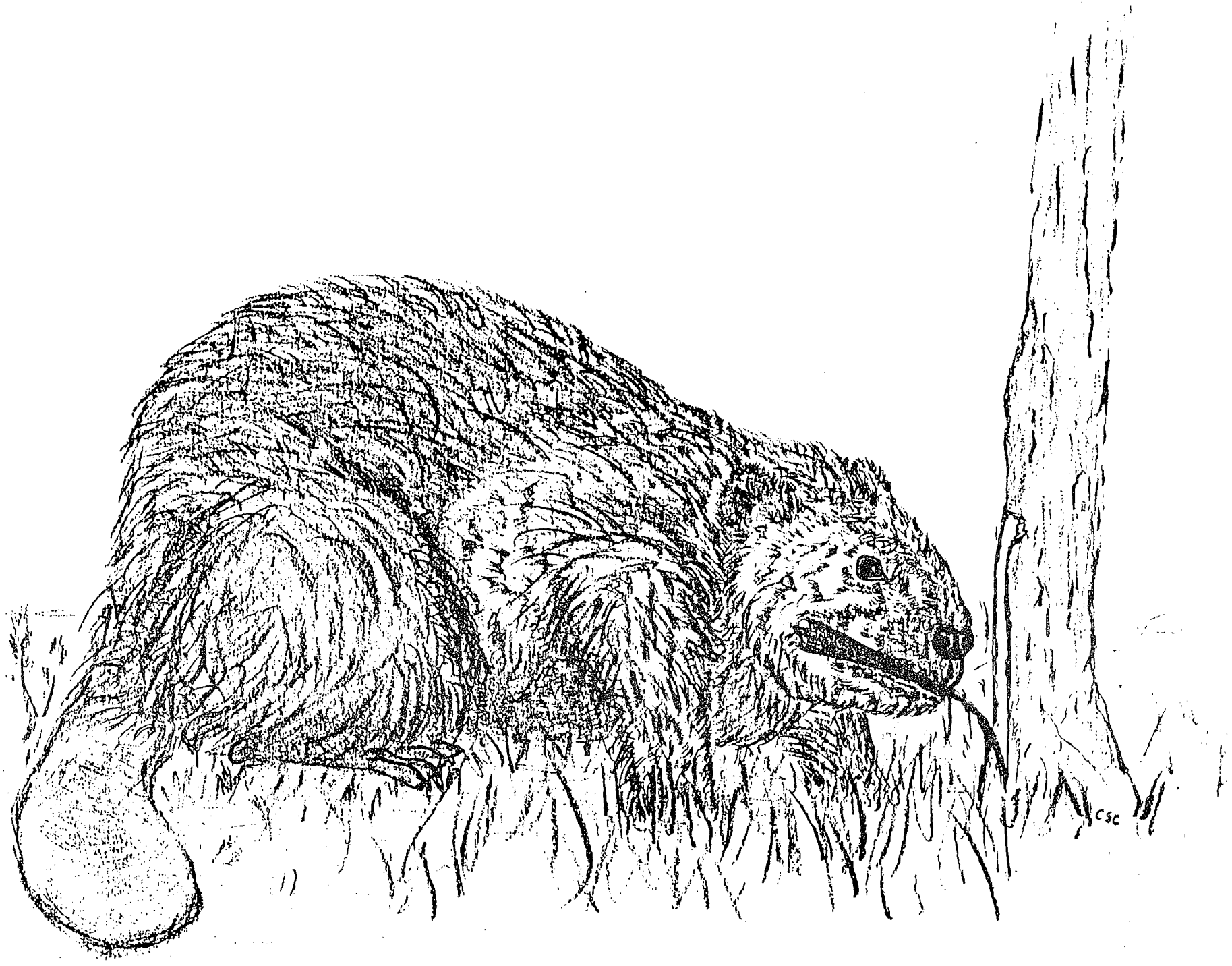
Beavers are extremely well adapted to their environment. They have front feet that can grasp and hold limbs; large, webbed hind feet to propel them through the water; a large, flat, furless tail to steer and slap the surface of the water to warn other beavers of danger; valves that close ears and nose under water; lips behind teeth that permit chewing under water; dense fur to insulate them from the cold water, and more...

Several generations of beavers may share a lodge, which is either built in the center of a pond or along the shore of a stream or river. The lodge usually has an underwater entrance and an escape route.

A beaver can live up to 20 years and attain weights of more than 60 pounds (27 kg).

A beaver has the ability to swim under water for 15 minutes to elude predators, which include bobcat, river otter, fox, and coyote. Young beavers, or "kits", are the predators' most likely prey.

Look for the chisel-like tooth marks on willows and cottonwoods along the River bank. These are the preferred food source.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PORCUPINE (Erethizon dorsatum)

Porcupines are famous for their backsides, which are covered with upwards of 30,000 quills. Contrary to popular belief, porcupines do not throw their quills. However, the quills do detach easily from a porcupine's back when attacked by an unsuspecting predator. The quills are covered with microscopic barbs which allow them to move deeper into the skin becoming nearly impossible to remove. A face full of quills can be fatal to a predator.

Porcupines mate in late fall and produce one youngster in the spring. They sleep all day in logs, tree cavities or in rock piles and wander about at night in search of food. Any vegetation will do, but the inner bark of conifers is preferred. Porcupines kill thousands of conifers every year in Oregon seeking their preferred food, and this makes them unpopular among foresters and loggers.

Although the porcupine does have some predators, only one, the fisher (weasel family), is consistently effective at killing it.

Porcupines can live ten years and weigh up to 20 pounds (9.07 kilograms).

NORTHERN FLYING SQUIRREL (Glaucomys sabrinus)

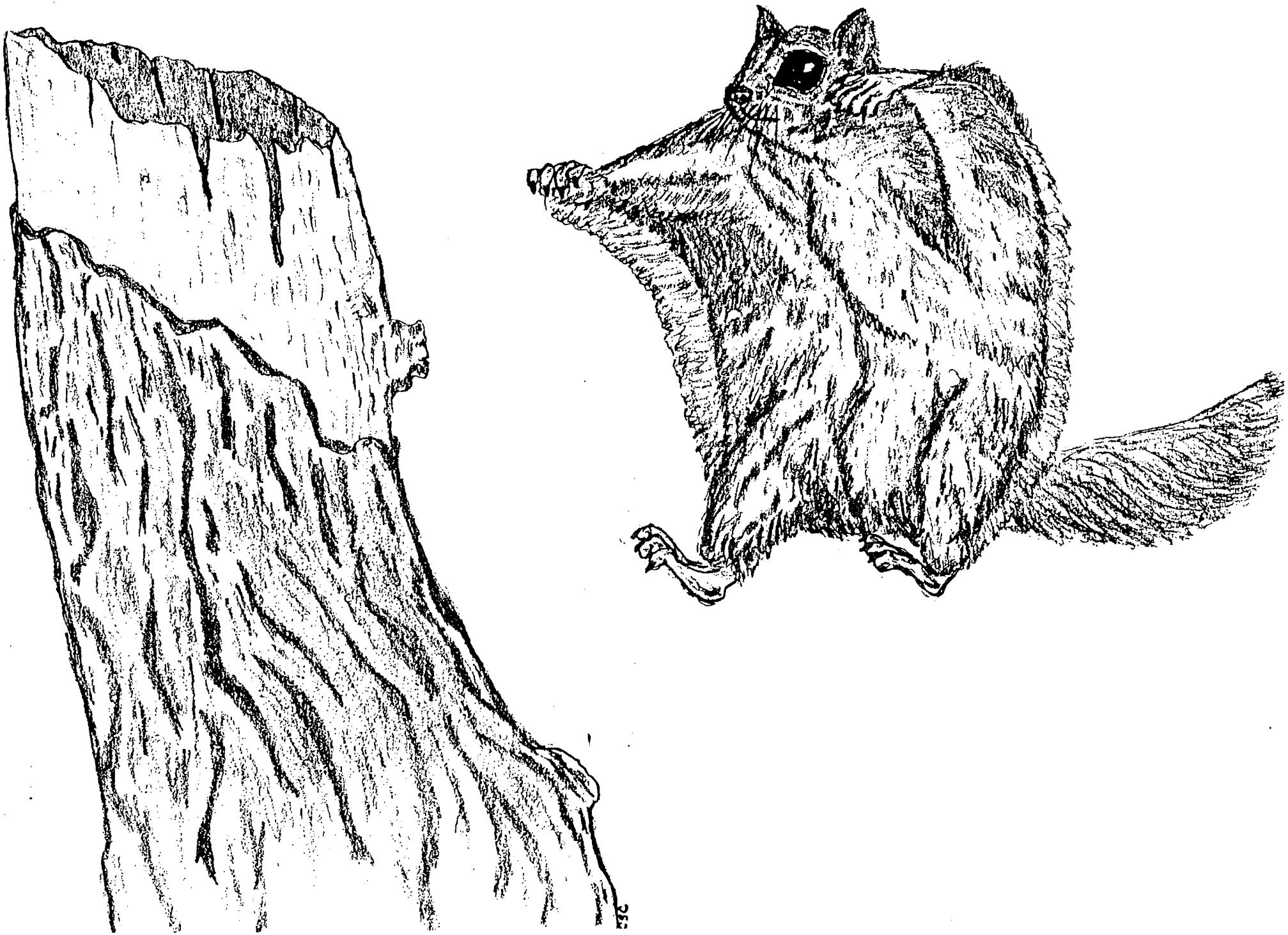
The northern flying squirrel doesn't actually fly, but it can glide. Thanks to "flanking membranes" which are taut when the legs are out-stretched, this shy forest dweller can glide respectable distances, usually from the top of one tree to the lower limbs or trunk of another nearby.

These squirrels mate in the spring and usually produce three to five young. They prefer to nest in tree cavities high above the ground. The food of the northern flying squirrel includes the seeds of deciduous trees and conifers, insects, bird eggs, fungi and lichens.

The flying squirrel is noctural (active at night) and that explains the unusually large eyes and the fact that it is rarely spotted.

Northern flying squirrels are the prey of weasels, bobcats, and especially owls.

You might see the diurnal (active during the day) cousins of this squirrel who reside in Oxbow. They are Townsend's chipmunk, chickaree, and California ground squirrel.



RACCOON (Procyor lotor)

The raccoon is equally at home in the city or suburbs, as it is in the farmer's field or deep forest. Unlike many other forms of wildlife, the raccoon has thrived in the face of encroaching civilization. The raccoon is probably more numerous now than it was when Columbus discovered America.

Raccoons nest in tree cavities and bear two to seven young each spring. Mature animals average 32" (98.2 centimeters) in length and weigh about 20 pounds (9.07 kilograms).

Raccoons are not fussy about food. They will eat just about anything, and because they have front paws with extraordinary dexterity and a well-developed sense of touch, they can open garbage can lids, latches and doors to chicken coops. They have acquired quite a reputation for mischief making.

Raccoons have the curious habit of washing their food in water. Their latin name, "lotor", means "washer". No one knows why they do this, but cleanliness is not the reason.

RIVER OTTER (Lutra canadensis)

River otters are best known for their playfulness. They are particularly fond of sliding down mud or snow banks into the water and they love the company of other otters.

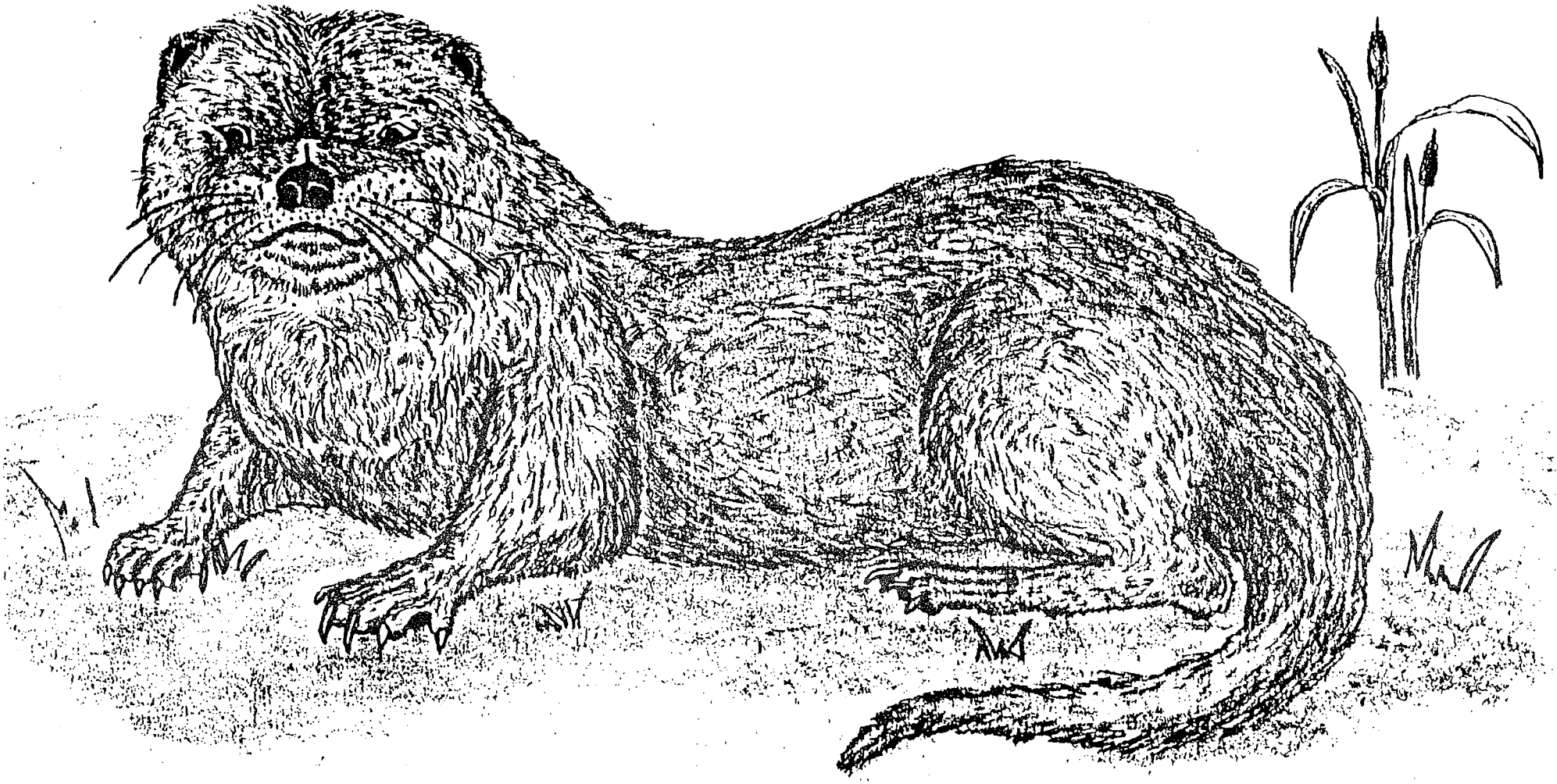
River otters are highly skilled swimmers and fish catchers. They can actually out swim a salmon or trout. This is accomplished by using large, webbed feet and a strong tail, which acts as both rudder and oar in the water.

Short, dense fur insulates an otter from the cold water. Otter pelts are highly prized by trappers, and they were nearly trapped to extinction many years ago. Today, trapping is controlled, however, populations remain sparse.

Adults are as long as 51" (1.3 meters), tail included. Young are born in the spring in a den under the bank of a stream or river. By 12 weeks, young are ready to venture out of the den.

Otters eat fish, crayfish, frogs, insects, and small mammals.

Look for river otters along the Sandy River any time, but your best chance is in the fall when salmon migrate up the Sandy to spawn and die.



BALD EAGLE (Halieetus leucocephalus)

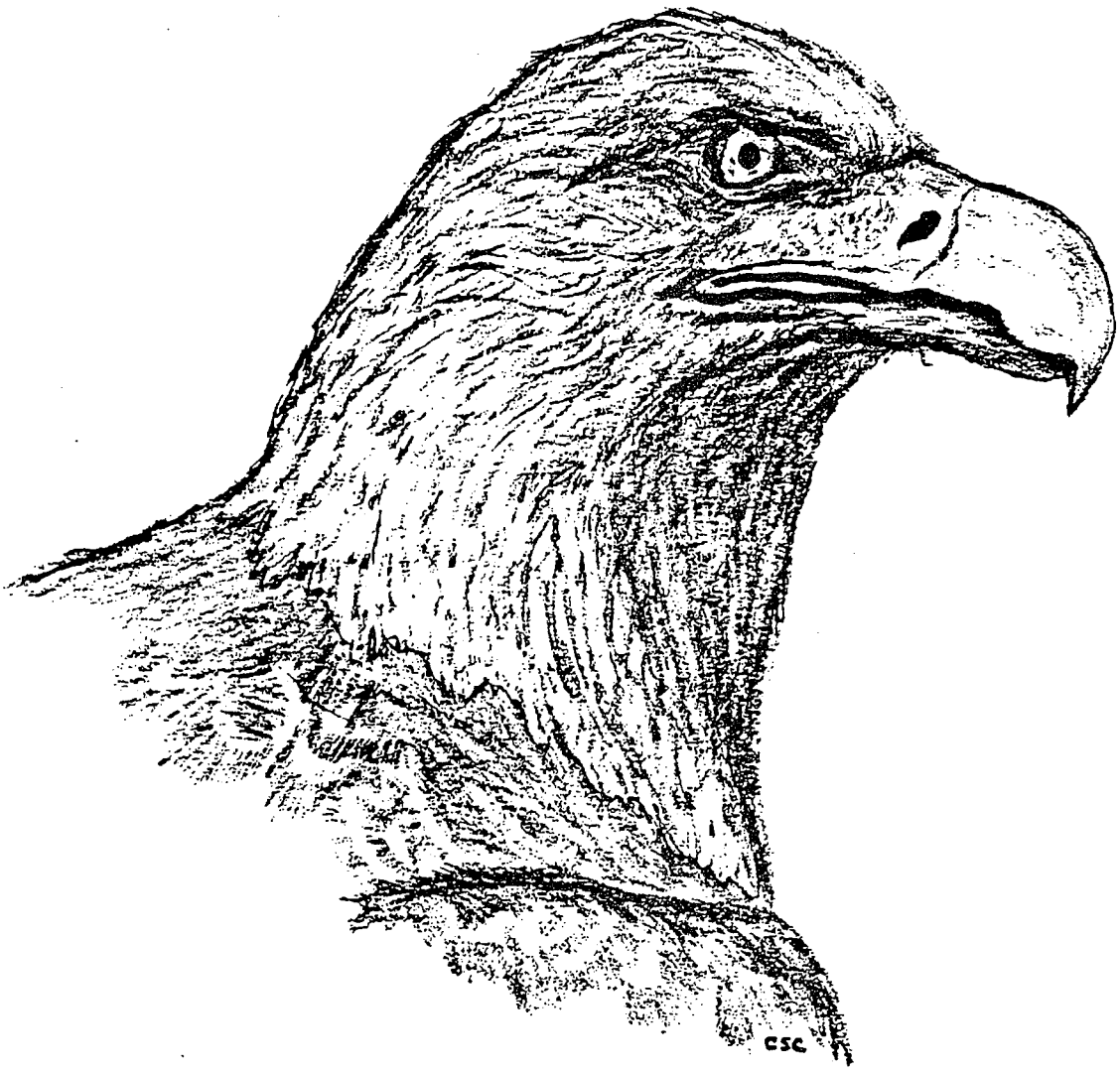
Look for this stately bird during the fall and winter. Wintering bald eagles from the north occasionally search for migrating salmon and steelhead along the Sandy River. Fish are the preferred diet of this bird, but it also will dine on snakes, rodents, carrion , etc.

Once a common sight, our national bird has been shot at, poisoned, electrocuted, and its nesting and hunting grounds ruined to the point that the bald eable is listed as an endangered species in many parts of the country.

Eagles are well equipped for finding and catching prey. They have broad, long wings with a six to seven foot span (1.8 to 1.9 m) which enables them to soar for hours searching for prey. They have extraordinary sight that allows them to spot prey in the brush or in the water from great distances. Long legs, with powerful, razor-sharp talons, enable eagles to grab and quickly kill their prey, and a sharp, hooked beak is used to tear the prey into pieces.

Bald eagles build nests with sticks in large trees or on cliffs and usually lay one or two eggs. Eagles mate for life. Healthy, mature eagles have no predators except man.

A more common sight along the Sandy River is the Osprey which, like the bald eagle, prefers a fish diet and is similarly equipped. Osprey nest in Oxbow and can be seen in the area between the months of April and September.


CSC

LONG-TAILED WEASEL (Mustela frenata)

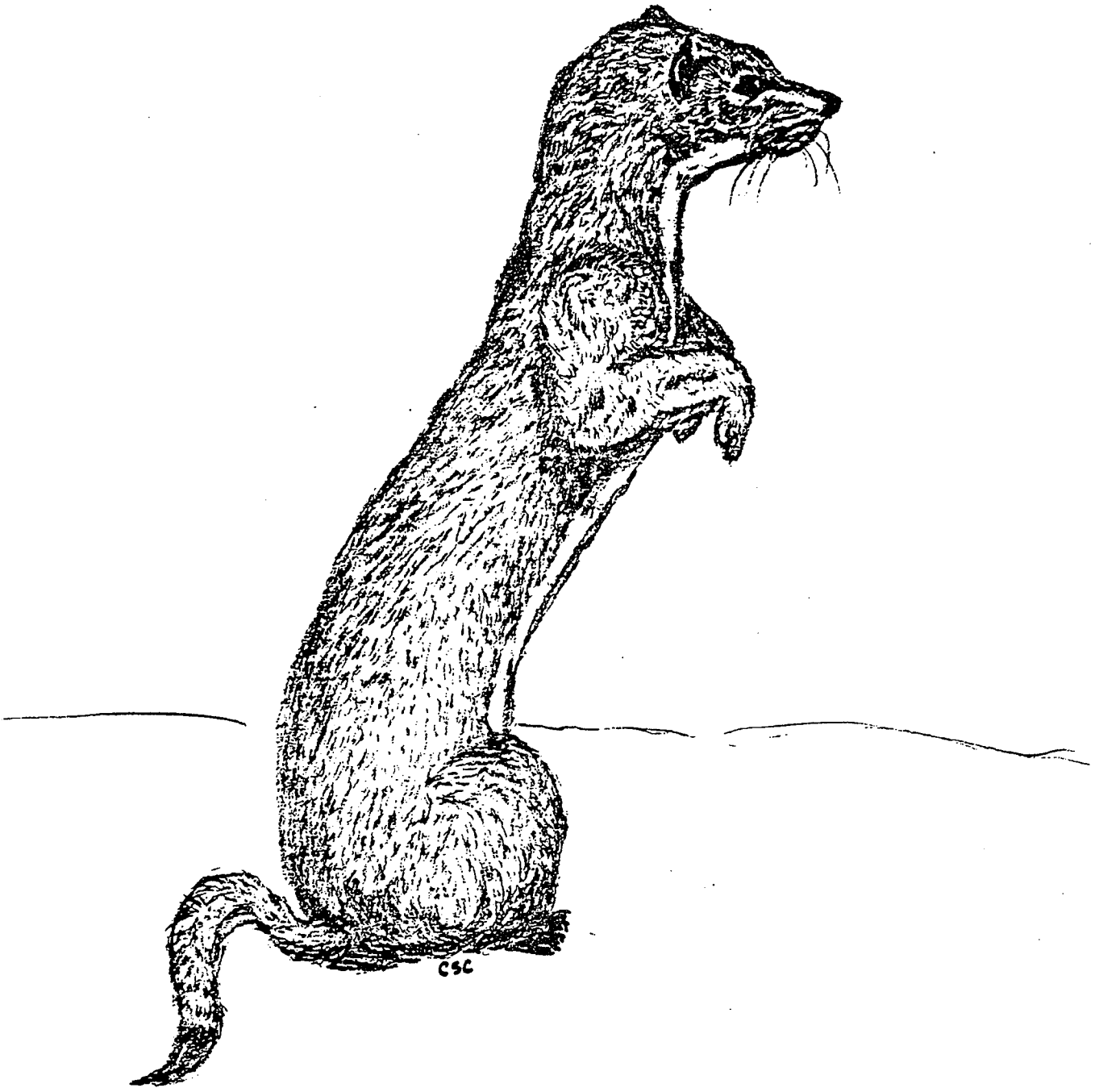
Despite its size, the weasel is an able predator. It can catch and kill animals several times its size. However, weasels prefer mice, squirrels, chipmunks, birds, bird eggs and insects. They will swim and climb trees in pursuit of their prey.

The color of a weasel's coat changes twice each year to blend with the changing forest colors. The tip of the tail is always black.

Weasels breed in mid-summer, and three to nine young are born in the spring. At maturity, the long-tailed weasel is ten or more inches (25.4 centimeters) long, with a four to six inch (10 to 15 centimeter) tail.

The pelt of the weasel is soft, durable and always in demand.

Also, look for the short-tailed weasel, mink and skunk in Oxbow.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BOBCAT (Lynx rufus)

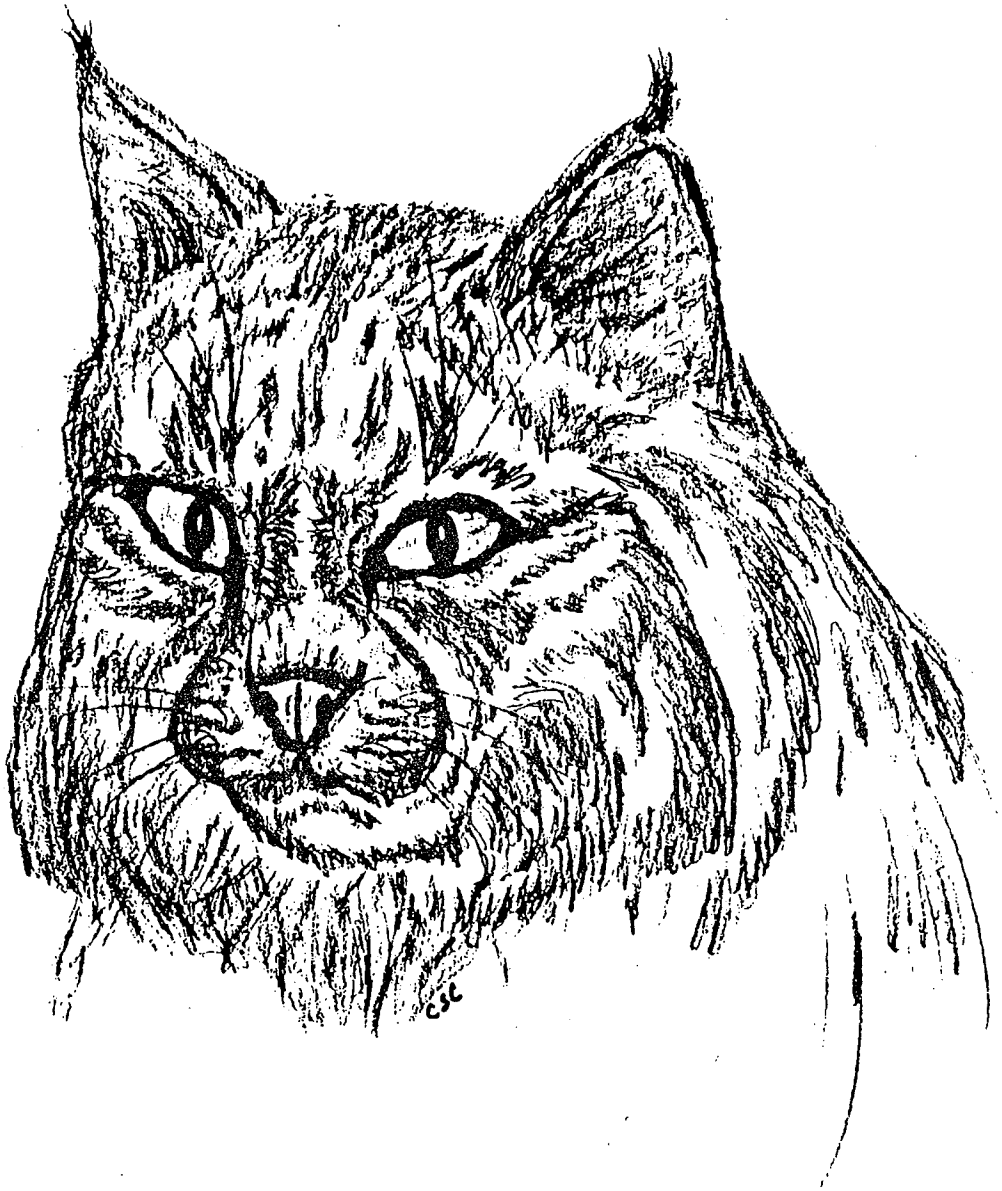
"Secretive" is the best word to describe this predator that stands 14 to 16 inches (35 to 40 cm) and weighs 20 to 30 pounds (9 to 13 kg). Bobcats live solitary lives except at breeding time, which occurs in late winter or early spring. Young stay with the female until they are 9 to 12 months old.

Bobcats use their keen sense of sight, smell and hearing to locate and pursue a wide variety of prey, which includes mice, squirrels, insects, small mammals, birds, and occasionally even a sick fawn. Bobcats will also supplement their diet with some vegetation.

Although bobcats are adaptable to many different habitats, their numbers have declined rapidly in recent years due to heavy trapping pressure. The pelt of a bobcat has brought as much as $500.

Bobcats den in caves, trees, under rock piles or fallen trees. They are most active at night (nocturnal) so it would be a rare treat to see one.

The Sandy Gorge is also home to the rare mountain lion or cougar, which is related to the bobcat but many times larger.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BLACK-TAILED DEER (Odocoileus hemionus columbianus)

Since dogs were banned from Oxbow Park several years ago, sightings of this hoofed mammal have increased considerably. (All types of wildlife are seen more often when domestic dogs are not frequent visitors to an area.)

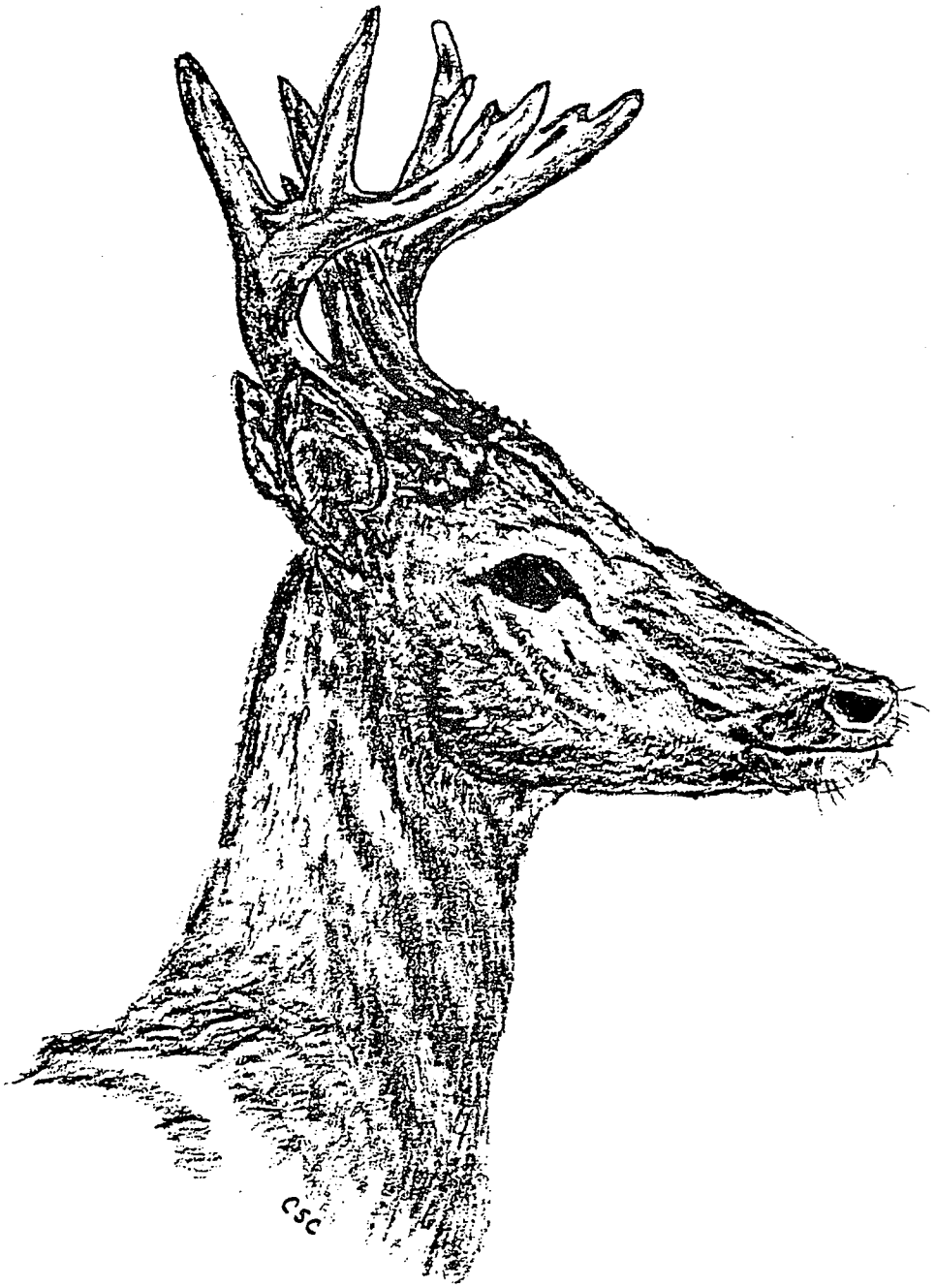
Black-tailed deer, like all hoofed mammals, are exclusively vegetarian. In Oxbow, they feed on all types of lush vegetation, including forbes, grasses, deciduous and coniferous leaves and twigs, wildflowers, salal, etc.

Like many other birds and mammals, the color of this deer's coat changes twice a year to blend better with its surroundings.

Black-tails breed in the fall and one or two young are born in the spring. Males grow antlers during the summer and then shed them after the mating season. A male or "buck" can weight up to 250 pounds (113 kg), and a female or "doe" averages 100 pounds (45 kg).

All deer use their keen senses to detect predators and their speed and agility to elude them.

Occasionally, a larger and shyer cousin of the black-tail wanders through Oxbow. This is the Roosevelt Elk.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RED FOX (Vulpes vulpes)

Like the coyote, this predator has managed to expand its range to include most of the United States.

A farmer who raises chickens may disagree, but the fox's value in rodent control far outweighs the occasional loss of a chicken.

Although red fox prefer to dine on mice, moles, rabbits, eggs, and birds, they will also eat carrion, vegetation, insects, frogs and yes, domestic chickens and ducks.

Red fox seek shelter in the woods but most often hunt the edges of clearings, fence lines and marshy areas.

Red fox are believed to mate for life. A litter averaging five young are born in early spring in an underground den. The young stay with the parents until autumn when they strike out to claim their own territory.

Mature foxes are smaller than they may look-- one third of the 45-inch length is tail.

Oxbow also provides habitat for the red fox's equally shy, tree-climbing cousin, the gray fox.


CSC

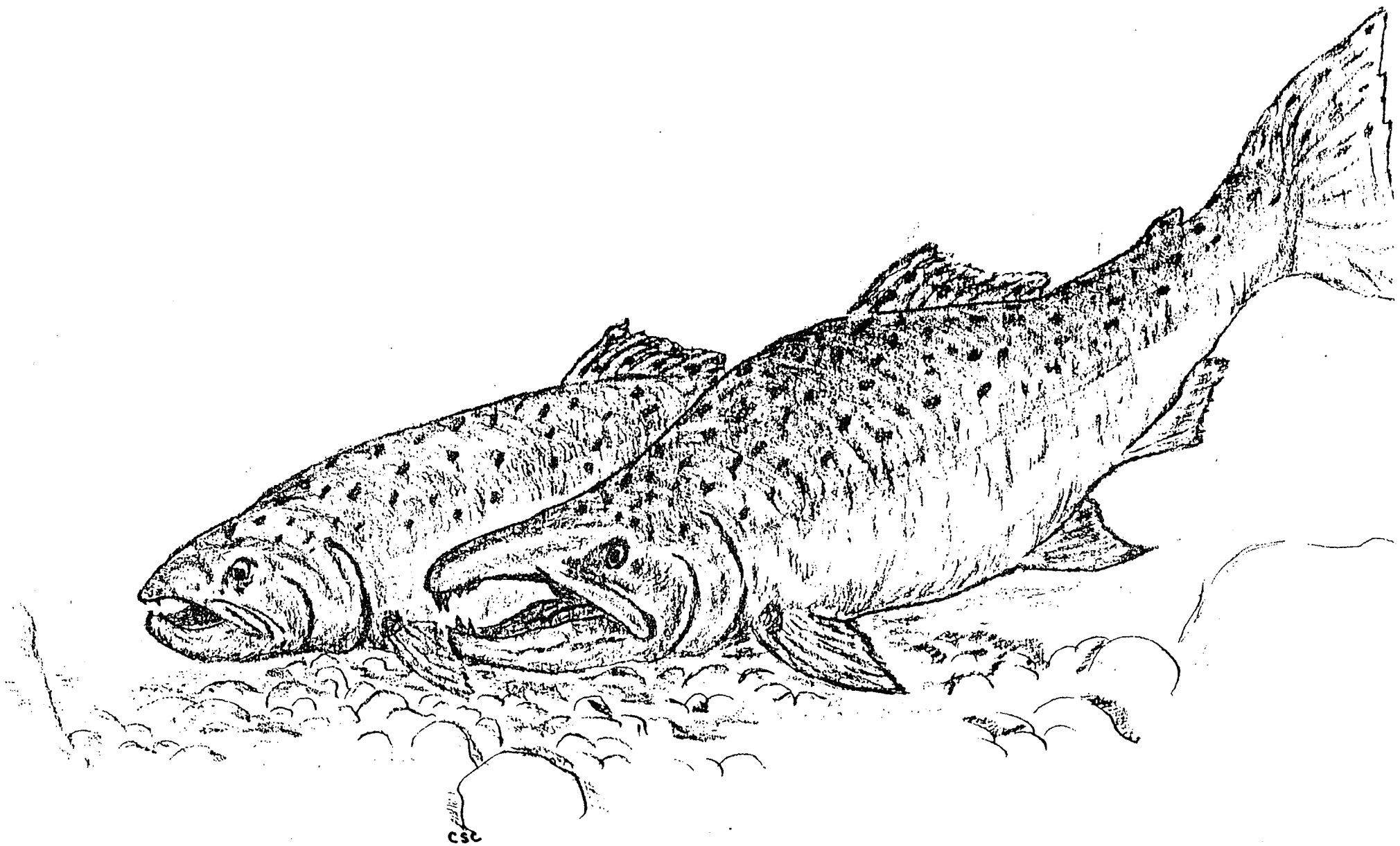
CHINOOK SALMON (Also look for Coho Salmon and Steelhead Trout)

Prior to Lewis and Clark's exploration of the Columbia River, it is believed that 500,000 to 1,000,000 Indians depended on salmon as the main staple in their diet. The Columbia River and all its tributaries were regularly blackened with millions of salmon returning to the places of their birth to spawn and die. The huge quantities of fish harvested by the Indians did not affect the overall salmon population.

Since the Northwest was settled, a combination of factors have contributed to the continuing decline in the numbers of naturally spawning salmon and steelhead. Most notably these include the construction of 14 dams on the mainstem of the Columbia; over-harvesting by ocean trollers, gillnetters, and sports anglers; poor timber harvesting practices which encourage erosion and stream sedimendation; toxic waste dumped into streams and rivers; and irrigation projects which leave spawning areas high and dry during the summer and fall.

Hatchery programs can supplement naturally spawning salmon and steelhead; but in reality, hatcheries depend on natural spawners to maintain a diverse "gene pool" and "brood stock" in the event of few returning adults or loss of fish.

All the various "runs" of salmon and steelhead that migrate up the Sandy River and its tributaries spawn naturally, except for a portion of the Coho salmon which return to the hatchery at Cedar Creek.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CONIFERS OF OXBOW PARK

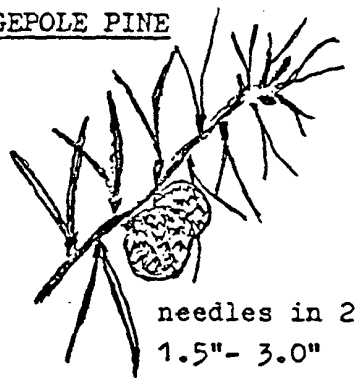
Conifers are the trees with needles or scale-like leaves. All but one of the conifers at the park has a cone.

DOUGLAS FIR

Bottlebrush Needles

Needles arranged like a bottlebrush. Seeds in cone have a pitchfork trail which protrudes between cone scales.

LODGEPOLE PINE



WESTERN HEMLOCK

Short Blunt Needles

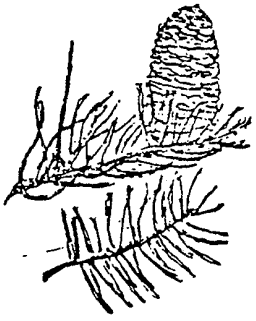
The top of the tree has a droopy top.

WESTERN REDCEDAR

Scale-Like Leaves

Leaves form flat sprays like fern.

GRAND FIR



Flattened Needles

With two white stripes under the needles

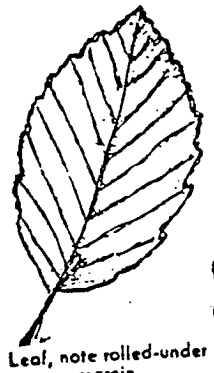
PACIFIC YEW

Flattened Needles - With No Stripes

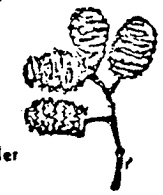
The only conifer with a berry

Drawn by Patricia Hanson and Cathrine Davis Young

COMMON DECIDUOUS TREES AND SHRUBS OF OXBOW PARK



Leaf, note rolled-under margin



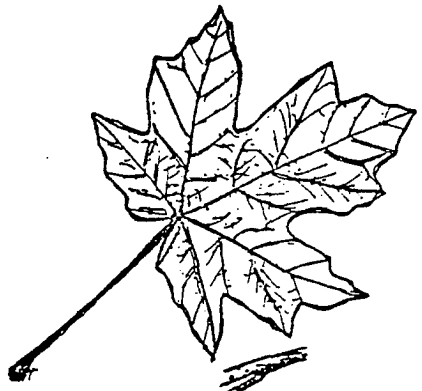
Old conelike catkins

Red alder

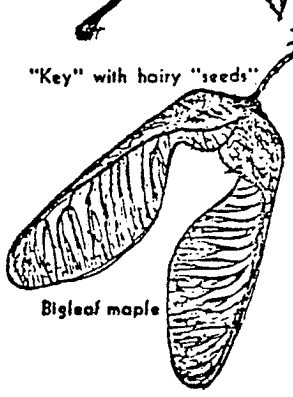
BLACK COTTONWOOD

willow

Oregon ash



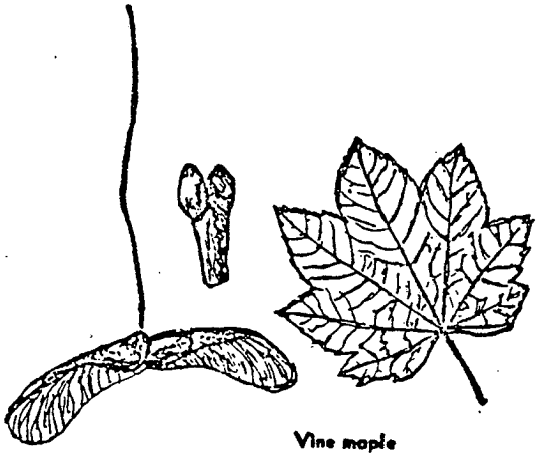
"Key" with hairy "seeds"



Bigleaf maple

Western Hazel

Pacific Dogwood



Vine maple

Ninebark

Drawings by Patricia Hansun and Catherine Davis Young.

Agriculture Handbook No. 503

U.S. Department of Agriculture

COMMON SHRUBS cont.

Salmonberry

Red-Flowering Currant

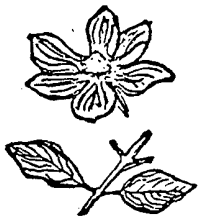
YELLOW FLOWER

Low Oregon Grape

RED FLOWERS

Indian Plum

Red Elderberry



Pacific Dogwood

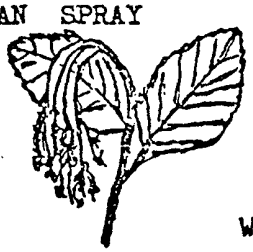
WHITE FLOWERS

Serviceberry

Mock Orange

Thimbleberry

OCEAN SPRAY



WILD ROSE (RED FLOWER)

Forestry Dept. W. H. Ongstrom, artist

Plant list

Primarily from Cazzulino, Kohn and Tada (1977)

Family	Scientific Name	Common Name
1. Equisetaceae	Equisetum arvense	Common horsetail
	Equisetum hyemale	Horsetail
2. Polypodiaceae	Adiantum pedatum	Maidenhair fern
	Asplenium trichomanes	Maidenhair spleenwort
	Athyrium felix-femina	Lady fern
	Blechnum spicant*	Deer fern
	Cystopteris fragilis*	Brittle bladder-fern
	Dryopteris austerica	Mountain wood-fern
	Polypodium glycyrrhiza	Licorice fern
	Polystichum munitum	Sword fern
	Pteridium aquilinum	Bracken fern
	Woodsia oregana*	Woodsia
3. Cupressaceae	Thuja plicata	Western red cedar
4. Pinaceae	Abies grandis*	Grand fir
	Pseudotsuga menziesii	Douglas fir
	Tsuga heterophylla	Western hemlock
5. Araceae	Lysichitum americanum	Skunk cabbage
6. Liliaceae	Allium cernuum*	Nodding onion
	Brodiaea congesta*	Northern s.itas
	Clintonia uniflora	Bead lily
	Disporum smithii	Large-field fairy-bell
	Lilium columbianum	Tiger lily
	Maianthemum dilatatum	False lily-of-the-valley
	Smilacina stellata	Small false Solomon's seal
	Smilacina racemosa	False Solomon's seal

* Species classified as rare by the authors, or rarely encountered in the gorge.

Addition to Pinaceae Pinus Contorta* lodgepole pine

Plant list continued.

Family	Scientific Name	Common Name
6. Liliaceae cont'd	Streptopus amplexifolius var. amplexifolius	Twisted stalk
	Trillium ovatum	White trillium
	Trillium chloropetalum*	Giant trillium
7. Iridaceae	Iris tenax	Oregon iris
8. Orchidaceae	Corallorhiza maculata*	Pacific coral-root
	Goodyera oblongifolia	Rattlesnake-plantain
	Spiranthes romanzoffiana* var. romanzoffiana	Ladies tresses
9. Salicaceae	Populus trichocarpa	Black cottonwood
	Salix fluviatilis*	Columbia River willow
	Salix spp.	Willow
10. Betulaceae	Alnus rubra	Red alder
	Corylus cornuta	Hazelnut
11. Fagaceae	Castanopses chrysophylla	Chinquapin
12. Urticaceae	Urtica dioica var. lyallii	Stinging nettle
13. Polygonaceae	Rumex acetosella	Red sorrel
	Rumex occidentalis var. procerus	Western dock
14. Portulaceae	Montia linearis*	Narrow-leaved montia
	Montia parvifolia var. parvifolia	Little-leaved montia
	Montia perfoliata	Miner's lettuce
	Montia sibirica	Candyflower
15. Caryophyllaceae	Arenaria macrophylla	Big-leaf sandwort
	Cerastium vulgatum	Mouse-eared chickweed
	Dianthus armeria	Grass pink
	Lychnis coronaria	Rose campion
	Silene cucubalus	Bladder campion
	Stellaria longipes	Longstalk starwort
	Stellaria media	Common chickweed
Additions to Orchidaceae	Calypso Bulbosa	Calypso/ lady slipper orchid
	Eburophyton Austinae*	Phantom Orchid

Plant list continued.

Family	Scientific Name	Common Name
16. Ranunculaceae	Anemone deltoidea	Windflower
	Aquilegia formosa	Red columbine
	Cimicifuga elata	Tall bugbane
	Delphinium menziesii var. pyramidale	Larkspur
	Ranunculus occidentalis	Buttercup
	Ranunculus repens var. repens	Buttercup
	Thalictrum occidentale	Meadowrue
17. Berberidaceae	Achlys triphylla	Vanilla leaf
	Berberis aquifolium	Shining Oregon grape
	Berberis nervosa	Dull Oregon grape
	Vancouveria hexandra	Inside-out-flower
18. Fumaraceae	Corydalis scouleri	Corydalis
	Dicentra formosa	Bleeding heart
19.Cruciferae	Arabis glabra	Towermustard
	Arabis hirsuta var. eschscholtziana	Hairy rockcress
	Barbarea orthoceras	Wintercress
	Cardamine pensylvanica	Bittercress
	Erysimum asperum	Wallflower
	Erysimum arencola var. torulosum	Sand-dwelling wallflower
	Hesperis matronalis	Damask violet
	Rorippa nasturtium-aquaticum	Watercress
	Teesdalia nudicaulis	Shepherd's cress
20. Crassulaceae	Sedum spathulifolium	Spatula-leaf stonecrop
21. Saxifragaceae	Heuchera micrantha var. micrantha	Alumroot
	Mitella caulescens	Bishops-cap
	Tellima grandiflora	Fringecup
	Tiarella trifoliata var. trifoliata	Coolwort
	Tolmiea menziesii	Youth-on-age
22. Grossulariaceae	Ribes spp.	Gooseberry

Plant list continued.

Family	Scientific Name	Common Name
23. Hydrangeaceae	Philadelphus lewisii	Mock Orange
24. Rosaceae	Amelanchier alnifolia var. semiintegrifolia	Serviceberry
	Aruncus sylvester	Goatsbeard
	Fragaria vesca var. bracteata	Wood strawberry
	Fragaria virginiana var. platypetala	Broadpetal strawberry
	Holodiscus discolor	Ocean-spray
	Oemleria cerasiformis	Indian plum
	Physocarpus capitatis	Ninebark
	Rosa gymnocarpa	Wood rose
	Rosa nutkana var. nutkana	Wild rose
	Rubus discolor	Himalayan blackberry
	Rubus laciniatus	Evergreen blackberry
	Rubus leucodermis	Black raspberry
	Rubus parviflorus	Thimbleberry
	Rubus spectabilis	Salmonberry
	Rubus ursinus	Pacific blackberry
	Spiraea douglasii var. douglasii	Spirea
25. Leguminosae	Cytisus scoparius	Scotch broom
	Cytisus scoparius var. andreanus	Scotch broom
	Lathyrus torreyi	Sweet-pea
	Lotus corniculatus	Deervetch
	Lotus crassifolius var. subglaber	Big deervetch
	Lotus micranthus	Small-flowered deervetch
	Lupinus latifolius var. latifolius	Broadleaf lupine
	Psoralea physodes	California-tea
	Thermopsis montana var. venosa	Buck-bean
	Trifolium dubium	Suckling clover
	Trifolium pratense	Red clover
	Trifolium repens	White clover

Plant list continued.

Family	Scientific Name	Common Name
Leguminosae cont'd	Vicia cracca	Bird vetch
	Vicia sativa var. angustifolia	Common vetch
26. Geraniaceae	Geranium pusillum	Geranium
27. Oxalidaceae	Oxalis oregana	Oregon wood-sorrel
	Oxalis suksdorfii	Yellow oxalis
	Oxalis trilliifolia	Great oxalis
28. Anarcardiaceae	Rhus diversiloba	Poison oak
29. Aceraceae	Acer circinatum	Vine maple
	Acer macrophyllum	Big-leaf maple
30. Rhamnaceae	Ceanothus sanguineus*	Oregon tea-tree
	Rhamnus purshiana	Cascara
31. Hypericaceae	Hypericum anagalloides*	Bog St. John's-wort
	Hypericum perforatum	Common St, John's-wort
32. Onagraceae	Circaea alpina	Enchanter's nightshade
	Epilobium angustifolium	Fireweed
	Epilobium watsonii var. occidentale	Willow-weed
	Oenothera strigosa	Evening-primrose
33. Umbelliferae	Cicuta douglasii	Water-hemlock
	Conium maculatum	Poison-hemlock
	Daucus carota	Wild carrot
	Heracleum lanatum	Cow-parsnip
	Lomatium nudicaule*	Barestem lomatium
	Oenanthe sarmentosa	Water-parsley
	Osmorhiza chilensis	Mountain sweet cicely
	Sanicula crassicaulis var. crassicaulis	Pacific sanicle
34. Cornaceae	Cornus nuttallii	Pacific dogwood
	Cornus stolonifera var. occidentalis	Creek dogwood

Plant list continued.

Family	Scientific Name	Common Name
35. Ericaceae	Arctostaphylos uva-ursi	Kinnikinnic
	Chimaphila menziesii*	Little pipsissewa
	Chimaphila umbellata*	Prince's-pine
	Gaultheria shallon	Salal
	Monotropa uniflora	Indian-pipe
	Vaccinium parvifolium	Red huckleberry
36. Primulaceae	Trientalis latifolia	Starflower
37. Oleaceae	Fraxinus latifolia	Oregon ash
38. Gentianaceae	Centaurium umbellatum	Common centaury
39. Apocynaceae	Apocynum androsaemifolium var. androsaemifolium	Spreading dogbane
40. Polemoniaceae	Collomia heterophylla	Collomia
41. Hydrophyllaceae	Hydrophyllum tenuipes	Pacific waterleaf
	Nemophila parviflora var. parviflora	Nemophila
	Phacelia nemoralis	Woodland phacelia
42. Boraginaceae	Myosotis discolor	Yellow-and-blue forget-me-not
	Myosotis scorpioides	Common forget-me-not
43. Labiatae	Glecoma hederacea	Creeping Charlie
	Lycopus americanus	Cut-leaved water horehound
	Mentha arvensis	Field mint
	Mentha piperita	Peppermint
	Prunella vulgaris	Self-heal
	Satureja douglasii	Yerba buena
	Stachys cooleyae	Great betony
	Stachys mexicana	Mexican betony
44. Solanaceae	Solanum dulcamara	Bittersweet nightshade
45. Scrophulariaceae	Castilleja hispida var. hispida	Harsh paintbrush
	Collinsia grandiflora	Blue-eyed Mary
	Collinsia parviflora	Small-flowered blue-eyed Mary
	Digitalis purpurea	Foxglove

Plant list continued.

Family	Scientific Name	Common Name
Scrophulariaceae continued		
	Linaria vulgaris*	Butter-and-eggs
	Mimulus guttatus var. guttatus	Yellow monkey-flower
	Mimulus lewisii*	Great purple monkey-flower
	Mimulus moschatus var. sessilifolius	Musk-flower
	Penstemon serrulatus	Cascade penstemon
	Veronica americana	American brooklime
	Veronica persica*	Persian speedwell
46. Plantaginaceae	Plantago lanceolata	English plantain
	Plantago major var. major	Common plantain
47. Rubiaceae	Galium oreganum	Oregon bedstraw
	Galium triflorum	Fragrant bedstraw
48. Caprifoliaceae	Linnaea borealis	Twinflower
	Lonicera ciliosa	Orange honeysuckle
	Lonicera involucrata* var. involucrata	Black twin-berry
	Sambucus cerulea	Blue elderberry
	Sambucus racemosa var. arborescens	Red elderberry
	Symphoricarpos albus var. laevigatus	Snowberry
49. Cucurbitaceae	Marah oreganus	Wild cucumber
50. Campanulaceae	Campanula scouleri	Bellflower
51. Compositae	Achillea millefolium	Yarrow
	Adenocaulon bicolor	Pathfinder
	Anaphalis margaritacea	Pearly-everlasting
	Antennaria dimorpha	Low pussy-toes
	Arnica amplexicaulis var. amplexicaulis	Streambank arnica
	Artemisia douglasiana	Douglas' sagebrush
	Centaurea jacea	Brown knapweed
	Chrysanthemum leucanthemum	Oxeye-daisy

Plant list continued.

Family	Scientific Name	Common Name
Compositae continued		
	Chrysopsis oregona	Oregon goldaster
	Cirsium arvense	Canada thistle
	Erigeron philadelphicus	Philadelphia daisy
	Erigeron speciosus var. speciosus	Showy fleabane
	Eriophyllum lanatum var. lanatum	Wooly sunflower
	Hieracium albiflorum	White-flowered hawkweed
	Hypochaeris radicata	Hairy cats-ear
	Lactuca muralis	Wall lettuce
	Lactuca serriola	Prickly lettuce
	Petasites frigidus var. palmatus	Coltsfoot
	Senecio jacobaea	Tansy ragwort
	Senecio macounii	Puget butterweed
	Solidago canadensis var. salebrosa	Meadow goldenrod
	Sochus asper	Prickly sow-thistle
	Sonchus oleraceus	Common sow-thistle
	Tragopogon dubius*	Yellow salsify
52. Aquifoliaceae	Ilex spp.	Holly
53. Violaceae	Viola glabella	Stream violet

BIRDS OF THE SANDY GORGE

MULTNOMAH COUNTY

Non-consumptive uses of wildlife have increased rapidly during the last decade. Bird-watching, in particular, has become a popular leisure activity for many recreationists. Bird-watching requires minimal equipment(only a field guide and binoculars are needed) and can be done practically anywhere.

Locating and identifying birds in their natural habitat can be a rewarding endeavor. However, the greatest benefit is derived by getting to know the "lifestyle" of the birds one has identified. Food and water requirements,cover preferences, migration habits, and courting displays vary greatly from species to species. So vast is this subject, ornithologists are only beginning to understand avian behavior and ecology.

The following list contains birds that are known to exist or are expected to exist in the Sandy River Gorge. Please refrain from using taped bird songs as this practice can disturb the nesting efforts of certain species.

RAPTORS

_bald eagle
_osprey
_turkey vulture
_Cooper's hawk
_sharp-shinned hawk
_red-tailed hawk
_American kestrel
_pygmy owl
_short-eared owl
_great horned owl
_northern spotted owl
_screech owl
_saw-whet owl

SHOREBIRDS

_great blue heron
_green heron
_spotted sandpiper
_killdeer

WATERFOWL

_Canada goose
_mallard
_common teal
_harlequin duck
_common merganser
_hooded merganser
_wood duck
_bufflehead
_ring-necked duck
_western grebe

UPLAND GAME BIRDS

_ring-necked pheasant
_ruffed grouse
_blue grouse
_mountain quail

WOODPECKERS

_pileated woodpecker
_hairy woodpecker
_downy woodpecker
_red-shafted flicker
_yellow-bellied sapsucker
_red-breasted sapsucker

MISC.

_belted kingfisher
_common nighthawk
_Vaux's swift
_barn swallow
_violet-green swallow
_tree swallow
_bank swallow
_rough-winged swallow
_rufous hummingbird

OVER

SONG BIRDS

_western flycatcher
_willow and alder flycatcher
_western wood pewee
_Stellar's jay
_scrub jay
_common crow
_raven
_black-capped chickadee
_chestnut-backed chickadee
_bushtit
_dipper
_white-breasted nuthatch
_red-breasted nuthatch
_brown creeper
_winter wren
_Bewick's wren
_robin
_varied thrush
_Swainson's thrush
_golden-crowned kinglet
_ruby-crowned kinglet
_cedar waxwing
_Hutton's vireo
_black-throated grey warbler
_Audubon's warbler
_Townsend's warbler
_orange-crowned warbler
_Nashville warbler
_MacGillivray's warbler
_Wilson's warbler
_western tanager
_evening grosbeak
_black-headed grosbeak
_purple finch
_rufus-sided towhee
_Oregon junco
_song sparrow
_American goldfinch
_white-crowned sparrow
_brown-headed cowbird

ADDITIONS

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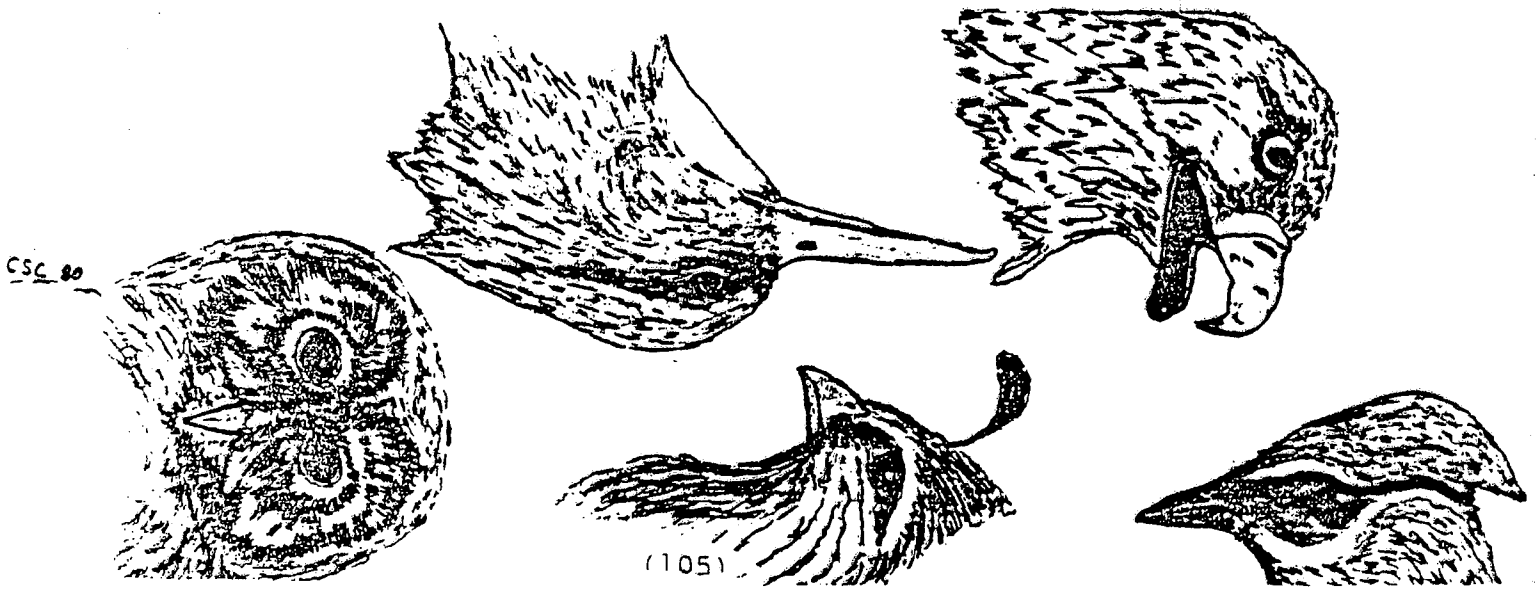
NOTE: Not all species listed are full-time residents of the Sandy River Gorge. Some are present during certain seasons while others only pass through the area during seasonal migrations.

SOURCES

1. Oregon State Fish and Wildlife Dept.-- 1972
2. "THE SANDY RIVER GORGE PRESERVE: A BIOPHYSICAL INVENTORY WITH MANAGEMENT RECOMMENDATIONS" by Cheryl B. Lowe and Jane I. Lawyer for the Oregon Chapter of The Nature Conservancy -- 1979
3. Personal observations of the Oxbow Park Staff -- ongoing



Mammals Known or Believed to be Present in the Sandy River Gorge

SOURCES: Oregon Department of Fish and Wildlife, Atlas of Oregon, University of Oregon, 1976; Oxbow Park Staff

Observed= O Rare= R, according to Oregon National Heritage Program
Expected= E special species list
Occasional= Oc)
rare (in Gorge)= r) according to Oregon State Game Commission

ORDER	SCIENTIFIC NAME	COMMON NAME	NOTES
Marcupialia	Didelphis virginiana	opossom	O
Insectivora	Neurotrichus gibbsi	shrew mole	E
	Scapanus sp.	mole	E
	Sorex vagrans	vagrant shrew	E
Lagomorpha	Sylvilagus bachmani	brush rabbit	O
Rodentia	Aplodontia rufa	mountain beaver	O
	Castor canadensis	beaver	O
	Eutamias townsendi	Townsend's chipmunk	O
	Erethizon dorsatim	porcupine	O
	Glaucomys sabrinus	northern flying squirrel	O
	Neotoma cinerea	bushy-tailed wood rat	O
	Peromyscus maniculatus	deer mouse	O
	Phenacompys sp.	tree mouse	O
	Tamiasciurus douglasii	chickaree	O
	Thomomys mazama	Mazama pocket gopher	E
	Spermophilus beecheyi	Calif. ground squirrel	O
Carnivora	Canis latrans	coyote	O
	Felis concolor	cougar	Er
	Lutra canadensis	river otter	Or
	Lynx rufus	bobcat	O
	Mephitis mephitis	striped skunk	O
	Mustela erminea	short-tailed weasel	O
	M. frenata	long-tailed weasel	E
	M. vison	mink	O
	Procyon lotor	raccoon	O

Mammals, cont'd.

ORDER	SCIENTIFIC NAME	COMMON NAME	NOTES
Carnivora	Spilogale putorius	spotted skunk	0
	Ursus americanus	black bear	00c
	Vulpes vulpes	red fox	0
Artiodactyle	Odocoileus hemionus	blacktail deer	0
	Cervus canadensis	Roosevelt elk	00c
Chiropterans	Misc. bat sp.		0
Rodentia	Lepus californicus	black-tailed jack rabbit	00c
	Microtus sp.	voles	0
	Neotoma cinerea	bushy-tailed wood rat	0
	Ondatra zibethicus	muskrat	0
	Myocastor coypus	nutria	E
Carnivora (additions)			
	Urocyon cinereoargenteus	gray fox	E
	Martes pennanti	fisher	E
	Martes americana	marten	E

Fish Known or Believed to be Present in the Sandy River

Source: Oregon State Game Commission

ORDER	SCIENTIFIC NAME	COMMON NAME
Petromyzontiformes	Lampetra tridentata	Pacific lamprey
Salmoniformes	Salmo clarki	sea run cutthroat trout
	S. gairdneri	steelhead trout
	Oncorhynchus kisutch	coho salmon
	O. tshawytscha	chinook salmon
Cypriniformes	Catostomus spp	suckers
	Acrocheilus alutaceus	northern chiselmouth
	Ptychocheilus oregonensis	northern squawfish
	Rhinichthys spp	dace
	Cyprinus carpio	carp
Perciformes	Cottus spp.	sculpin
Clupeiformes	Thaleichthys pacificus	Columbia River Smelt
	Prosopium williamsoni	mountain whitefish

Estimated Numbers of Sandy River Salmon and Steelhead

Source: Sandy River Subbasin Salmon and Steelhead Plan January 1, 1990

NAME OF FISH	Average Sport Catch	Average Dam Count	Average Estimated Escapement	Estimated Run Size	Data Years
* Late Fall (Winter) Chinook Salmon	*	(NA)	*	*	1985-1987
* Fall Chinook Salmon	290	(NA)	1,050	1,340	1975-1987
** Spring Chinook Salmon	1,709	748	748	2,457	1978-1987
** Winter Steelhead	8,370	2,734	2,734	11,104	1979-1986
** Summer Steelhead	4,416	3,234	1,182	5,598	1977-1987
*** Coho Salmon	1,277	880	880	12,841	1975-1986
**** Late Wild Coho Salmon	****	****	****	****	1975-1987

* Late Fall (winter) Chinook Salmon run is in serious danger of extinction. No redds or adult spawning fish have been sighted in the past several years. There are not dam counts because Fall Chinook spawn in the lower river and tributaries below Marmot Dam.

** Enhanced in State fish hatchery program.

*** Sandy River hatchery produces Coho Salmon. Most Coho Salmon returning to the Sandy River return to the hatchery.

**** Naturally produced late-run Coho are nearly extinct in the tributaries of the Sandy River.

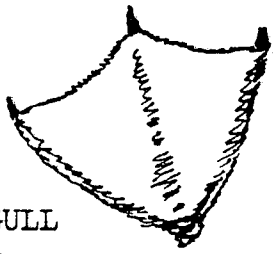
Amphibians and Reptiles Known or Believed to be Present in the Sandy River Gorge

Source: Oregon State Game Commission

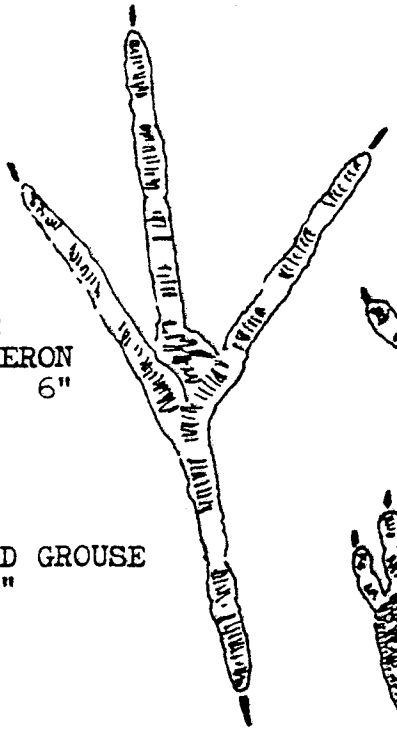
Observed= O Rare= R, according to Oregon Natural Heritage Program special species list

Expected= E

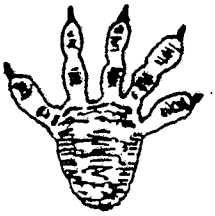
ORDER	SCIENTIFIC NAME	COMMON NAME	NOTES
Amphibia	Ambystoma macrodactylum	long-toed salamander	E
	Dicamptodon ensatus	Pacific giant salamander	R
	Rhyacotriton olympicus	Olympic salamander	E
	Taricha granulosa	rough-skinned newt	O
	Plethodon dunni	Dunn's salamander	E
	Ensatina eschschotzi	Oregon salamander	E
	Batrachoseps wrighti	Oregon slender salamander	R
	Plethodon vehiculum	western red-backed salamander	E
	Bufo boreas	western toad	E
	Hyla regilla	Pacific tree frog	O
	Rana aurora	red-legged frog	E
	Eumeces skiltonianus	western skink	O
Reptilia	Gerrhonotus coeruleus	northern alligator lizard	E
	Charina bottae	rubber boa	E
	Thamnophis sirtalis	common garter snake	O

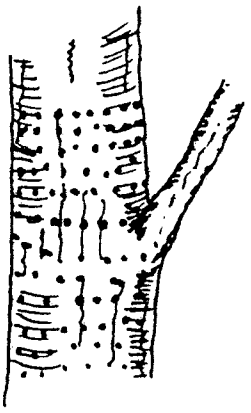


SEA GULL
3-1/8"

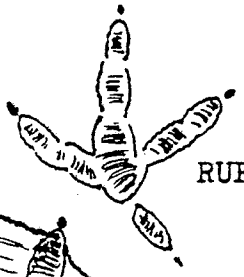


GREAT
BLUE
HERON
6"



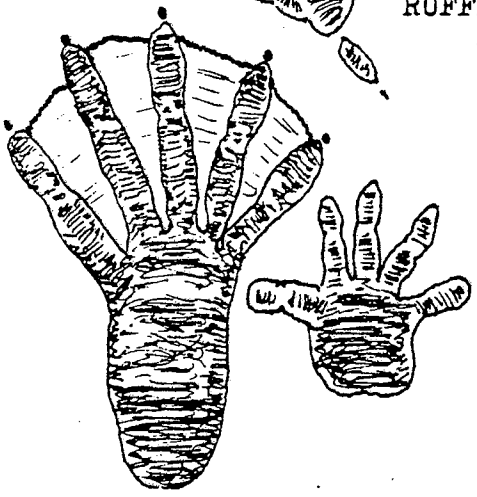


SAPSUCKER



RUFFED GROUSE
2"

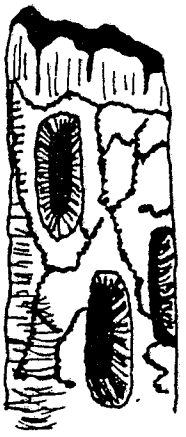
RACCOON
3-3/4"



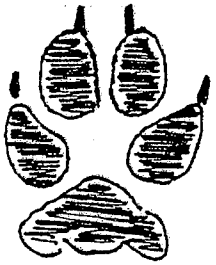
BEAVER -- 4-5"

LIFE SIGNS

C.S.C. '81

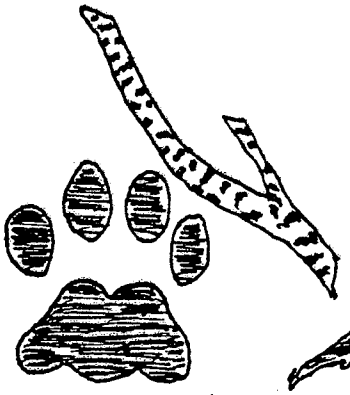


PILEATED WOODPECKER

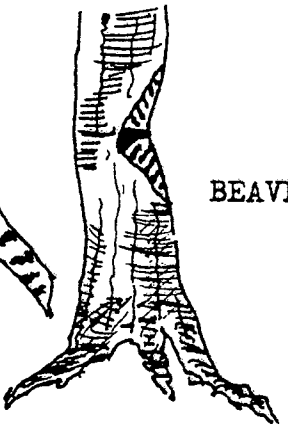


COYOTE 2.5"

COTTON TAIL
RABBIT
1-2"



BOBCAT 1-3/4"

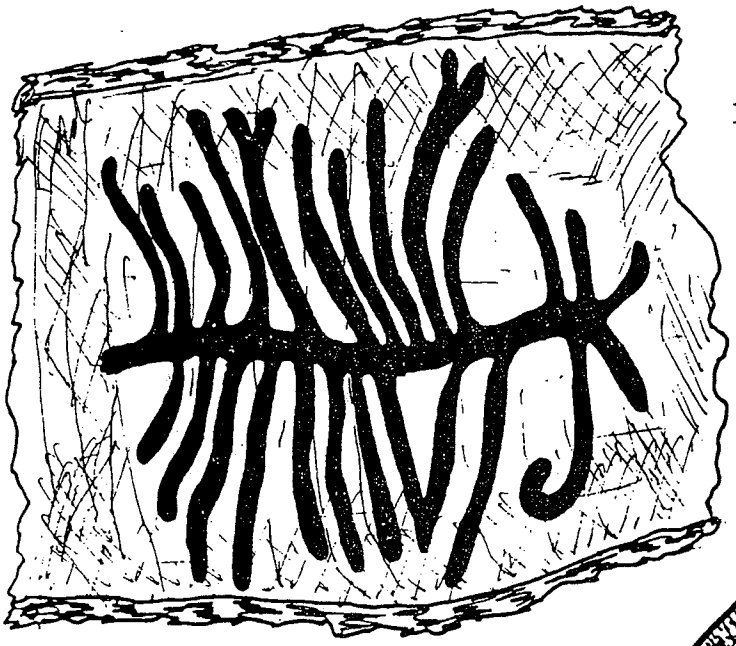


BEAVER

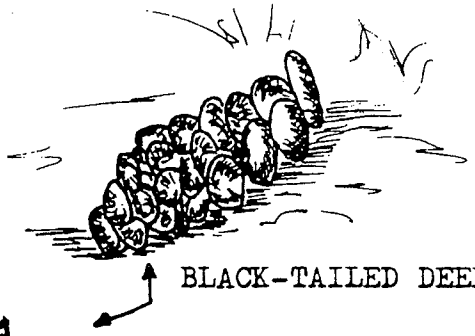
OPOSSUM
2"

FIR CONE
EATEN BY
DOUGLAS SQUIRREL

RUFFED
GROUSE

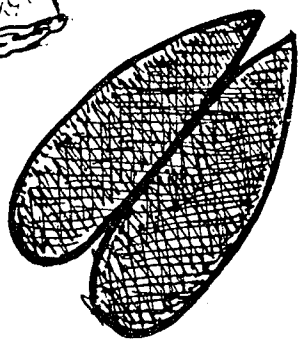


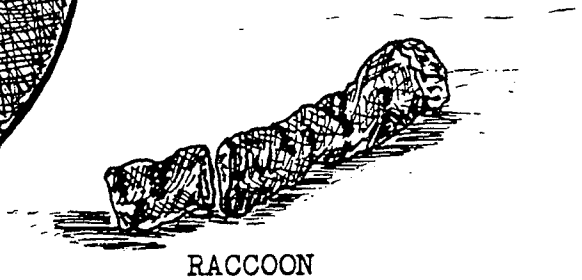
EXCAVATIONS OF BARK BEETLE LARVAE



BLACK-TAILED DEER

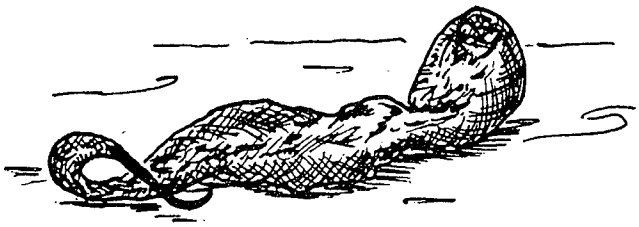
3"



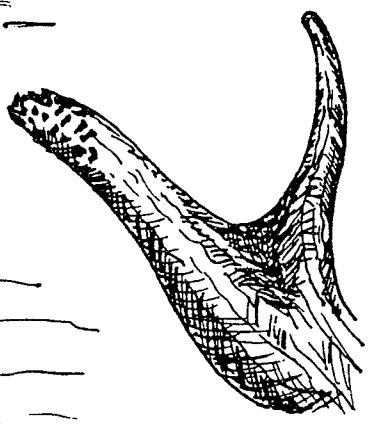


RACCOON

COYOTE

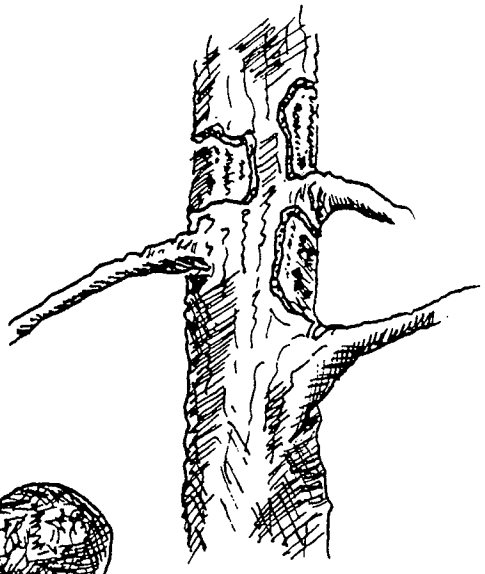


GNAW MARKS OF PORCUPINE

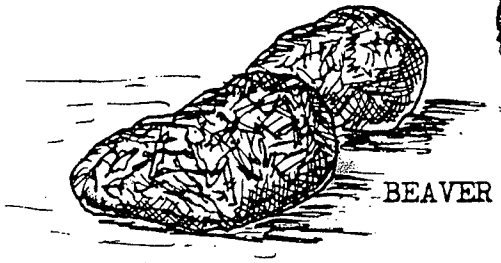


RODENT CHEWED ANTLER

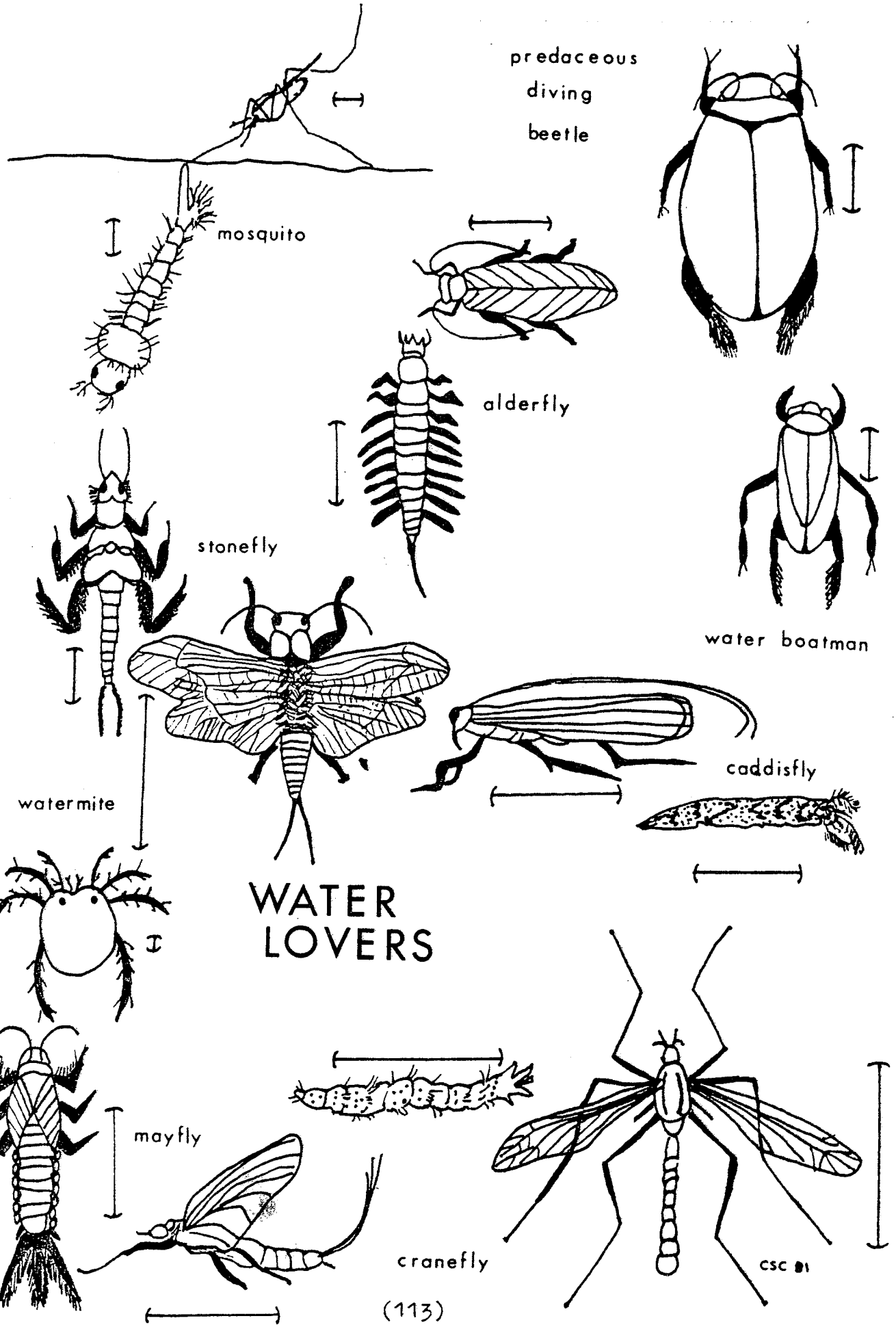
BOBCAT



RIVER OTTER 1-5/8"



BEAVER


predaceous
diving
beetle
mosquito
alderfly
stonefly
water boatman
watermite
caddisfly
WATER
LOVERS
mayfly
cranefly
csc 81

SOURCES

Geology:

Scenic Water Study: Sandy River, Oregon State Highway Division, 1972.

The Sandy River Gorge Preserve, A Biophysical Inventory with Management Recommendations, for the Nature Conservancy, Cheryl B. Lowe and Jane R. Lawyer, 1979.

Geology of the Northern Cascades, Dick McQueen, Science Specialist, MCESD, 1978.

Recent Eruptive History of Mt. Hood, Oregon and Potential Hazards from Future Eruptions, Dwight R. Crandell, Geological Survey Bulletin #1492, 1980.

(Edited by Dr. Len Palmer, Hydrogeologist- Portland St. Univ.)

Profiles of Hard-to-find Residents:

Little Mammals of the Pacific Northwest, Ellen B. Kritzman.

Outdoor Almanac, by Oregon Department of Fish and Wildlife.

Wild Animals of North America, by the National Geographic Society.

History:

Lewis and Clark Journals

Norwood and Elizabeth Johnson (area residents)

Walter and Selma Hossner (area residents)

Oregon Fish and Wildlife Department (Lands Section)

Bureau of Land Management (Salem District Office)

Lance Houck (area resident and former Parks employee)

Arlene Marble (area resident)

Dr. John Woodward (Professor of Archaeology, MHCC)

Multnomah County Parks files