

EPA 910/R-009

United States
Environmental Protection
Agency

Region 10
1200 Sixth Avenue
Seattle WA 98101

Alaska
Idaho
Oregon
Washington

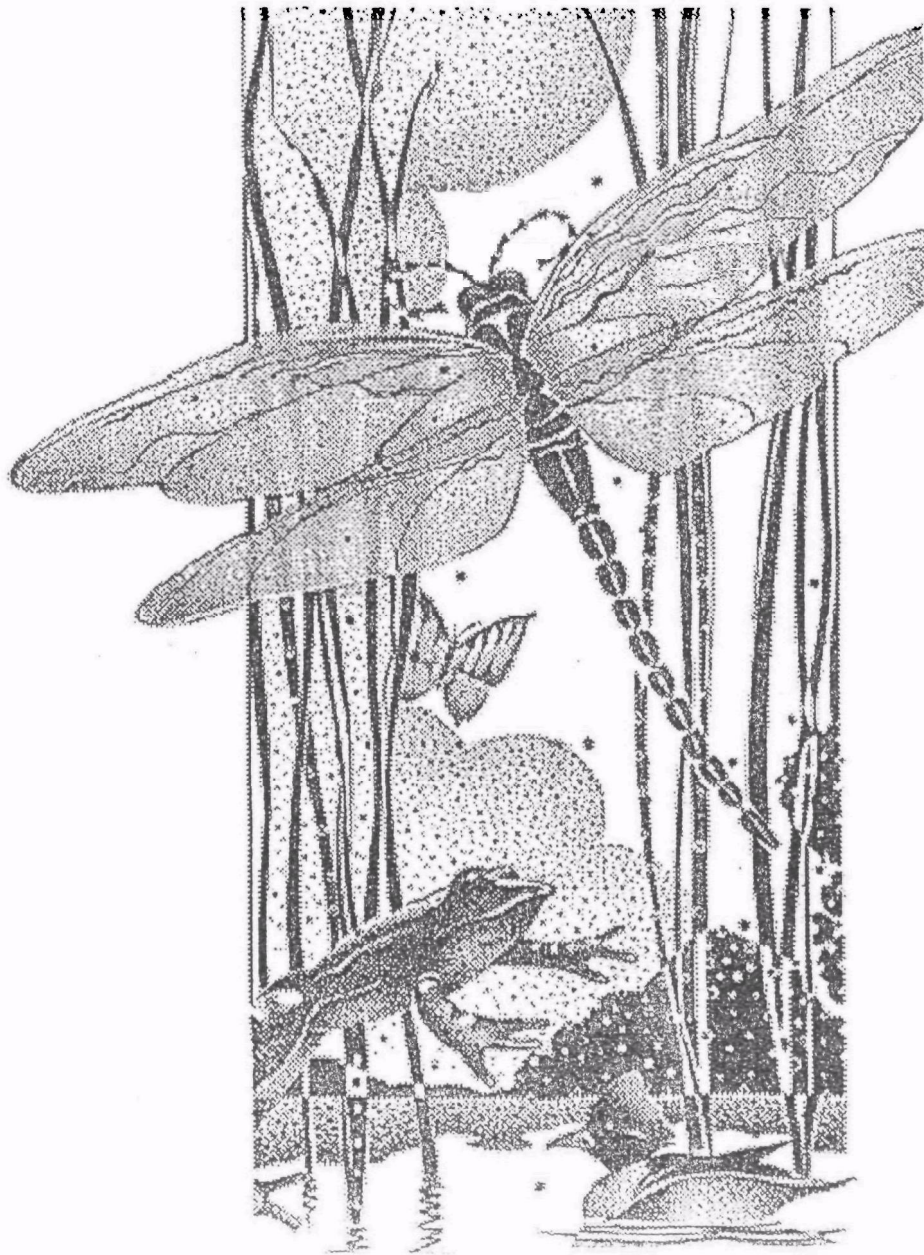
Office of Water

October 1996



Wetland Walk Manual

A Guidebook for Citizen Participation



Introduction

The U.S. Environmental Protection Agency (EPA) is committed to helping landowners, farmers and the general public learn more about the functions and benefits of wetlands. EPA is also committed to involving the public in efforts to conserve our remaining wetlands and restore those that are threatened or impaired. For these reasons we are inviting your participation in the Wetland Walk program.

The purpose of Wetland Walk is to give citizens the opportunity to become partners in learning about this valuable resource and at the same time collect information and data which will help identify trends in wetlands health and location. Wetland Walk is a companion program to the successful Streamwalk program.

Who Is In Charge?

You are! Although EPA is responsible for the development of Wetland Walk, we see this program as a grass roots tool citizens can use to protect and restore their local environment. We hope you will use Wetland Walk to develop a locally organized, long-term citizen monitoring program in your area. If such a program already exists, we hope that Wetland Walk will inspire you, your friends & family to coordinate your efforts with those groups.

We see a limited role for EPA that focuses on providing information and support to local organizations. We encourage local organizations to maintain their own data.

If you have any questions or comments about Wetland Walk, please contact:

EPA Wetland Walk
Krista Rave
U.S. EPA, Region 10
1200 Sixth Avenue (ECO-081)
Seattle, WA 98101-9797
(206) 553-6686

If you start up a Wetland Walk group in your area, please let us know!

What Is a Wetland?

Wetlands are areas of land that are wet at least part of the year. Wetland Walk is limited to the visual observation of vegetated wetlands commonly referred to as swamps, bogs and marshes. Other aquatic environments, such as river bottoms and rocky shores, are beyond the scope of this manual.

Wetlands are characterized by their hydrology (water), hydric soils (soils that form due to presence of water), and hydrophytic vegetation (plants adapted to living in soils that are saturated).

The Clean Water Act definition for wetlands is:

Wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

In recent years we have become aware of the important role these complex *ecosystems* play in the health of our environment and the quality of our water. Wetlands perform the following important functions:

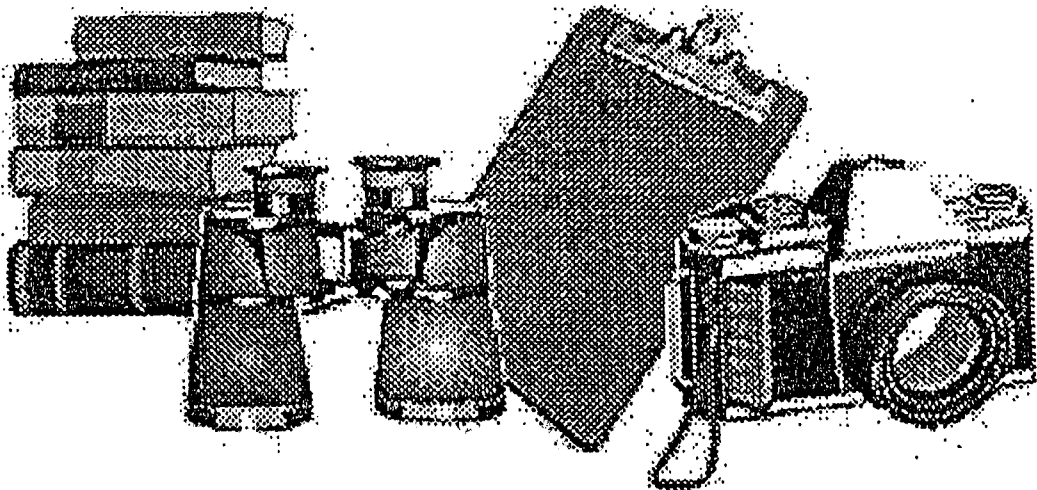
- Provide fish and wildlife habitats
- Support complex food webs
- Absorb water to reduce flooding and damage from storms
- Trap sediments
- Provide erosion control
- Improve the quality of the water
- Replenish groundwater and help maintain flows in streams by releasing water during periods of dry weather.
- Provide open space & aesthetic value

You do not need extensive knowledge of wetlands to complete this assessment. Wetland Walk is designed to gather **Observational** data. There are no right or wrong answers. We are asking for your observations and assessment of conditions based on your best judgement. If you are in doubt, do not feel you have to answer a question.

It is hoped that you enjoy this opportunity to understand and appreciate the role wetlands play in our ecosystem. You will also be helping others by providing useful information on wetlands in your area.

Before You Begin Wetland Walk

1. We encourage you to contact groups involved in environmental issues in your local area. These groups may be able to provide you with information and background on local wetland sites. Also, your survey information may be of use and value to other environmental groups or wetlands management agencies.
 2. Choose the general area for your Wetland Walk. You may wish to collect data at a familiar wetland, one that is close to your residence or place of work. You may decide to do a series of wetlands in a watershed to collect baseline data, or to concentrate your efforts in areas suspected of being polluted. It is recommended that wetland walks be done four times a year (once each season) at your site.
 3. Find a U.S. Geological Survey topographic (USGS topo) map of your area. These "topo" maps are an excellent resource because they show such things as buildings, elevations, waterways and roads. Topo maps are useful for identifying the latitude and longitude of your site. {Help in defining longitude and latitude is provided in the Appendix.}
- We recommend a 7½ minute quad map (1:24,000 scale where 11 inches = 4 miles). They are available at local sporting goods stores. The cost is approximately \$4.⁰⁰. You may also find a copy to photocopy at your local library, or you can order them directly from USGS. For assistance, please call 1-800-USA-MAPS.
4. Finally, pull out a copy of the Wetland Walk site survey data form. It is best if you have gone through the manual and form before you begin your Walk. You will use your topo map and one survey data form per Wetland Walk site.
 5. You may also find some of the following equipment useful.
 - clipboard
 - field guides (birds, plants, animal tracks, amphibians, insects)
 - a binoculars/hand lens
 - a camera for seasonal documentation from fixed photo points



Data Collection Tips

Now you are ready to begin your Walk. Please, consider the following Wetland Walk-related precautionary tips:

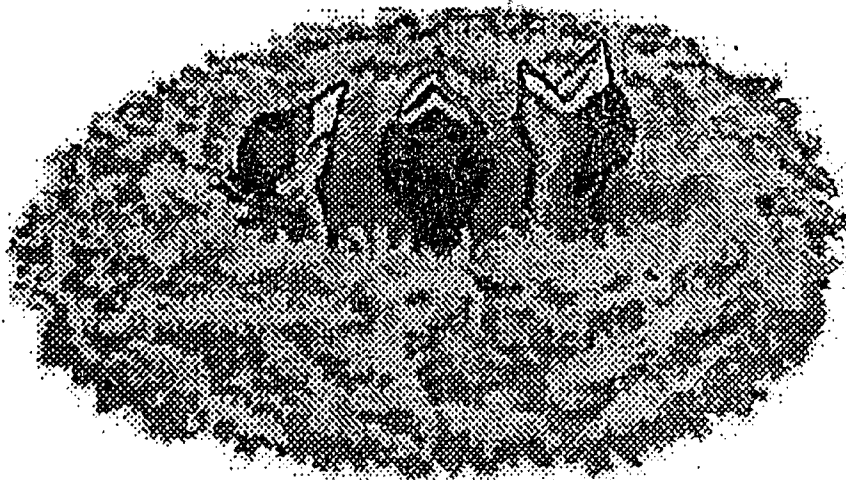
Get the permission of landowners to cross any private land, posted or not. **Do Not Enter Areas Without Permission.** It is recommended that you use public access points (such as city/county/state parks and campgrounds).

Only record what you see, not what you have previously seen. Pictures are an excellent way to document changes in the wetland. Photos can also be used by resource professionals to study and assess the condition of the wetland. **Be sure to take photographs at the same location each time you survey the wetland.**

- Always work with someone.
- Do not put yourself in danger to gather survey information.
- Be careful of ticks, poison oak, nettles, insects. Bring repellent. Wear long pants and boots; windbreakers help to block nettles.
- Watch out for irate dogs.
- The water is not safe to drink.

If for any reason you feel uncomfortable about the site conditions or surroundings, please stop your Wetland Walk. You and your safety are much more important than any of the objectives of the Walk.

Wetlands are fragile areas. Do not disturb them more than necessary to make your observations. Be particularly careful during spring and early summer when many wetlands wildlife species are nesting and rearing their young. The information you are seeking does not require you to dig holes or take plant samples.



Explanation of the Wetland Walk Site Survey Data Form

Please use the Site Survey Data Form to record your observations.

Background Information:

Date: *The date of your walk.*
Investigator: *Your name.*
Affiliation: *The name(s) of any pertinent groups to which you belong.*
Address: *Your address.*
Phone: *Your phone number.*

1. Wetland Location:

Street address: *Use a street address if there is one.*
County: *County in which the wetland is located.*
State: *State in which the wetland is located.*
Nearest city or town: *Town or city closest to the wetland.*
Name(s) of any bodies of water adjacent to the wetland.
Watershed: *If you know the name of the watershed in which the wetland is located, write it here.*
Description of access/observation site: *A brief narrative description of the site.*

2. Longitude and latitude for primary observation site:

The most widely used method to locate a site on the earth is by defining the longitude and latitude. For information to be entered into a *Geographic Information System (GIS)* the longitude and latitude must be provided. On page 12, you will find the section explaining the formulas used to compute longitude and latitude, using your topographic map, a ruler and pencil.

3. Weather Conditions:

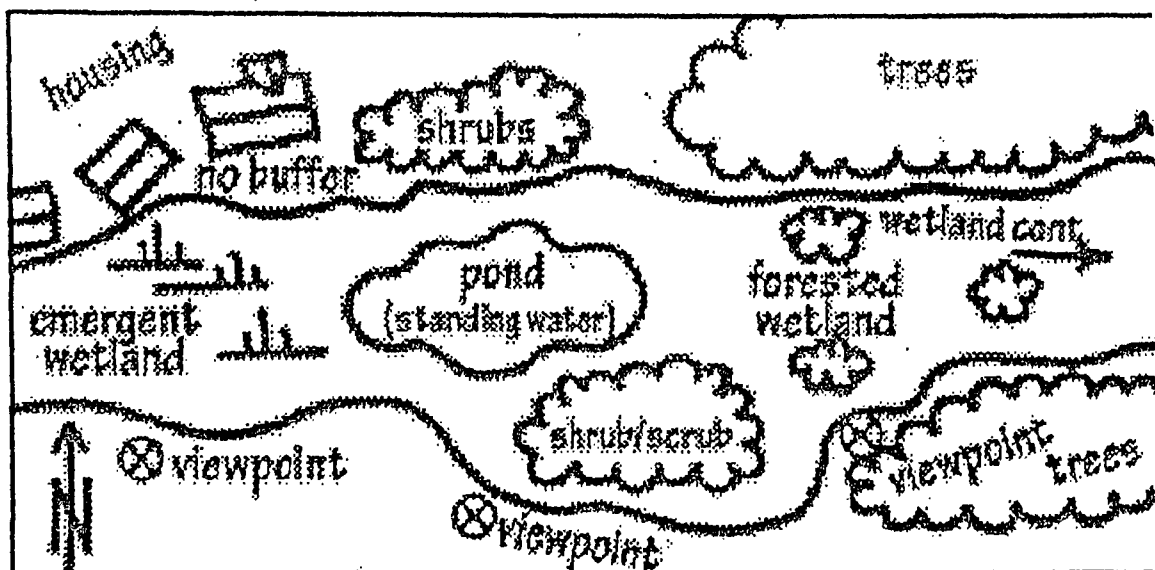
Cloud cover, air temperature and wind can affect the level of wildlife activity. Rainfall is of particular interest because it affects flow, clarity and the amount of water in a wetland. Definitions of weather conditions established by the National Weather Service are:

Storm: 1" or more of rain in 24 hours, usually accompanied by winds
Rain: 1/3" of rain in 24 hours, light steady rainfall
Showers: 1/3 to 1" of rain in 24 hours, intermittent and variable in intensity
Overcast: 90-100% cloud cover
Partly Cloudy: .. 10-90% cloud cover
Clear: 0-10% cloud cover

A good reference for weather conditions can be found the following day in your local newspaper.

4. **Sketch out a map** of your wetland and mark up to three observational points around the wetland that you will be using. In your drawing, include areas of open water, vegetation, and observed water inflows and outflows.

By using the same observational points during each survey visit, you will have consistent information. If possible, three points should be selected to offer a comprehensive profile of the wetland. These points should be selected so that the maximum amount of the wetland can be seen. Provide answers which reflect the predominant characteristic of the three points. If there is a markedly different characteristic, which is not elsewhere, note it on your map and in the additional comments section. Photographs should be taken at each of the three points and of the abnormal characteristic.



Sample Map Drawing

5. **Estimate the size, in acres, of the wetland, excluding the buffer.** Size can be computed if you have access to an aerial photographic map. In other cases, please estimate to the best of your ability. A benchmark is that a standard football field covers approximately one acre (1.03 acres). An acre equals 4,840 square yards or 43,560 square feet.
6. **The *buffer* width along each side (north, south, east, west) of the wetland is:**
- ☐ no natural buffer (*e.g., housing development or farmland is built to the edge of the wetland*)
 - ☐ less than 50 feet
 - ☐ 50 to 100 feet
 - ☐ More than 100 feet

Buffers are the undeveloped, upland areas which surround a wetland and provide protection from adjacent land use effects. Buffers provide varying degrees of protection depending on such things as width, vegetative conditions (trees, shrubs, or grasses), slope, and type of adjacent land use disturbance. The most effective buffers generally

consist of native woody vegetation. Buffers are critical because they provide a barrier between adjacent land use practices and the wetland area. The initial filtering and diffusion of runoff water from developed or agricultural areas also occur in buffer areas. They provide an important habitat for organisms and wildlife that use the wetland. If the area surrounding the wetland is anything but an undeveloped natural area, there is no buffer. Please provide a description of the buffer area, if there is one.

7. Often a wetland will exhibit one or more of the following vegetation types.

Forested wetlands (swamps) are often found next to streams and rivers, though they can also be found in isolated depressions. The dominant vegetation consists of trees (e.g. cedars, spruce, cottonwood and certain willow species) over 20 feet tall with low growing vegetation beneath the trees.

Shrub-Scrub wetlands are also often found next to streams and rivers, and can be found in isolated depressions. The dominant vegetation type consists of woody vegetation such as woody shrubs and other vegetation less than 20 feet tall.

Emergent wetlands consist of mostly grasses and plants that have fleshy not woody stems.

8. Another important factor in describing wetlands is the presence and extent of water.

Water is the critical element in wetland areas. The presence and level of water help define the type of vegetation found in the wetland. It is natural for the amount of water to change throughout the year. However, artificial methods of moving water in or out of a wetland can have impacts on the health and function of the wetland.

9. A healthy wetland is home to a variety of animals. Indicate the observations you made while visiting your wetland.

Animals can serve as indicators of the health of a wetland. The presence of *amphibians* (native species of frogs, toads, salamanders, or newts) often indicates a healthy wetland.

The presence of bull frogs may be of concern and should be noted. Bull frogs are not native in some regions of the United States. They are native to eastern and midwestern United States and southeastern Canada. Due to human introduction, they are now well established throughout most of the western United States and southwestern Canada. Bull frogs prey on smaller native frogs and small birds. In urban environments in particular, bull frogs may be the only species present as they tend to out compete other, smaller native species.

In order to see wildlife, sit or stand quietly for 15 minutes. You may want to refer to bird and other field guides (for example *Amphibians of Washington and Oregon* by W. P. Leonard et al. is a good resource). Indicate the observations you made while visiting your wetland.

- 10. Indicate the land uses found *in or adjacent* to the wetland and draw those features on your map. Be sure to include these observations on your wetland map.**

Adjacent land use can have a tremendous impact on a wetland ecosystem. Destruction of the buffer area can create changes which affect soil, natural hydrology, the animal habitat and plant communities. For example, construction of a large parking lot in or adjacent to a wetland buffer will decrease filtration of water into the soil, and increase the intensity and amount of storm water runoff into the wetland. These hydrology changes can impact plant and animal communities, resulting in decreased diversity. It can also cause silt, too many nutrients, and contaminated storm water runoff to enter the wetland and destroy the delicate habitat.

- 11. Indicate which, if any, of the following activities appear to be taking place within the wetland area.**

- a. dumping of soil, gravel and/or vegetation
- b. dumping of human-made materials, littering
- c. grading, evidenced by tracks and scraped soil
- d. draining of water evidenced by pipes or ditches leading out of the wetland
- e. channelizing of water evidenced by ditches or trenches
- f. bulkheads built between shore and wetland
- g. tracks of recreational vehicles
- h. livestock access, evidenced by animals observed in the area, or animal tracks
- i. pipes or culverts which transport storm water from parking lots or roads into the wetland.

For many years the importance of wetlands has not been understood. As many people today still do not see wetlands as valuable ecosystems, they drain, fill or alter them to meet other needs.

- 12. Please indicate which, if any, of the following signs of wetland degradation is present.**

- a. silt, sand or gravel deposits
- b. wetland stream bank erosion, evidenced by newly exposed soils
- c. other (please list)

Activities of humans can adversely affect the delicate ecosystems of wetlands. Alterations of water courses can cause severe flooding, which kills trees and plant life, destroy streams and adds sediment to the system.

Glossary

The following terms are often used when discussing wetlands.

Amphibians: Cold-blooded vertebrates belonging to the class Amphibia; includes frogs, toads, salamanders, and newts. Have gilled aquatic larvae and air breathing adults.

Bogs: Bogs a type of wetland that are areas dominated by sphagnum moss which create floating mats of vegetation. The vegetation grows, dies and because the water is acidic (low pH), decomposes slowly. This organic matter accumulates, contributing to the development of peat which in turn supports the growth of more plants. This vegetation, commonly referred to as peat moss, is collected and sold for garden soil amendments.

Buffer: The area separating the wetland from outside disturbances, and protecting the wetland from the impacts of adjacent land uses (e.g., storm water runoff, agricultural fertilizers). Vegetated buffers provide wildlife habitats as well as more effective protection for the area.

Culvert: A drain which serves to conduct water under land, roads or bridges.

Ecosystem: An interacting system made up of an ecological community together with its physical environment.

Estuary: Regions of interaction between rivers and near shore ocean waters where tidal action and river flow create a mixing of fresh and salt water. These areas may include bays, mouths of rivers, salt marshes and lagoons.

Food Web: A series of organisms, each feeding or decomposing the preceding one.

Geographic Information Systems (GIS): Computer based mapping programs which display multiple types of information.

Groundwater: Water which is stored underground in areas of porous material. Most drinking water wells tap ground water. Ground water is replenished slowly by rainwater which infiltrates the soil; groundwater can replenish, or be replenished by nearby rivers, streams and creeks.

Habitat: An environment where an organism or community of organisms normally lives.

Lake: Freshwater body larger than 20 acres and at least 2 meters (6.6 feet) deep.

Latitude: Accepted, imaginary reference lines drawn in north/south parallels of the earth's equator, used in conjunction with longitude to determine site location on the earth's surface.

Longitude: Accepted, imaginary reference lines, referred to as meridians, drawn in east west parallels of the Greenwich Meridian; Used in conjunction with latitude to determine site location on the earth's surface.

Marshes: A type of wetland dominated by vegetation such as grasses, cattails and other non woody plants.

Observational Data: Information which is collected through visual observations, not measured or collected following scientific protocols.

Pond: Freshwater body smaller than 20 acres, less than 2 meters (6.6 feet) deep.

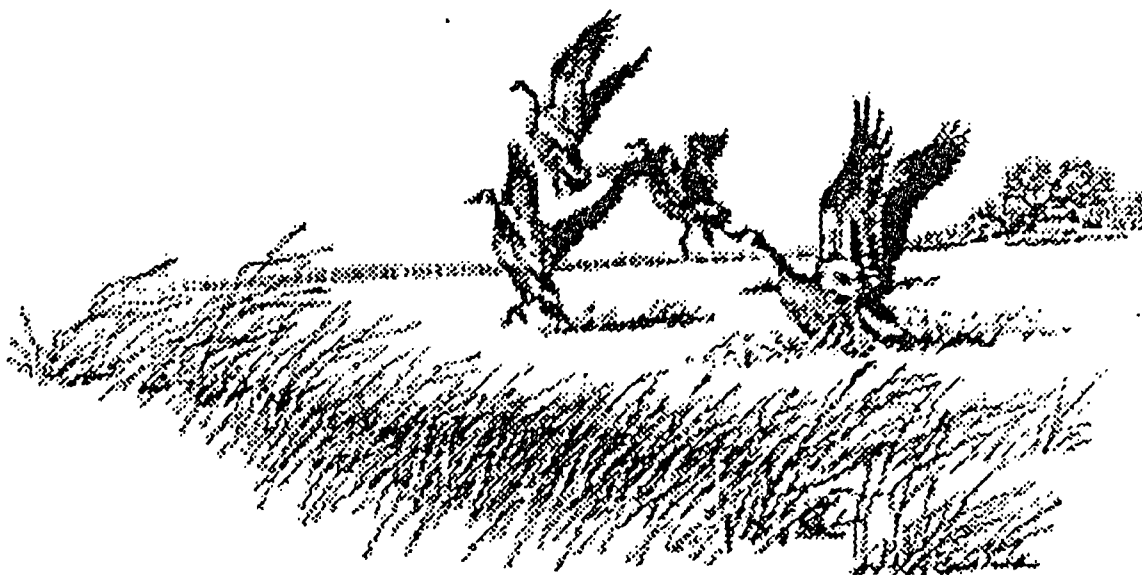
Scat: An animal fecal dropping.

Sediment: Insoluble particles of soil, silt and other solid materials that become suspended in water and eventually fall to the bottom of a body of water.

Silt: A grain measuring $1/16$ mm to $1/256$ mm in diameter, which is smaller than fine sand but larger than coarse clay. A silt grain cannot be seen by the unaided eye, but an individual silt grain can be seen with the aid of a 10x hand lens. The gritty feel of silt cannot be discerned by the fingertips, but can be noticed when a few grains are placed in the mouth.

Topographic (Topo) Map: A map prepared by the United States Geological Survey which shows the topography of the earth; used in Streamwalk and Wetland Walk to determine longitude and latitude.

Wetland: The Clean Water Act defines wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

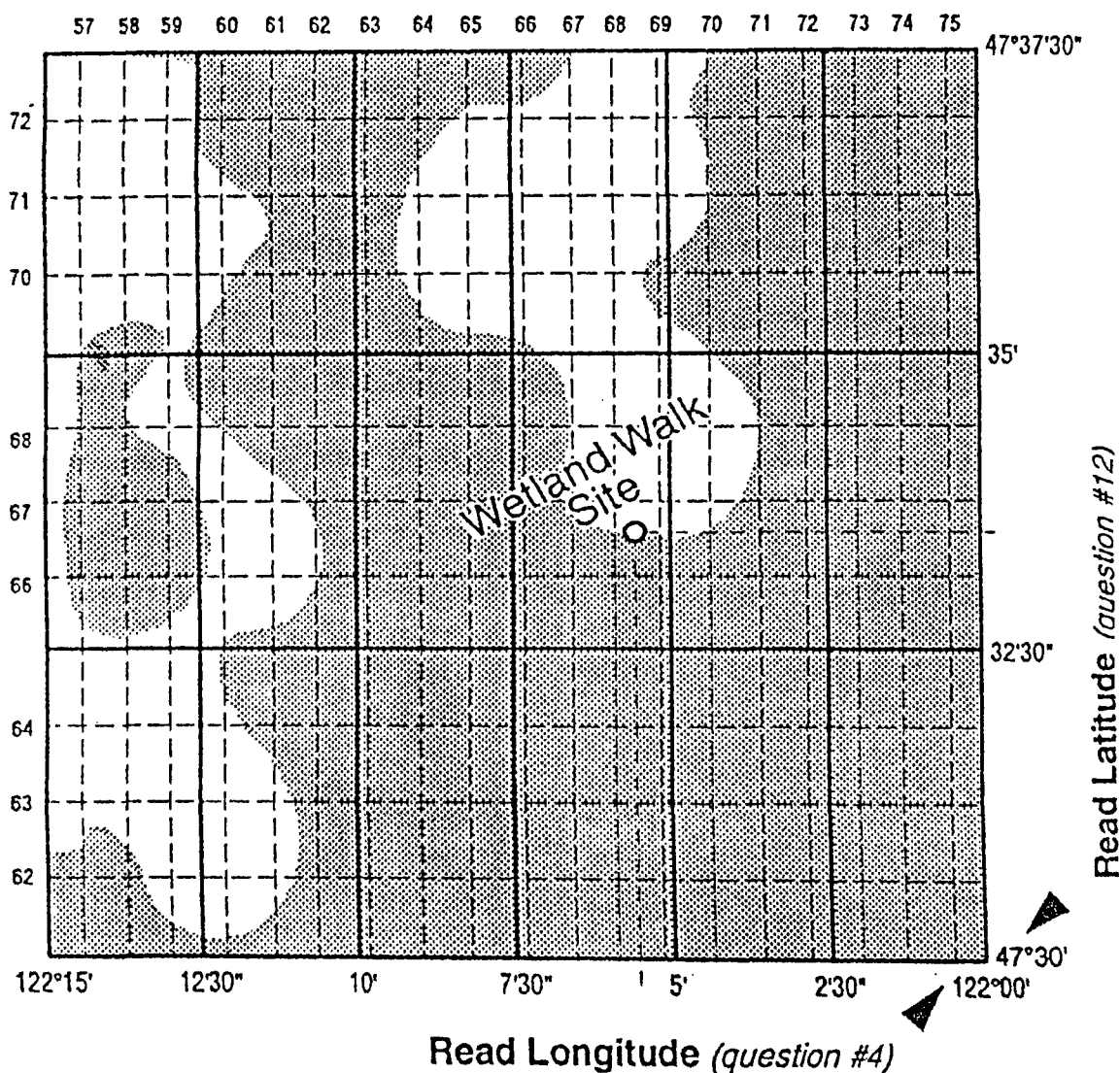


Instructions for Defining Latitude and Longitude

Latitude and longitude are defined in degrees, minutes and seconds. There are 60 seconds in a minute and 60 minutes in a degree. The symbols are as follows °=degree, '=minute and " =seconds. The following example may help you determine the Latitude and Longitude for your Wetland Walk.

Wetland Walk Site

7.5 x 15 minute series



Longitude	Your Work	Example
1) Look at the right side (upper or lower corner) under the map name, or the second of two numbers separated by "x", to find the width scale (longitude) of the map: If "7.5 Minute Series," enter 450 If "15 Minute Series," enter 900 If "7.5x15 Minute Series," enter 900 If "15x30 Minute Series," enter 900	_____	<u>900</u>
2) Using a ruler, measure the width of your map east to west (exclude borders)	_____	<u>10 cm</u>
3) Divide #1 by #2 to the nearest whole number	_____	<u>90^{sec}/cm</u>
4) Enter the Longitude located in the lower right hand corner.	_____	<u>122° 00'</u>
5) Using a ruler, measure (centimeters) from your site, straight across, to the right hand side of the map.	_____	<u>3.7 cm</u>
6) Multiply #5 by #3 (to the nearest whole number)	_____	<u>3.7 x 90</u> <u>= 333</u>
7) Convert #6 to minutes and seconds by dividing by 60. Your whole number after division is the number of minutes, and the remainder is the number of seconds. (Do not use a calculator.) For example, 215 can be divided by 60 three times. 215-180=35. So 215 converts to 3'35".	_____	<u>333/60</u> <u>5 times</u> <u>(300)</u> <u>333-300=</u> <u>33 left over</u> <u>or 5'33"</u>
8) Add #4 to #7	_____	<u>122° 5'33"</u>

The Answer for #8 is the Longitude of your site.

Latitude	Your Work	Example
9) Look at the right side (upper or lower corner) under the map name or the second of two numbers separated by "x", to find the height scale (latitude) of the map. If "7.5 Minute Series," enter 450 If "15 Minute Series," enter 900 If "7.5x15 Minute Series," enter 450	_____	<u>450</u>
10) Using a ruler, measure the length of your map, north to south (centimeters)	_____	<u>10 cm</u>
11) Divide #9 by #10 to the nearest whole number	_____	<u>45 sec/cm</u>
12) Enter the Latitude located in the lower right hand corner	_____	<u>47° 30'</u>
13) Using a ruler, measure (centimeters) from your site straight down to the bottom of the map.	_____	<u>4.8 cm</u>
14) Multiply #13 by #11 (to the nearest whole)	_____	<u>4.8 x 45</u> <u>= 216</u>
15) Convert #14 to minutes and seconds by dividing by 60. Your whole number after division is the number of minutes, and the remainder is the number of seconds. (Do not use a calculator.) For example, 215 can be divided by 60 three times. 215-180=35. So 215 converts to 3,35".	_____	216/60 3 times (180) 216-180= 36 left over <u>or 3'36"</u>
16) Add #15 to #12.	_____	<u>47° 33'36"</u>

The Answer for #16 is the Latitude of your site.

Additional Resources

Wetland Walk may only scratch the surface in determining the health of your wetland. If you want to do more to help insure its protection, the following organizations offer more in-depth monitoring information.

State Agencies:

Alaska Department of
Environmental Conservation
PO Box O
Juneau, AK 99811-1800
(907) 452-5021

Oregon Department of
Environmental Quality
Water Quality Division
811 SW 6th Avenue
Portland, OR 97204
(503) 229-5696

Division of Environmental Quality
Idaho Department of
Health and Welfare
1410 North Hilton
Statehouse Mall
Boise, ID 83702-9000
(208) 334-0550

Washington Department of Ecology
PO Box 47710
Olympia, WA 98504-7710
(360) 407-6000