OREGON
WETLANDS PRIORITY PLAN

Oregon Division of State Lands

and

Oregon State Parks and Recreation Division

July 1989

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prepared by
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approved by
OREGON STATE LAND BOARD
July 13, 1989

Neil Goldschmidt *Governor*	*Barbara Roberts* *Secretary of State*	*Anthony Meeker* *State Treasurer*

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SUMMARY

As a means to further promote the conservation of our Nation's wetlands, Congress enacted the Emergency Wetlands Resources Act of 1986. Congress found that wetlands are nationally significant resources that contribute to our economy; food supply; water supply and quality; flood control; and fish, wildlife, and plant resources. However, this resource has been significantly affected by man's land and water use activities and recognition of the multiple public values of wetlands has developed slowly. Less than 45 percent of the conterminous United States' original wetlands are estimated to remain. Wetland losses are still continuing, perhaps at a level as high as 450,000 acres annually.

The Oregon Wetlands Priority Plan provides a planning framework, criteria, guidance and direction intended to meet the requirements of Section 303 of the Emergency Wetlands Resources Act. Criteria to be considered in determining acquisition priorities include functions and values of wetlands, historic wetland losses, and threat of future wetland loss. In general, wetlands given priority consideration for acquisition will be those that provide a high degree of public benefits, are representative of declining wetland types within an ecoregion, and are subject to identifiable threat of loss or degradation. Implementation of the Oregon Wetlands Priority Plan will ultimately result in development of lists of wetlands warranting priority for acquisition. A wetland assessment checklist and priority criteria has been developed to assist users of the Plan in identifying wetlands that qualify for acquisition consideration.

Section 303 of the Emergency Wetlands Resources Act requires that the Oregon Statewide Comprehensive Outdoor Recreation Plan, as well as the plans of all other states, be amended to address wetlands as an important recreation resource and that this planning effort be consistent with the National Wetland Priority Conservation Plan.

The Oregon legislature has recently adopted a measure that requires completion of statewide wetlands inventory based on the National Wetlands Inventory. The measure also adjusts Oregon's existing wetland regulatory program and establishes a novel wetland planning process to identify wetland areas for protection and development. The measure also includes a requirement that the state develop a wetland educational program and conduct an analysis of incentives for property owners to protect wetlands. This legislation results from a recognition that wetland regulation in Oregon is not sufficient by itself to adequately protect the state's wetland resources.

High priority planning for wetland protection in Oregon is to: 1) complete the statewide wetlands inventory; 2) conduct an analysis of wetland trends to identify conversion factors and trends; and 3) conduct an inventory and analysis to identify rare and/or unique wetland communities.

Until planning efforts are completed, interim acquisition priority and criteria are established.

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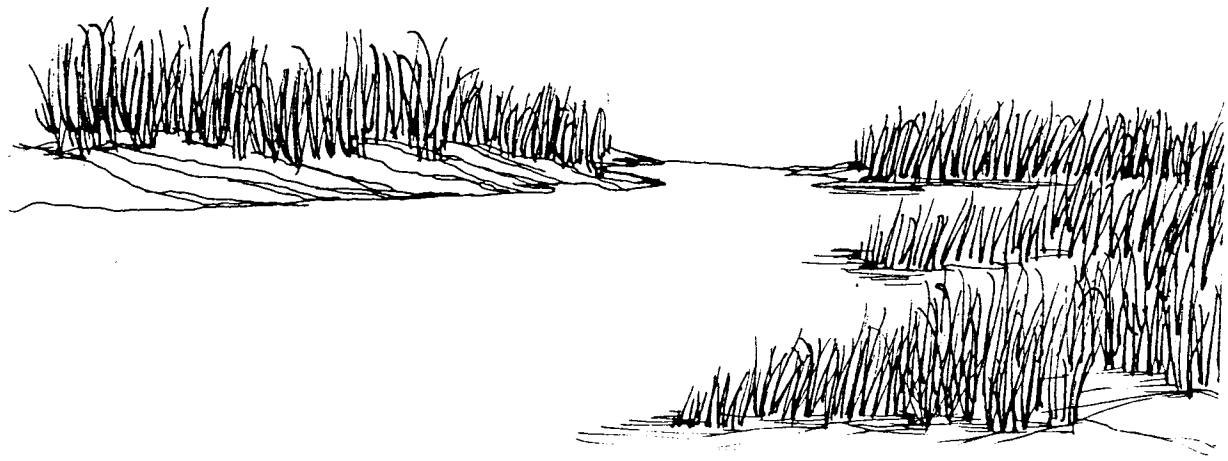


INTRODUCTION

I. INTRODUCTION

Oregon's diverse geography and climate create an unanticipated array of wetland environments. Coastal estuarine marshes come readily to mind when Oregon wetlands are discussed; however, the freshwater marshes and swamps of the Willamette Valley and coastal valleys were historically widespread. Wet meadows, seeps and swamps are found in the Coast and Cascade mountains. Oregon's central and eastern dry side even has spectacular wetland areas associated with river valleys (Grand Ronde, Powder, Deschutes, John Day, etc.) and lake basins (Klamath, Warner Basin, Malheur, etc.).

Wetlands and riparian areas have long been recognized as opportunity areas primarily for conversion to agricultural uses. Recently, there has been recognition and emphasis on protecting Oregon's natural wetland values.

A. PURPOSE OF THE PLAN

The Oregon Wetlands Priority Plan (OWPP) has been prepared by the Division of State Lands in cooperation with the Oregon Parks and Recreation Division in response to Section 303 of the Emergency Wetlands Resources Act (EWRA) of 1986 (PL 99-645) and State Legislation adopting ORS 541.575.

The OWPP provides a means to identify wetlands that should receive priority attention for state acquisition. This document discusses wetland values and historical resource losses and provides evaluation criteria to be used in making wetland acquisition determinations. Guidance is also provided on the use of the plan and its relationship with other legislation, plans, policies and programs already in use by the state for the protection of Oregon's wetlands.

Wetland alteration and use is controlled or managed by a variety of state regulations and policies in Oregon. No single state legislative authority addresses all the facets of wetland management.

The primary regulatory mechanisms for federal involvement in the use of wetlands is Section 404 of the Clean Water Act. However, the level of wetland protection provided by this program is not inclusive and additional losses of the nation's wetlands continue (General Accounting Office, 1988). A recent federal regulatory program affecting wetland alteration by agricultural activities is the "swampbuster" provision of the 1985 Food Security Act. The effectiveness of this program has not been evaluated in Oregon, to date.

Regulation alone does not provide full wetland protection; therefore, acquisition may be a desired option to best serve the public interest when other means for wetland protection are not effective. Acquisition of an interest in wetlands (e.g., obtaining conservation easements or public access) also may be desirable to fully realize the public values of wetlands. Additionally, acquisition of sites that can be restored to wetland conditions, can serve to replace some of the functional values of wetlands which have been lost or historically altered. Oregon supports the intent of the National Wetland Priority Conservation Plan and will use it as a standard for further development of the Oregon Statewide Comprehensive Outdoor Recreation Plan (SCORP) amendment to address wetlands as an important recreation resource.

Section 303 of the Emergency Wetlands Resources Act amends the Land and Water Conservation Fund (LWCF) Act of 1965 to specify "for fiscal year 1988, and thereafter, each comprehensive statewide outdoor recreation plan shall specifically address wetlands within that state as an important outdoor recreation resource as a prerequisite to approval. . ." The Division of

Parks and Recreation, of the Oregon Department of Transportation, is the state agency with the responsibility for distribution of LWCF monies and for statewide planning and development of facilities for outdoor recreation. ORS 541.575(2), which was adopted by the 1987 Oregon legislature, requires the Division of State Lands to develop a wetlands priority plan for the State of Oregon.

This plan summarizes existing information concerning wetlands in the State of Oregon using the guidance of the Emergency Wetlands Resources Act of 1986.

B. SCOPE OF THE PLAN

The OWPP is developed to provide a planning framework, establish criteria, and provide guidance to determine the locations and types of wetlands, and interests in wetlands, that should receive priority consideration for acquisition. The purpose of the OWPP is to assist decision-makers in focusing their acquisition efforts on the more important, scarce, and vulnerable wetlands in Oregon. Future implementation of the OWPP will lead to development of lists of wetlands warranting priority consideration for acquisition.

Under the Emergency Wetlands Resources Act each state must:

a) identify the state's role in planning and regulating wetlands;

b) identify the effectiveness of existing wetlands protection mechanisms;

c) identify existing wetlands resources;

d) identify historical and current factors affecting the loss or degradation of wetlands;

e) estimate the amount of remaining wetlands;

f) develop a mechanism for identifying priority wetlands resource areas for acquisition; and

g) prioritize wetland types for acquisition.

This plan has been developed in coordination with the Oregon Department of Fish and Wildlife, the Oregon State Parks and Recreation Division, the Oregon Department of Land Conservation and Development and a number of other state and federal agencies and private groups and individuals. The plan includes:

a) a description of state and federal statutes and programs that provide wetland protection;

b) the status of wetland inventories in the state of Oregon;

c) a description of Oregon's wetland functions and values;

d) an identification of threats to wetlands in Oregon;

e) the process for completing an Oregon wetland priority plan; and

f) a priority list of wetland types and regions within the state which have been currently identified as critical and threatened.

As a planning document, this plan:

1) describes Oregon's wetland functions and values, historic wetland losses, and threat of future wetland losses.

2) establishes criteria for wetland acquisition potential utilizing criteria of functions and value, threat of loss and historical losses;

3) develops criteria for wetlands warranting consideration for acquisition;

4) will assist Oregon in complying with Section 303 of the Emergency Wetlands Resource Act of 1986;

5) discusses other wetlands protection and regulatory programs established by federal and state laws and policies.

C. PLANNING AUTHORITY

The Emergency Wetlands Resources Act of 1986 (Public Law 99-645) was enacted to promote the conservation of our nation's wetlands in order to maintain public resource values and to help fulfill migratory bird treaties and conventions by: (1) intensifying cooperative efforts among private interests and local, state, and federal governments for the management and conservation of wetlands; and (2) intensifying wetlands protection efforts through acquisition in fee, easements, or other interests and methods by local, state, and federal governments and the private sector. The Act also addresses the considerable importance that wetlands have for fish and wildlife resources, water supply and quality, flood damage reduction and outdoor recreation. Major provisions of the Act:

- Authorizes admission fees at certain refuges to provide revenue for refuge operations and the Migratory Bird Conservation Fund.

- Raises the price of the Migratory Bird Hunting and Conservation Stamp.

- Requires the Department of the Interior to establish a National Wetlands Priority Plan which specifies the types and locations of, and conservation interests in wetlands that should be given priority for federal and state acquisition.

- Amends the Land and Water Conservation Fund Act to require that for Fiscal Year 1988 and thereafter, each SCORP specifically address wetlands.

- Authorizes the Secretary of the Interior to purchase wetlands or interests in wetlands, consistent with the NWPCP.

- Directs the Department of the Interior and US Fish and Wildlife Service to continue the National Wetlands Inventory Project and update the wetlands status and trends report.

- Requires the Department of the Interior to report to Congress on the status, condition, and trends of wetlands in selected regions of the United States.

Section 301 of the Act directs the Secretary of the Interior to establish and periodically review and revise the National Wetlands Plan. Section 301 is reproduced from the Act below:

"SEC. 301. NATIONAL WETLANDS PRIORITY CONSERVATION PLAN.

(a) IN GENERAL - The Secretary shall establish and periodically review and revise, a national wetlands priority conservation plan which shall specify, on a region-by-region basis or other basis considered appropriate by the Secretary, the types of wetlands and interests in wetlands which should be given priority with respect to Federal and State acquisition.

(b) CONSULTATION - The Secretary shall establish the plan required by subsection (a) after consultation with-

(1) the Administrator of the Environmental Protection Agency

(2) the Secretary of Commerce;

(3) the Secretary of Agriculture; and

(4) (the chief executive officer of) each State.

(c) FACTORS TO BE CONSIDERED - The Secretary, in establishing the plan required by subsection (a), shall consider -

(1) the estimated proportion remaining of the respective types of wetlands which existed at the time of European settlement;

(2) the estimated current rate of loss and threat of future losses of the respective types of wetlands; and

(3) the contributions of the respective types of wetlands to -

(A) wildlife, including endangered and threatened species, migratory birds, and resident species;

(B) commercial and sport fisheries;

(C) surface and groundwater quality and quantity, and flood control;

(D) outdoor recreation; and

(E) other areas or concerns the Secretary considers appropriate."

"Interests in Wetlands" refers to the financial interests, e.g., fee title acquisition or less than fee interests, such as conservation easements. Refer to Section 1 for complete definitions of terms.

Section 303 of the Act states that for Fiscal Year 1988 and thereafter each SCORP shall specifically address wetlands within that state as an important outdoor recreation resource as a prerequisite to approval for LWCF Act funding of recreational projects by the Secretary. Alternatively, a state may submit a State Wetlands Priority Plan developed in consultation with the State Fish and Wildlife agency, and consistent with the National Plan, in lieu of a revised SCORP. Section 303 of the Act also amends the LWCF Act of 1965 to

specifically authorize wetlands as suitable replacement for LWCF lands slated for conversion to other uses. Thus, wetlands are considered to be of reasonably equivalent usefulness with the property proposed for conversion regardless of the nature of the property proposed for conversion.

D. CONSULTATION

As specified in Section 303 of the EWRA, the Oregon Wetlands Priority Plan has been developed in conjunction with the U.S. Fish and Wildlife Service, the National Parks Service, Oregon Division of State Lands, Oregon Department of Fish and Wildlife, and the Oregon Division of Parks and Recreation. Several private organizations and individuals have been interviewed during the formulation of the plan. Wetland assessment criteria to be considered in evaluating wetlands for acquisition potential have been discussed and background information supporting the selection of these criteria have been provided. A complete list of agencies and parties contacted in developing this plan is available in Appendix A.

WETLAND MANAGEMENT AND REGULATION IN OREGON

II. WETLAND MANAGEMENT AND REGULATION IN OREGON

Section 303 of the Act directs the state establishing the wetland priority plan to consider the state's existing wetlands protection program. The Division of State Lands is in the process of identifying a unified wetland management program for the state of Oregon (Division of State Lands 1988). Currently Oregon has a strong statewide land use planning program that specifically recognizes wetland resources under four of the statewide land use planning goals. Wetland alteration is regulated by state statute under Oregon's Removal-Fill Law and Forest Practices Act. The federal government has a significant role in managing wetlands on federal lands and a regulatory role under the Corps of Engineers permit program and the provisions of the 1985 Food Security Act.

A. STATE WETLAND REGULATION

The state of Oregon recognizes the importance of wetlands and protects wetland values both in its statewide comprehensive planning process and through the state and local wetlands permitting processes. Regulatory authority in Oregon outside forest lands lies with the Oregon Division of State Lands which administers the State Removal-Fill Law (ORS 541.605 through 541.695). This law requires a permit from the Division of State Lands for removal, filling or alteration of 50 cubic yards or more in any waters of the state of Oregon. Waters of the state have been broadly defined by administrative rule to include wetlands. The Removal-Fill Law is similar in scope and, in the instance of regulating removal from wetlands, more comprehensive than the federal regulatory program administered by the Corps of Engineers under authority of Section 404 of the Clean Water Act.

Recognition of wetland values by Oregon's 1979 Legislative Assembly led to the specific requirement, in the Removal-Fill Law, that removal or filling of intertidal or tidal marsh areas of estuaries must be mitigated by replacement of lost wetland resource values. The Division of State Lands also conditions permits to require replacement of freshwater wetlands when degradation or loss of wetlands cannot be avoided through project modification. Furthermore, the 1987 Legislative Assembly established a statutory provision enabling development of mitigation banks for the purpose of offsetting future permitted wetland losses through advance creation of wetland sites. Operation of the mitigation bank system is a responsibility of the Division of State Lands.

The 1987 Legislature required the State Board of Forestry to develop rules to "provide for the overall maintenance of...significant wetlands." (ORS 527.710(2)(D)). The rules for implementing this measure are being developed.

B. STATE WETLAND PLANNING

Oregon's Statewide Land Use Planning Program (ORS 197) has identified wetlands as a planning priority under statewide planning goals adopted as administrative rule (OAR 660, Division 15) in accordance with the procedure set forth in ORS 197.225-.245. Four goals specifically address issues of wetlands: Goal 5 (Natural Resources), Goal 15 (Willamette River Greenway), Goal 16 (Estuarine Resources), and Goal 17 (Coastal Shorelands). These goals each have different standards for local government planning. Each goal requires an inventory and evaluation of wetland resources. The statewide standards have required each local government in the state of Oregon to identify and develop a planning program for freshwater and, for coastal governments, estuarine and coastal shoreland wetland resources.

Table 1 provides a summary of planning requirements of each statewide planning goal affecting planning for wetlands.

Table 1: Wetlands Planning Requirements under Oregon Statewide Planning Goals and Guidelines

Planning Goal	Wetland Resource Affected	Planning Goal
Goal 5	Natural Resources	To conserve open space and protect natural and scenic resources.
Goal 15	Willamette River Greenway	To protect, conserve, enhance, and maintain the natural, scenic, historical, agricultural, economic, and recreational qualities of lands along the Willamette River as the Willamette River Greenway.
Goal 16	Estuarine Resources	To recognize and protect the unique environmental, economic and social values of each estuary and associated wetlands. To protect, maintain, where appropriate develop, and where appropriate restore the long-term environmental, economic, and social values, diversity and benefits of Oregon's estuaries.
Goal 17	Coastal Shorelands	To conserve, protect, where appropriate develop and where appropriate restore the resources and benefits of all coastal shorelands, recognizing their value for protection and maintenance of water quality, fish and wildlife habitat, water-dependent uses, economic resources, recreation, and aesthetics. The management of these shoreland areas will be compatible with the characteristics of the adjacent coastal waters. To reduce the hazard to human life and property, and the adverse effects upon water quality and fish and wildlife habitat, resulting from the use and enjoyment of the coastal shorelands.

Implementation of these goals as they relate to wetlands is done through the local government planning process under the following guidelines:

Planning Goal	Wetlands Implementation Standards
Goal 5	Programs shall be provided that will (1) insure open space, (2) protect scenic and historic areas and natural resources for future generations, and (3) promote healthy and visually attractive environments in harmony with the natural landscape character. The location, quality and quantity of the following resources shall be inventoried: g. Water areas, wetlands, watersheds and groundwater resources; Where no conflicting uses for such resources have been identified, such resources shall be managed so as to preserve their original character. Where conflicting uses have been identified the economic, social, environmental and energy consequences of the conflicting uses shall be determined and programs developed to achieve the goal.
Goal 15	No specific mention of wetlands except in the broadest sense of maintaining inventories of hydrologic conditions and ecologically fragile areas and their management components of inventory and management of fish and wildlife habitats.
Goal 16	Comprehensive plans and activities for each estuary shall provide for appropriate uses (including preservation) with as much diversity as is consistent with the overall Oregon Estuary Classification, as well as with the biological, economic, recreational, and aesthetic benefits of the estuary. Estuary plans and activities shall protect the estuarine ecosystem, including its natural biological productivity, habitat, diversity, unique features and water quality. The general priorities (from highest to lowest) for management and use of estuarine resources as implemented through the management unit designation and permissible use requirements listed below shall be: 1. Uses which maintain the integrity of the estuarine ecosystem; 2. Water-dependent uses requiring estuarine location, as consistent with the overall Oregon Estuary Classification; 3. Water-related uses which do not degrade or reduce the natural estuarine resources and values; 4. Nondependent, nonrelated uses which do not alter, reduce or degrade estuarine resources and values.

Goal 17	Programs to achieve these objectives shall be developed by local, state, and federal agencies having jurisdiction over coastal shorelands. Land use plans, implementing actions and permit reviews shall include consideration of the critical relationships between coastal shorelands and resources of coastal waters, and of the geologic and hydrologic hazards associated with coastal shorelands. Local, state and federal agencies shall within the limit of their authorities maintain the diverse environmental, economic, and social values of coastal shorelands and water quality in coastal waters. Within those limits, they shall also minimize man-induced sedimentation in estuaries, nearshore ocean waters, and coastal lakes.
Goal 17 also requires:	Major marshes, significant wildlife habitat, coastal headlands, and exceptional aesthetic resources inventoried in the Identification Section, shall be protected. Uses in these areas shall be consistent with protection of natural values.

Statewide mandated land use planning is implemented by local governments. To date, a statewide compilation of inventory data and protection sites has been completed only for Oregon's major estuaries (Bottom et al, 1979).

C. STATE WETLAND ACQUISITION

Wetland sites have been purchased by the Oregon Department of Fish and Wildlife using nongame wildlife funds and state waterfowl stamp and print funds. Categories of sites for use of nongame funds have been prioritized in the State Non Game Management Plan (ODFW, 1986). The department owns over 110,000 acres of land in fee for wildlife management purposes. A signficant number of these areas include wetlands.

There has not been an inventory of wetlands on these lands. Oregon State Parks and Recreation Division owns and manages significant land area, especially along the Oregon coast. There has been no compilation of acreage of wetland owned by the Parks Division. Acquisition of parcels within the Willamette River Greenway have been identified in the local comprehensive planning process.

The Oregon Division of State Lands manages approximately 600,000 acres of grazing land and 100,000 acres of forest land. Oregon Division of State Lands owns approximately 32 acres at the Astoria Airport Mitigation Bank. This site was enhanced to allow tidal flushing and create additional wetland values. The Division of State Lands administers Oregon's Wetlands Mitigation Bank program that has the authority to acquire land for wetland creation/restoration purposes. No priorities have been established under this program.

The Pittman-Robertson Fund is currently used by Oregon Department of Fish and Wildlife for wetland acquisition.

In a joint effort by NOAA's Office of Coastal Resource Management and the State of Oregon, South Slough National Estuarine Reserve was established in 1974 as the nation's first estuarine sanctuary under the Coastal Zone Management Act. Major tracts of the drainage basin including tidal wetlands of the South Slough of Coos Bay Estuary were purchased following an evaluation and prioritization of candidate sites along the Oregon and northern California coastline. The purpose of the reserve is to conduct and promote research to determine the special characteristics of estuaries and to find ways to balance the tremendous demands on these resources.

D. EFFECTIVENESS OF EXISTING PROGRAMS

State level planning and regulatory programs have been quite effective in identifying and protecting estuarine wetlands, but somewhat less thorough with palustrine and riparian wetlands. Until recent recognition of freshwater wetland functions and values, estuaries have received national and local attention, and therefore received greater recognition effort and funding for inventories and planning. Comprehensive land use plans for Oregon's estuaries have been effective tools to locate development in areas which would protect important estuarine wetlands (DLCD, 1986).

The implementation of wetland protection provisions for palustrine, lacustrine, and riverine wetlands, however, has been less systematic. This is due primarily to the lack of a complete inventory of these wetlands and the lack of public recognition of freshwater wetland values.

The statewide comprehensive land use planning program has been effective in initiating efforts to obtain wetland resource protection through local involvement. As a result of the planning requirements, specific wetland protection plans have been adopted in many areas of Oregon. The city of Tualatin has protected portions of the Hedges Creek wetlands and the city of Eugene has protected the Willow Creek wetlands. Many other cities are in the process of developing wetland management plans, conducting inventories and working on planning processes to protect wetlands. Chief among these communities are the cities of Portland, Beaverton, Gresham, West Linn, Albany, Eugene and Springfield. Local ordinances are being utilized in the regulatory process to provide clear direction for protection of wetland resources within urbanizing areas.

The state removal-fill permit program has been effective in regulating alteration of both estuarine and non-estuarine wetlands. This state regulatory program goes a long distance in protecting wetland values. As a regulatory program, it is inherently reactive to applications for permits and does not provide the ultimate protection which comes with ownership, nor the predictability involved with comprehensive resource planning. This weakness has been recognized in a recent review of wetland management in Oregon (Division of State Lands, 1988).

In developing a wetland priority plan, the Division of State Lands is given these policy directives (ORS 541.555):

1. **"Promote, in concert with other federal and state programs as well as interested parties, the maintenance and conservation of wetlands;**

2. **Improve cooperative efforts among private, non-profit and public entities for the management and protection of wetlands;**

3. **Offset losses of wetland values caused by activities which otherwise comply with state and federal law in order to create, restore and enhance wetland values and functions."**

Further policy from the Removal-Fill Law (ORS 541.610) includes: **"The protection, conservation and best use of the water resources of the state are matters of utmost public concern . . . Unregulated removal of materials from the bed and banks of the state may create hazards to health, safety and welfare of the people of the state. Unregulated filling in the waters of the state for any purpose may result in interfering with or injuring public navigation, fishery and recreation of the waters. . ."** This policy guidance in conjunction with land use planning requirements for wetlands in the four applicable statewide planning goals provides direction for protection and conservation of wetlands in the state of Oregon.

The protection standards in Oregon's Forest Practices Act have not been fully implemented to date. Interim rules provide protection to sites previously recognized by local planning bodies. A detailed inventory and evaluation process is proposed for the future.

In July of 1988 the Director of the Division of State Lands requested that a number of individuals representing different interests meet and develop a consensus on a program to clarify wetland regulation and management in Oregon. The group identified a series of issues associated with wetland regulation and management in Oregon. The issues focused on concerns and disjunctions with the current program. Recommendations for administrative and legislative action were developed to address the issues. The primary recommendations from the group were:

1. Requiring a uniform definition of "wetland" be used in the state,

2. Develop a state delineation procedure adopting the proposed unified federal procedure,

3. Conduct a statewide wetlands inventory,

4. Require local government to notify the state of proposed land use actions within wetland areas identified on the statewide wetlands inventory,

5. Adopt and apply the federal definition of "mitigation" to state permits,

6. Authorize the state to develop general permits,

7. Create a state wetlands conservation plan process with expedited review of proposed actions compatible with the plan.

8. Conduct an analysis of potential programs to provide private landowners with incentives to maintain wetlands in an undisturbed condition, and

9. Develop a public education program about the functions, values, distribution and regulation of wetlands. These recommendations resulted in state legislation adopted by the 1989 Legislative Assembly.

E. FEDERAL POLICY (EXECUTIVE ORDERS)

There are two Executive Orders requiring federal agencies to consider wetlands in their actions:

Executive Order 11990 - Most direct federal assistance for wetlands conversion was ended by Executive Order 11990 signed by President Carter in 1978. The Executive Order mandates all federal agencies when pursuing their responsibilities to "...take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands..." Agencies are specifically directed to avoid assisting or undertaking new construction in wetlands unless there is no viable alternative. All practical measures to minimize harm to wetlands in the action taken must be provided by the agency.

Agencies must also consider a proposal's effect on the survival and quality of the wetlands area.

Executive Order 11988 - Floodplain management requires each federal agency to avoid direct or indirect support of floodplain development wherever there is a practical alternative.

Executive Orders 11990 and 11988 apply to: 1) federal activities, including construction projects, acquisition, and disposal of lands; 2) grants-in-aid programs; and 3) technical assistance to states, including land and water planning, and the building of roads, sewers, and water supply systems. They do not apply to federal permitting or licensing activity on private property.

The executive orders, overall, give federal agencies some direction for activities and actions and have succeeded in motivating several agencies to consider wetlands values and functions during the preparation of environmental impact statements, but they are not legally binding. Therefore, their effectiveness is very limited and has not resulted in substantial on-the-ground protection of wetlands in Oregon.

F. FEDERAL PLANNING

Federal land planning to protect and manage natural resources has significant effect in Oregon, where approximately 51% of the state is administered by the Department of Interior (BLM) (25.3%) and Department of Agriculture (U.S. Forest Service) (25.5%). Multiple use resource management is practiced on most Forest Service and BLM lands, while special use is designated for National Wildlife Refuge System and National Park System lands. Federal land planning and management is conducted under a variety of authorities which include:

The Fish & Wildlife Coordination Act (16 U.S.C. 661-666c; 48 Stat.401), as amended - The Act of March 10, 1934, as amended authorizes the Secretary of the Interior: to assist federal, state, and other agencies in development, protection, rearing, and stocking fish and wildlife on federal lands, and to study effects of pollution on fish and wildlife; provides for donating land and funds in furthering purposes of Act and for appropriation of funds; requires consultation with the

USFWS and the wildlife agency of any state wherein the waters of any stream or other water body are proposed or authorized to be impounded, diverted, channelized or otherwise controlled or modified by any federal agency, or any private agency under federal permit or license, with a view to preventing loss of or damage to wildlife resources in connection with such water resource projects; authorizes federal water resource agencies to acquire lands or interests in connection with water use projects specifically for mitigation and enhancement of fish and wildlife, and provides for management of such lands by the USFWS or state agencies; excludes projects involving impoundments of less than 10 acres and Tennessee Valley Authority projects.

The National Forest Management Act of 1976 - The National Forest Management Act guides planning and management on individual forests. Important characteristics of these plans and of the current process of planning include: 1) the forest plans are legal documents the agency must follow in managing the national forests; 2) a rational-comprehensive planning model is followed in developing the plans; 3) analysis is done by an interdisciplinary team; and 4) the process of planning is open and responsive to public participation. A forest plan defines the direction of management of a national forest for the next 10 to 15 years. Specifications of the plan include: 1) purposes of management and intended future physical condition of the forest; 2) the kinds of management activities and the ways they will be carried out on each portion of the forest; 3) how the basic resources of the natural system will be protected on areas that are developed; and 4) the monitoring of management activities that will be done to ensure the standard and intentions of the plan are met (USDI, 1987).

The USFS Riparian Area Handbook (FSH 2509.23) defines riparian ecosystems as distinguished by the presence of free water within the common rooting depth of native perennial plants at least seasonally (10 percent of the time). Ephemeral and intermittent washes are included in this definition. The policy statement (FSM 2526.02) directs the agency to: 1) inventory riparian areas in the forest land management planning process; 2) develop and implement measures to manage and protect riparian areas; and 3) monitor the effectiveness of measures implemented for the management and protection of riparian areas.

In Oregon, there are thirteen national forests which are in the process of completing forest plans. Standards and guidelines for protection of wetland and riparian habitats have not been highlighted in the forest plans.

Cascade Head Scenic Research Area (CHSRA) - Congress designated the Cascade Head area and the Salmon River estuary for special management within the Siuslaw National Forest. Estuarine wetland restoration has been a management objective within the CHSRA. More than 250 acres of previously diked salt marsh has been reconverted to regular tidal inundation. Research on the revegetation process and physical changes has been funded by the Forest Service (Mitchell, 1981) and the Environmental Protection Agency.

The Federal Land Policy and Management Act of 1976 (FLPMA) - The FLPMA provided the BLM the needed guidance and charter for the agency and included requirements for land use planning to: 1) observe the principles of multiple-use and sustained yield; 2) use a systematic interdisciplinary approach; 3) give priority to areas of critical environmental concern; 4) rely on the inventory of public lands, resources, and values; 5) consider present and potential uses of the public lands; 6) consider the relative scarcity of the values involved; 7) weigh long-term against short-term benefits to the public;

8) comply with applicable pollution control laws; and 9) be consistent with state and local plans. The BLM planning process is called Resource Management Planning (RMP), which is a comprehensive plan covering all the resources in the area. The plan includes a narrative and maps showing allocations of the kinds and locations of allowable uses, levels of use, and management actions to be taken. Once a plan is adopted, all BLM resource decisions must conform to it. RMPs are completed for individual resource areas (BLM, 1989). Section 401 (6)(1) of the Act also contains a provision for rangeland improvements.

The Bureau of Land Management has developed "Fish and Wildlife 2000:A Plan for the Future" that provides goals and objectives for maintenance and enhancement of fish and wildlife habitat. BLM is developing a strategy for waterfowl habitat management on public lands. This program is a follow-up to goals identified in the Fish and Wildlife 2000 plan. The program develops goals for wetland acquisition, management and protection.

The BLM is also responsible for designating and managing Areas of Critical Environmental Concern (ACEC). These designated areas require specific resource management practices to protect and maintain existing resource values. Areas with important historic, cultural, scenic and natural values, and areas that are hazardous to human life and property may be designated and managed as ACECs. Two criteria must be met for an area to become eligible for consideration. The first criteria "relevance," refers to the need for special management attention "...to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes..." The second criteria, "importance," is fulfilled if the area "...has qualities that give it special worth, meaning, distinctiveness, or cause for concern, especially when compared to any like or similar resources." An ACEC must also have more-than-local significance.

In Oregon, two BLM districts are conducting wetland ACEC analysis. The Coos Bay District has developed and adopted a Management Plan for the New River ACEC that focuses on the protection of wetland values. The Lakeview District is currently developing a plan for ACEC designation in the Warner Lakes area for the purpose of protecting wetland values. Congress has appropriated monies for wetland acquisition in the Warner Lakes area.

The Bureau of Land Management has developed a strategic plan for wetlands and waterfowl habitat (BLM Waterfowl Habitat Team, 1989). This plan identifies the management opportunities and recommended strategies for wetland inventory, improvement, acquisition and waterfowl habitat maintenence.In Oregon the Bureau of Land Management has adopted a Riparian Enhancement Plan (BLM, 1987) and a Five-Year Comprehensive Anadromous Fish Habitat Enhancement Plan for Oregon Coastal Rivers (BLM, 1985). These plans develop specific goals to maintain, restore, or improve riparian areas (BLM, 1987).

1. Improve water quality to meet or exceed state water quality standards.

2. Increase productivity of riparian areas for water storage vegetation diversity, bank stability,and fish and wildlife habitat.

3. Improve vegetative productivity on uplands adjacent to riparian areas.

4. Monitor and evaluate management activities and their effects on riparian values. Revise management practices where site-specific objectives are not being met.

5. Maximize the use of individuals and groups wishing to volunteer time and effort to riparian enhancement projects.

6. Encourage private landowners, individuals, organizations, and local, state, and federal agencies to work jointly to implement riparian enhancement projects."

And "to provide and enhance the fishery potential of coastal streams in order to further contribute to the economic stability of the coastal communities and to the recreational and commercial fishing industries" (BLM, 1985).

Each of these plans identify specific projects for riparian habitat and anadromous fish habitat enhancement.

North American Waterfowl Management Plan (NAWMP) - The NAWMP is a plan developed jointly by waterfowl managers in the United States and Canada and concentrates primarily on the need for waterfowl habitat preservation, enhancement, and management. The current plan covers the period of 1986 through 2000 and will be reviewed at five-year intervals. In broad terms, the goal of the NAWMP is to **"...maintain and manage an appropriate distribution and diversity of high quality waterfowl habitat in North America..."** The NAWMP provides a broad policy framework with general guidelines for waterfowl habitat protection and management actions. A number of goals within the plan apply directly to Oregon while others apply indirectly.

The U.S. Fish and Wildlife Service has developed a wintering waterfowl habitat preservation concept plan for the Oregon coast (USFWS, 1979), which is currently being updated. Plans for redhead breeding habitat protection in the Great Basin (USFWS, undated) and a Klamath Basin waterfowl habitat protection concept plan (USFWS, 1988) have also been completed. These plans identify wetland habitats and important protection sites for waterfowl value.

G. FEDERAL REGULATORY PROGRAMS

The U.S. Army Corps of Engineers administers two interrelated permit programs which regulate wetland filling:

The Rivers and Harbors Act of 1899, Section 10 - Under this Act, permits are required for the dredging, filling, or obstruction of navigable waters. The Corps' evaluation criteria include considerations of effects on "...navigation, fish and wildlife, conservation, pollution, aesthetics, ecology, and the general public interest." Construction in wetlands outside commercially navigable waters is not regulated under this authority.

The Clean Water Act of 1972, Section 404 - Under this Act, permits are required to be obtained for discharges of dredged or fill material placed into all waters, including wetlands. Implementation of the 404 program involves three other federal agencies in addition to limited state involvement. The Environmental Protection Agency (EPA), the National Marine Fisheries Service (NMFS), and the U.S. Fish & Wildlife Service (USFWS) review permit applications and provide comments and recommendations on whether permits should be issued by the Corps. EPA has veto authority over permits involving disposal sites if impacts are considered unacceptable. EPA also develops criteria for discharges and state assumption of the 404 program. Section 404 regulations were changed in 1975 due to a national lawsuit and 404 jurisdiction now applies to tributaries of navigable waters and isolated wetlands and waters if interstate commerce is involved. With the new regulations, all drainages, and tributaries of navigable waters, including ephemeral and perennial streams, are included under the 404 program in Oregon.

Feierabend, et al (1987, p. 36) summarized the perceived failure of the permit program as a wetlands protection program: **"For many reasons, the section 404 program has failed to slow the rate of wetlands destruction. A major reason is the Corps' apparent lack of enthusiasm for protecting many wetlands under the Section 404 program. The Department of the Army and the Corps have refused to agree that Section 404 was enacted to protect wetlands, a view disputed by other federal agencies. The Corps' attitude is reflected in the agency's interpretation of Section 404, administration of the program, numerous individual permit decisions, and failure to enforce Section 404 against illegal wetlands destruction."**

States have authority under the Clean Water Act (Section 404) to recommend denial of applications for permits. Each state must certify that a permit issued by the Corps will not violate state adopted water quality standards and the Corps cannot issue a permit if the certification is denied.

The Clean Water Act requires protection against water quality degradation. Wetlands as waters of the state could be provided protection under Sections 401 and 303 of the Act. Section 303 requires the establishment of water quality standards adequate to protect beneficial uses. Section 401 requires the state (Department of Environmental Quality) to certify that a proposed federal permit complies with state water quality standards.

The Food Security Act of 1985

The Food Security Act of 1985 (Farm Bill) encourages removal of marginal lands from production and provides various opportunities for wetland habitat protection and restoration while reducing federal subsidy costs.

The legislation included provisions to deny farm program benefits to operators who convert wetlands for crop production purposes. The wetland conservation "swampbuster" provision of the Farm Bill makes an operator ineligible for price-support payments, farm storage facility loans, crop insurance, disaster payments, and insured or guaranteed loans for any year in which an annual crop was produced on converted wetlands (Heimlich and Langener, 1986).

A provision of the Farm Bill allows local or state governments or private non-profit organizations to obtain easements, deed restrictions or the equivalent for conservation purposes on Farmers Home Administration (FmHA) lands prior to resale. Under a Memorandum of Understanding between FmHA and U.S. Fish and Wildlife Service, the USFWS has an opportunity to screen all lands held by FmHA, identify wetland protection opportunities and formulate cooperative means to implement wetland protection and enhancement.

This program is in its infancy in Oregon and has provisions for "prior converted" wetlands which "grandfathers" previously initiated projects. The "swampbuster" provisions were specifically designed to reduce the effects of a major type of action converting wetlands to other uses in the United States.

H. FEDERAL ASSISTANCE PROGRAMS

A variety of federal statutes and programs assist state, local, and private wetlands protection efforts, either expressly or indirectly. There are several types of federal grants-in-aid programs available. They include programs for state or local acquisition of wetlands, land and water use planning, and regulation.

Federal Aid to Wildlife Restoration Act of 1937 - Better known as the Pittman-Robertson Act, this Act it serves as the principal mechanism for providing assistance to states for acquisition, restoration, and maintenance of wildlife habitat (which include wetlands) for the management of wildlife areas and resources, and for research into problems of wildlife management. The fund is comprised of revenues generated from the federal excise taxes on the sale of firearms, shells, and cartridges. The USFWS administers the federal program and the Oregon Department of Fish and Wildlife coordinates the state program. Other projects benefiting from the Act include the planning and evaluation of agency projects as to their effectiveness for wildlife habitat improvement. While this program indirectly protects and enhances wetlands and riparian areas in Oregon, its main focus is on wildlife habitat, its enhancement, management, and protection. The potential exists for allocations of some of the funds for wetlands acquisition in the future.

The Federal Aid in Fish Restoration Act of 1950 - More commonly known as the Dingell-Johnson Act, this Act parallels the Pittman-Robertson Act except that it provides federal assistance to states for acquisition of habitat associated with fish restoration and management programs (which could include wetlands). Funds derived from the federal excise tax on fishing equipment and bait are annually apportioned among the states. The USFWS administers the federal program and the Oregon Department of Fish and Wildlife coordinates the state program. The Wallup-Breaux Act was created as an expansion of the D-J Act.. Funds for this Act come from an expansion of the taxes on fishing-related equipment, such as tackle boxes and electric motors, plus a new tax on imported boats. These funds are allocated to the states and can be used for aquatic education, boating access, and sport fish habitat restoration.

The primary emphasis on expenditure of funds is on the expansion of sport fisheries opportunities, such as building or renovating hatcheries, constructing boat ramps, creating lakes and ponds, implementing aquatic education programs, and improving sport fish habitats.

The Land & Water Conservation Fund (LWCF) Act of 1965 - Administered by the National Park Service (NPS), the LWCF provides funds to the USFWS for expansion of the National Wildlife Refuge System, a significant portion of which includes wetlands, and to the NPS for land acquisition. A portion of the LWCF revenues is allocated to the states. The principal purpose of the LWCF is to provide a direct federal matching assistance program for state and local governments for recreation land acquisition and development. The Fund was established to promote land acquisition and the development of new outdoor recreation facilities.

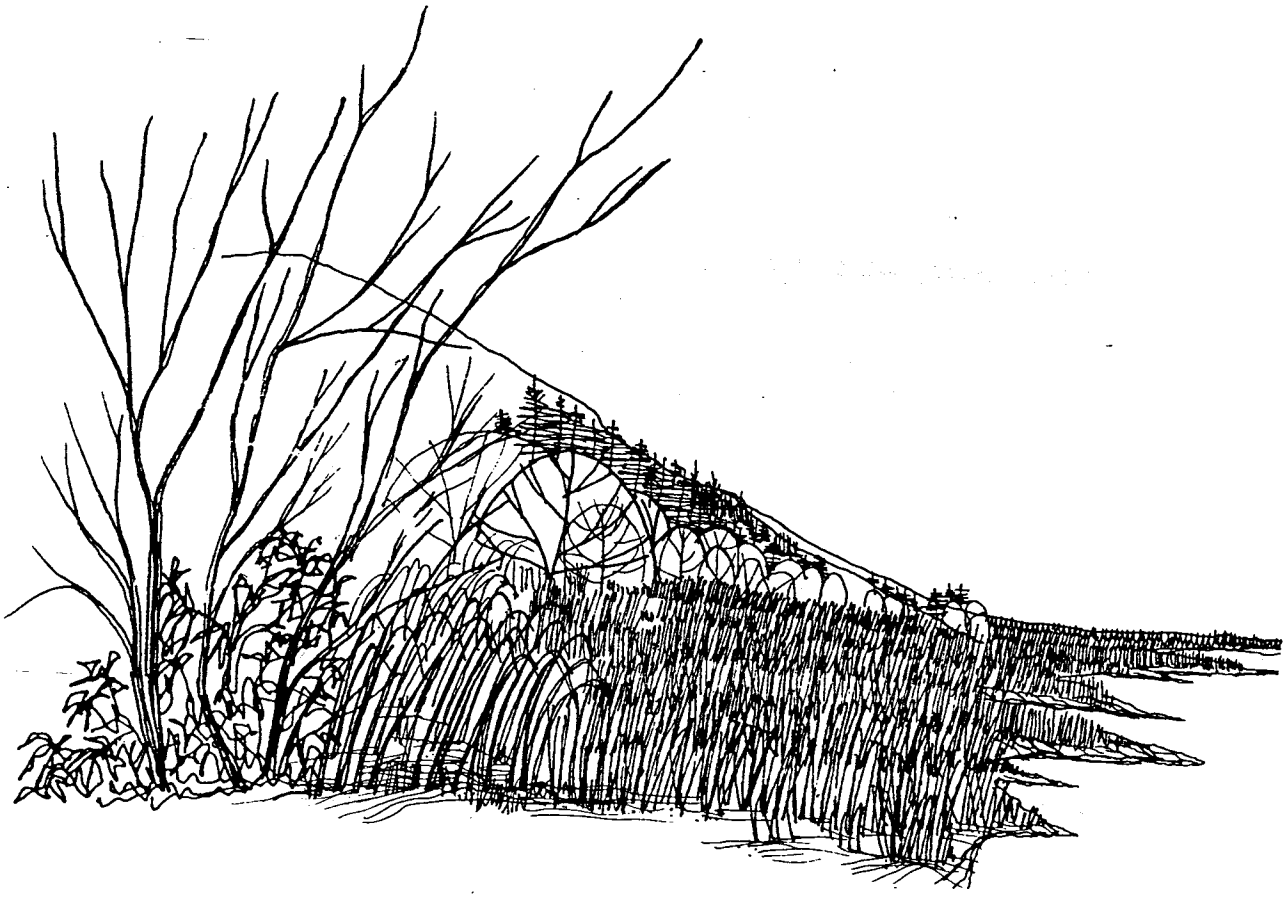
The LWCF program provides matching grants to states, and through the states to local governments. The Oregon State Parks and Recreation Division determines funding allocations in the state for LWCF monies for recreation purposes in accordance with the State Comprehensive Outdoor Recreation Plan. State Parks provides overall administration of the LWCF program in Oregon and prepares the State Comprehensive Outdoor Recreation Plan (SCORP). Projects must be sponsored by a government agency and meet other federal and state requirements.

Wetlands acquisition is now specifically highlighted under the Emergency Wetlands Resources Act of 1986 and the effectiveness of this program for wetlands and riparian area protection has not been tested.

The Water Resources Planning Acts of 1972 and 1974 - These Acts provide several sources of matching grants to states for water and related land resources planning, including regional water and land assessments and special projects.

The Endangered Species Act of 1973 - Recognizing that endangered species of wildlife and plants **"are of aesthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people,"** ...the Act declares the bold purpose of providing **"a means whereby the ecosystems upon which [they] depend may be conserved."** To accomplish this, it further declares a policy **"...that all Federal departments and agencies shall seek to conserve endangered species and shall utilize their authorities in furtherance of the purposes of this Act."** To protect the ecosystems upon which endangered and threatened species depend, the Act provides both indirect and direct means of protecting wildlife habitat, including wetlands.

Direct measures include the provision of LWCF Program monies for acquisition of areas for the conservation of endangered and threatened wildlife species and plants. Section 7 of the Act imposes four clearly discrete duties: 1) to review and utilize existing programs to further the purposes of the Act; 2) to utilize authorities to further such purposes by carrying out existence of endangered or threatened species; and 4) to **"insure"** that federal activities not destroy or modify habitat determined to be **"critical."**



OREGON'S WETLAND RESOURCES

III. OREGON'S WETLAND RESOURCES

There is limited scientific data available on the composition and dynamics of Pacific Northwest wetland systems (Frenkel, 1987). Plant community analysis has not been systematically conducted and detailed ecological research has not been conducted on any Pacific Northwest wetland system.

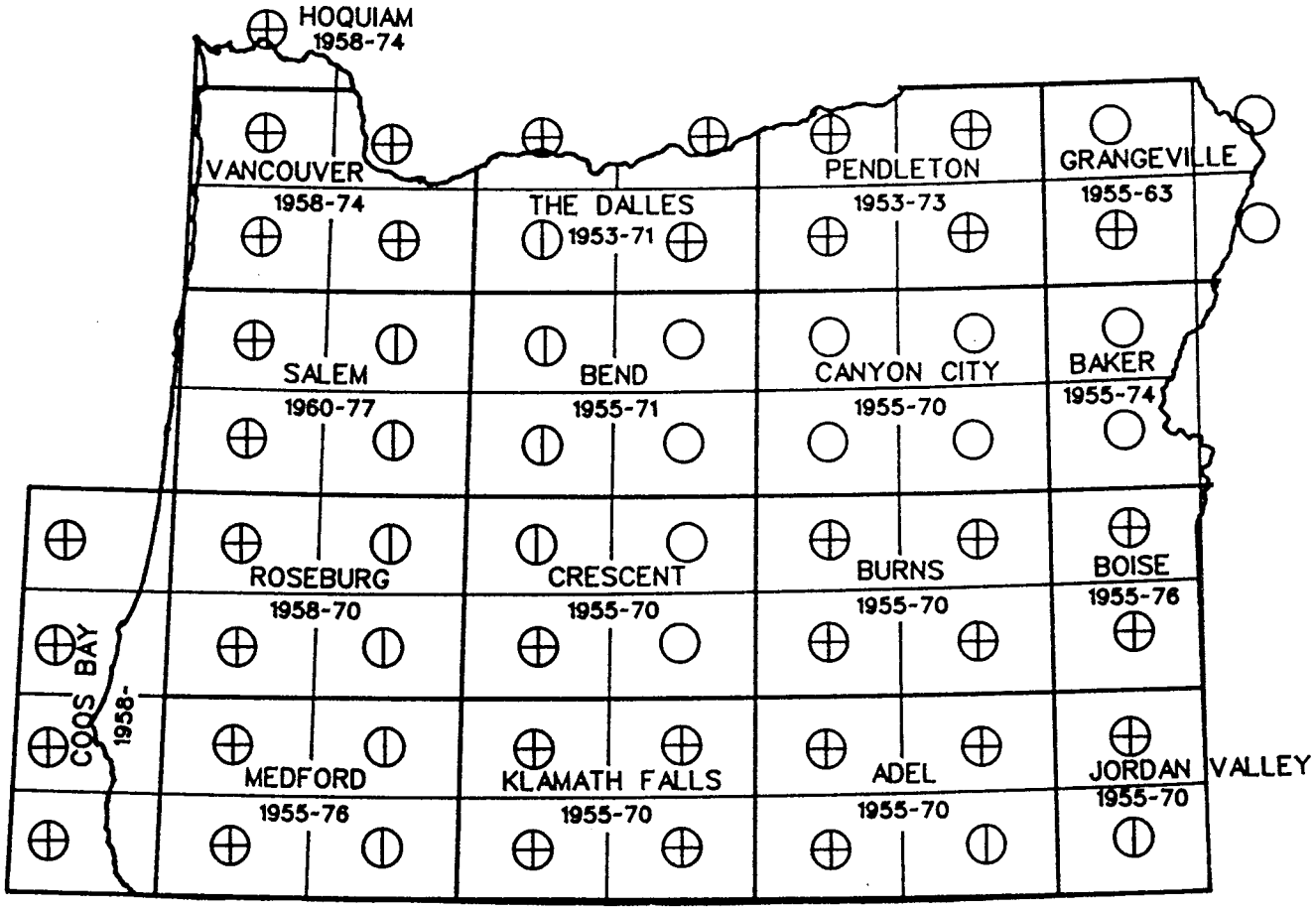
Systematic classification systems have been developed specifically for Pacific Northwest wetlands (Washington Department of Ecology, 1986) and for Oregon's aquatic ecosystems (Oregon Natural Heritage Advisory Council, 1988). Integration of these classification systems with plant community analysis and the U.S. Fish and Wildlife Service classification system has not been done.

A. INVENTORY

The National Wetland Inventory (NWI) for the state of Oregon has been completed for the coastal, Columbia River, and Klamath and Harney basins. The primary area without inventory coverage includes the Cascade Range and Columbia Plateau (Figure 1). The state has provided matching funds to the U.S. Fish and Wildlife Service to complete NWI mapping throughout Oregon. NWI mapping will be completed in 1990. The NWI data is not currently available to state-operated geographic information systems (GIS) nor through a state distributing agency.

The state of Oregon has conducted an independent inventory of estuarine habitats (Bottom et al, 1979). Estuarine resource and plan designation mapping was published by the Department of Land Conservation and Development (1987). This mapping is digitized and available in a GIS data base. The mapping is based on Oregon Department of Fish and Wildlife interpretation

FIGURE 1 STATE OF OREGON - NATIONAL WETLANDS INVENTORY STATUS - 1989



KEY

- ○ Photo-interpretation in progress.
- ◐ Wetland map products scheduled for 1989.
- ⊕ Revised wetland map products available.

of 1978-1979 aerial photographs of Oregon's major estuaries. Maps are typically 1" = 1000' scale. Table 2 lists the area by habitat type of Oregon's 17 major estuaries (Figure 2), based on the GIS computation of habitat areas. These summaries do not include Oregon's 17 minor estuaries (Table 3).

The data contained in the GIS indicate that of the total 131,844 estuarine acres in Oregon, there are 64,905 acres of intertidal habitats including approximately 9,000 acres of salt marsh and 10,000 acres of fresh marsh (predominantly in the Columbia River Estuary). Tidal marshes constitute approximately 14% of the total estuarine area in the state of Oregon. Approximately 113 acres of tidal marsh and 1,078 acres of intertidal flats have been designated as appropriate for development in coastal city and county land use plans (Table 4). The majority of Oregon's estuarine marshes and intertidal and subtidal habitats have been designated for management as natural or conservation areas.

B. WETLAND FUNCTIONS AND VALUES

Wetlands provide important functions and public values including provision of fish and wildlife habitat, (e.g., support endangered and threatened species, migratory birds and resident species); surface and groundwater supply; water quality improvement; flood, erosion, and storm damage reduction; and outdoor recreation, and research and education. Wetland functions and values vary according to wetland type, location and human modification. Wetlands do not necessarily perform all functions, have all public service values, and/or perform them equally well.

TABLE 2

ESTUARINE HABITAT CLASS DISTRIBUTION BY ESTUARY
(Area in Acres)

ESTUARY CLASS/NAME	Total Area Of All Estuarine Habitat Units	SUBTIDAL 1.	Unconsolidated Bottom 1.1	Rock Bottom 1.2	Aquatic Bed 1.3	INTERTIDAL 2.	Shore 2.1	Flat 2.2	Aquatic Bed 2.3	Beach/ Bar 2.4	Tidal Marsh 2.5
TOTAL	131844.5	66938.8	66269.9	63.7	605.2	64905.7	1754.0	30834.6	8693.6	4071.9	19551.6
DEVELOPMENT ESTUARIES	122163.4	64812.8	64219.0	63.7	530.1	57350.6	1616.4	27850.2	6399.3	3933.5	17551.2
Deep Draft	98461.3	55296.2	54937.5	54.9	303.8	43165.1	972.8	21644.6	2874.5	3819.4	13853.8
COLUMBIA RIVER	80811.8	47914.8	47864.1	50.7	-	32897.0	86.9	17539.5	-	3764.3	11506.3
YAQUINA BAY	4349.0	2003.1	1948.3	4.2	50.6	2345.9	194.9	612.3	917.7	-	621.0
COOS BAY	13300.5	5378.3	5125.1	-	253.2	7922.2	691.0	3492.8	1956.8	55.1	1726.5
Shallow Draft	23702.1	9516.6	9281.5	8.8	226.3	14185.5	643.6	6205.6	3524.8	114.1	3697.4
NEHALEM BAY	2749.0	1000.9	991.0	-	9.9	1748.1	157.5	400.7	641.9	23.4	524.6
TILLAMOOK BAY	9216.3	2123.1	2082.3	-	40.8	7093.2	113.2	4113.1	1982.5	-	884.4
SIUSLAW RIVER	3060.4	1441.6	1426.5	8.8	6.3	1618.8	134.6	358.0	331.6	30.5	764.1
UMPQUA RIVER	6543.6	3748.4	3748.4	-	-	2795.2	123.6	1021.6	400.1	49.1	1200.8
COQUILLE RIVER	1081.7	475.5	475.5	-	-	606.2	79.4	149.3	102.5	-	275.0
ROGUE RIVER	880.0	574.7	557.8	-	16.9	305.3	29.2	160.2	60.4	11.1	44.4
CHETCO RIVER	171.1	152.4	54.6	-	97.8	18.7	6.1	2.7	5.8	-	4.1
CONSERVATION ESTUARIES	8345.8	1888.6	1841.7	0.0	46.9	6457.2	130.3	2717.5	2181.0	129.4	1299.0
NECANICUM RIVER	450.8	179.1	179.1	-	-	271.7	16.4	117.8	4.1	1.4	132.0
NETARTS BAY	2742.9	337.5	334.3	-	3.2	2405.4	27.9	1090.2	954.4	104.9	228.0
NESTUCCA BAY	1175.6	311.2	298.6	-	12.6	864.4	27.6	383.3	229.8	19.1	204.6
SILETZ BAY	1460.6	326.4	300.9	-	25.5	1134.2	14.5	411.1	434.4	-	274.2
ALSEA BAY	2515.9	734.4	728.8	-	5.6	1781.5	43.9	715.1	558.3	4.0	460.2
NATURAL ESTUARIES	1335.3	237.4	209.2	0.0	28.2	1097.9	7.3	266.9	113.3	9.0	701.4
SAND LAKE	897.4	139.5	113.7	-	25.8	757.9	2.1	253.2	39.8	-	462.8
SALMON RIVER	437.9	97.9	95.5	-	2.4	340.0	5.2	13.7	73.5	9.0	238.6

taken from Department of Land Conservation & Development, 1987

OREGON ESTUARIES

DIVISION OF STATE LANDS

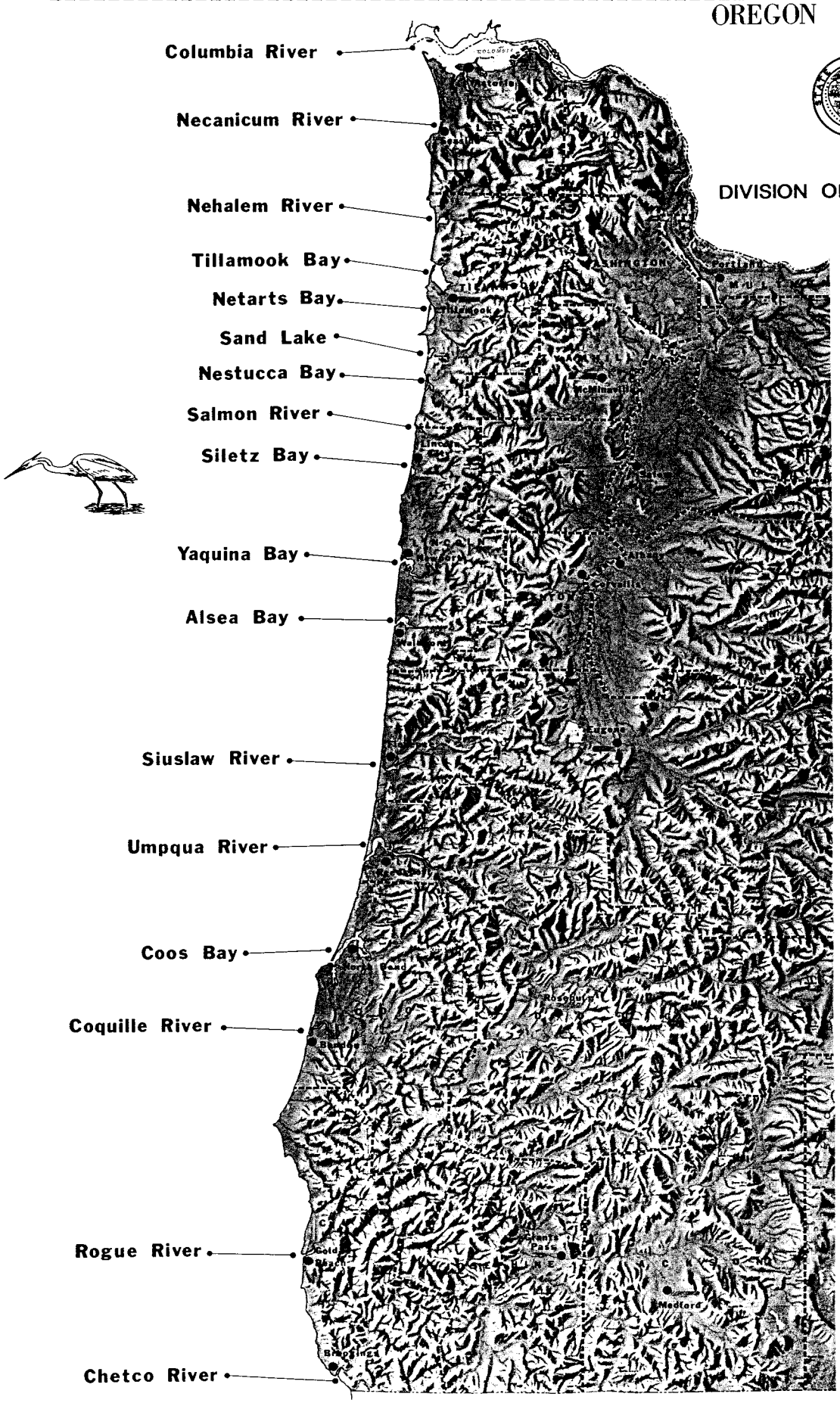
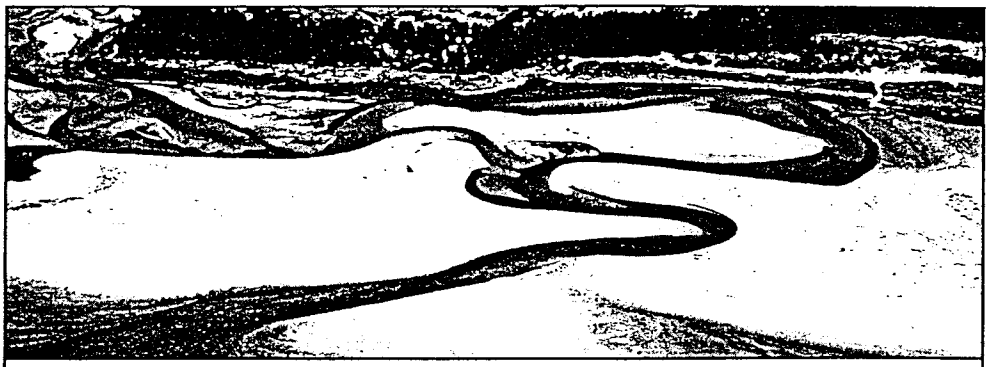


FIGURE 2

TABLE 3



MINOR ESTUARIES

The Oregon Estuary Plan Book covers Oregon's seventeen largest estuaries. Four smaller "major" estuaries and seventeen "minor" estuaries are not covered because detailed mapping and habitat information is not available for them.

Minor estuaries are formed where smaller rivers and creeks meet the ocean. Despite their small size, most minor estuaries do have valuable estuarine habitat and support anadromous fish runs. In addition, most of them are largely unaltered by human development. Minor estuaries are required to be placed in either a conservation or natural classification in an estuary plan.

County	Estuary	Classification	Size[1]
Clatsop	Ecola Creek[2]	Conservation	50 acres
Tillamook	Neskowin Creek	Conservation	30 acres
Lincoln	Big Creek	Natural	20 acres
	Beaver Creek	Conservation	35 acres
	Yachats River[3]	Conservation	40 acres
Lane	Tenmile Creek	Natural	35 acres
	Big Creek	Natural	35 acres
	Berry Creek	Natural	30 acres
	Siltcoos River	Natural	45 acres
	Sutton Creek	Natural	45 acres
Douglas	Tahkenitch Creek	Natural	25 acres
Coos	Tenmile Creek	Natural	35 acres
	Twomile Creek	Natural	20 acres
	Fourmile Creek/New R.	Natural	20 acres
Curry	Floras Creek/New R.	Natural	125 acres
	Euchre Creek	Natural	45 acres
	Hunter Creek	Natural	50 acres

[1] The figures listed are very general estimates based on local maps and head-of-tide data.

[2] Ecola Creek is largely within the City of Cannon Beach.

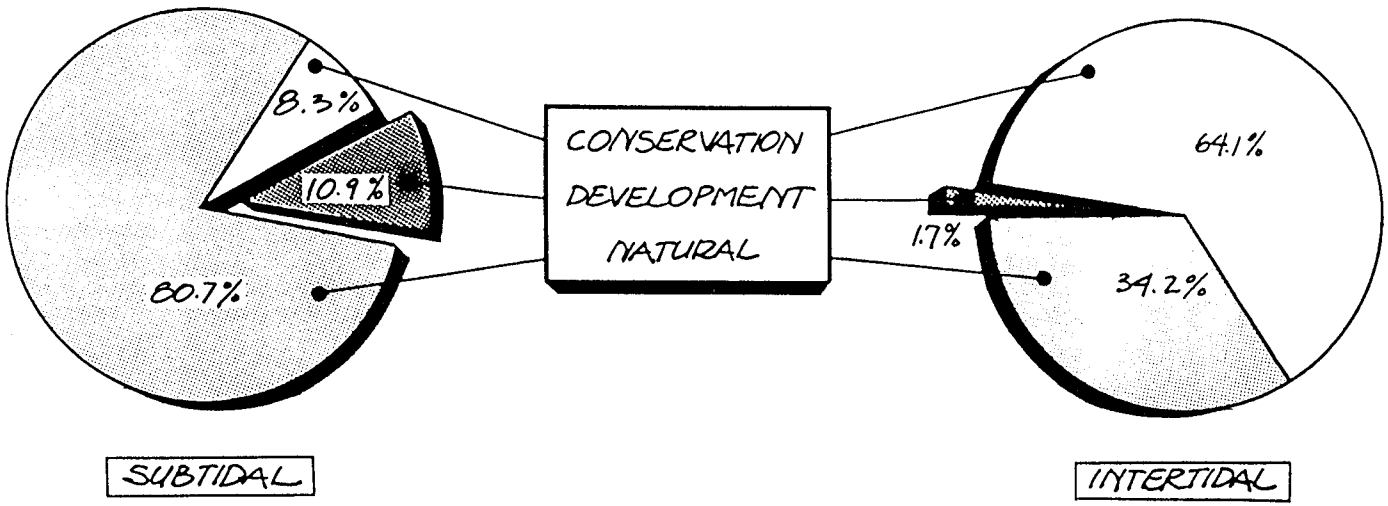
[3] Yachats River estuary is largely within the City of Yachats.

taken from Department of Land Conservation & Development, 1987

TABLE 4

HABITAT CLASS DISTRIBUTION BY MANAGEMENT UNIT TYPE
(Area in Acres)

MANAGEMENT UNIT TYPE/ Estuary Class	TOTAL AREA	SUBTIDAL	Unconsolidated Bottom	Rock Bottom	Aquatic Bed	INTERTIDAL	Shore	Flat	Aquatic Bed	Beach and Bar	Tidal Marsh
		1.	1.1	1.2	1.3	2.	2.1	2.2	2.3	2.4	2.5
TOTAL	131844.5	66938.8	66324.5	63.7	550.6	64905.7	1754.0	30852.6	8693.6	4071.9	19533.6
NATURAL UNITS	47217.5	5585.7	5244.2	4.4	337.1	41631.8	821.4	12605.4	7115.0	3161.9	17928.1
Natural	1335.3	237.4	209.2	-	28.2	1097.9	7.3	266.9	113.3	9.0	701.4
Conservation	6184.7	404.8	364.8	-	40.0	5779.9	48.4	2441.6	2143.2	12.3	1134.4
Development	39697.5	4943.5	4670.2	4.4	268.9	34754.0	765.7	9896.9	4858.5	3140.6	16092.3
CONSERVATION UNITS	76221.6	54025.9	53805.5	44.4	176.0	22195.7	708.8	17783.7	1337.8	855.1	1492.3
Conservation	2161.1	1483.8	1476.9	-	6.9	677.3	81.9	275.9	37.8	117.1	164.6
Development	74060.5	52542.1	52328.6	44.4	169.1	21518.4	626.9	17525.8	1300.0	738.0	1327.7
DEVELOPMENT UNITS											
Development	8405.4	7327.2	7274.8	14.9	37.5	1078.2	223.8	445.5	240.8	54.9	113.2



taken from Department of Land Conservation & Development, 1987

The U.S. Congress directed the Department of the Interior to consider contributions wetlands make to wildlife and fisheries, water quantity and quality, flood control, outdoor recreation, and other areas or concerns of the Secretary of the Interior. As indicated by the Report of the Senate Committee on Environment and Public Works (U.S. Senate, September 16, 1986);

> **"No one of these services or products provided by the respective wetlands types should be given greater priority than any other. Instead, the Secretary should consider the broadest range of wetland values in establishing priorities and not limit his consideration to any one service or product contributed by a wetlands type."**

A summary discussion of the functions and values of wetlands is provided to assist in understanding the importance of wetlands from the standpoint of public values that should be protected. Sather and Smith (1984) and Adamus and Stockwell (1983) were the sources for much of this information.

1. Wildlife and Fisheries

Wetlands are among the world's most biologically productive ecosystems and are crucial as habitats for fish and wildlife. Roughly two-thirds of the commercially important fish and shellfish species harvested along the Atlantic and Gulf coasts and half of the Pacific coast species are dependent upon estuarine wetland habitats for food, spawning, and/or nursery areas. A commercial marine fisheries harvest valued at over $10 billion annually provides one economic measure of the significance of coastal wetland resources.

Wetlands provide essential breeding, feeding, spawning, nursery, nesting, migratory and/or wintering habitat for a major portion of the Nation's migratory and resident fish and wildlife. Approximately one-third of the Nation's threatened and endangered plant and animal species depend heavily on wetlands. Millions of water-associated birds including waterfowl, shorebirds, wading birds, gulls and terns, rails, and other groups, depend on marshes, potholes, sloughs, swamps, mudflats and other wetland types.

In Oregon, estuarine tidal marshes have significant importance for juvenile anadramous fish rearing (Healey, 1982). Coastal freshwater and estuarine wetlands adjacent to open waters are important for wintering waterfowl (USFWS, 1979). Inland freshwater wetlands are very important to waterfowl especially in the Great Basin (USFWS, undated). Riparian habitats have been recognized throughout the arid portion of the state as having critical value to a large number of fish and wildlife species.

2. Hydrology

Hydrologic functions of wetlands include surface and groundwater recharge and discharge, water quality, flood water conveyance and storage, and shoreline and erosion protection. Most wetland functions are related to the presence, quantity, quality, and movement of water in a wetland (Carter et al., 1979). In general, the hydrologic functional values of wetlands are not well understood and the state-of-the-art is poorly developed (Lonard et al., 1981); this is because wetlands are among the most difficult hydrologic environments to assess (Sather and Smith, 1984). Additional research and field testing are needed to correct this deficiency. Wetland assessment techniques for hydrological functions are limited or poorly developed. Little direct data is available to identify hydrologic functions of Oregon's wetland systems.

(a) Surface and Groundwater Supply

The groundwater discharge function of wetlands (i.e., movement of groundwater into surface water, e.g., springs) is recognized as being more important than the groundwater recharge or functional movement of surface water into the groundwater aquifer. In fact, wetlands may provide less net contributions to groundwater supplies than, for example, adjacent, undeveloped upland areas (Clark and Clark, 1979). Seasonal wetlands are more likely to perform a recharge function than permanent or semi-permanent wetlands (Reppert et al., 1979). Recharge is important for replenishing aquifers used for water supply. Wetlands demonstrated to be groundwater discharge sites are good indicators of potential water supplies for towns. More work is needed to adequately understand the applicability and value of this function to specific wetlands (Sather and Smith, 1984).

The public benefits of this wetland function include water supply for public use, irrigation, livestock watering and wildlife uses. The effectiveness of the groundwater supply function of wetlands is higher when the surface and groundwater aquifer are connected. The socioeconomic value is higher when the public derives its water supply from the wetland or related groundwater aquifer. Many of the wetlands in the western portion of the state are groundwater discharge wetlands.

(b) Water Quality

Wetlands help maintain water quality or improve degraded water by removing and retaining nutrients, processing chemical and organic wastes and pollutants (including heavy metals) and reducing sediment load in water. Wetlands intercept runoff from uplands and help filter sediments, nutrients and wastes.

Important water quality functions of wetlands include uptake, transformation and addition of materials as water flows through the wetland. Wetlands act as sediment, toxic substance and nutrient traps and perform functions similar to a waste treatment plant. The water quality improvement process occurring in wetlands is not well understood in spite of many case studies documenting the importance of wetlands in waste treatment. Wetlands also have an important water quality role as sedimentation basins. Wetland vegetation filters and holds sediments which otherwise enter lakes, streams, reservoirs andharbors, often necessitating costly maintenance dredging activities. Wetlands also assimilate toxic substances, such as heavy metals and pesticides.

The water quality value of wetlands is highest when there is net removal or detoxification of materials that would lower water quality further downstream. As would be expected, wetlands in urbanized and agricultural environments have more eutrophic waters than ones in undeveloped areas. The city of Cannon Beach is utilizing a freshwater forested wetland for water quality treatment of secondarily treated effluent (Franklin and Frenkel, 1987). The Unified Sewerage Agency is evaluating the potential of wetland creation for effluent treatment in Jackson Bottoms in the Tualatin basin. The city of LaGrande is also analyzing the potential of weltnad treatment of effluent.

Many communities are recognizing the potential of utilizing wetlands for water quality treatment. In those waters where the natural system's assimilative capacity has been diminished through wetland loss or overboding, further wetland loss will reduce assimilative capacity. The Oregon Department of Environmental Quality has identified wetland protection as a means of providing non-point source pollution control.

(c) Flood, Erosion and Shoreline Damage Reduction

Wetlands temporarily store flood water, slow water velocities, reduce bank and shoreline erosion, and slowly release stored waters downstream, thereby saving lives and property. This function is especially important in areas with developed floodplains, where the potential for flood damage is high. Inland wetlands located along major streams and around lakes stabilize shorelines and channel banks and buffer developed uplands from storm, wave, or erosion damage. Coastal wetlands serve these functions as well as provide a buffer to reduce potentially devastating effects of storm surges.

Flood conveyance and reduction functions of wetlands relate to their capacity to store and slow flood water, thereby increasing the duration of the flow and reducing downstream flood peaks (Sather and Smith, 1984). The Charles and Neponset river's watersheds in Massachusetts is an often used example of the socioeconomic values associated with protecting wetlands to maximize flood control benefits. In this area, the Corps estimated that loss of the 8,423 acres of wetlands within the basin would result in annual flood damages of over $17,000,000 (Sather and Smith, 1984).

Important factors influencing the flood reduction role of wetlands include: size (larger wetlands provide more flood storage and flow reduction); location within the basin (wetlands in the upper watershed often are more effective for flood retention); texture of substrate; structure of the vegetation; and connection with other wetlands (isolated wetlands are generally less effective for flood control).

Although it is recognized that wetlands perform a flood reduction function, there is still insufficient information to effectively measure the functional value of different wetlands for this important hydrologic role.

A high flood control functional value of a wetland could be measured by the potential of wetlands to store flood waters and prevent future flood damage that could result in substantial costs each year. Among different wetland types, riverine wetlands with adjacent open or relatively open (non-developed) flood plains often have relatively high flood storage and conveyance values. There has been no evaluation of the effects of wetland protection on flood storage in Oregon's basins.

3. Outdoor Recreation

Wetlands support boating, swimming, sport fishing, hunting, birdwatching, nature observation and study, and other wetland-related recreational activities that generate billions of dollars of expenditure annually. For example, 17.4 million hunters spent about $5.6 billion on supplies, lodging, transportation and other related expenses in 1980 (U.S. Dept. of Interior and U.S. Dept, of Commerce, 1982). Of these totals, 5.3 million hunted waterfowl, spending about $640 million. In total, fish and wildlife-related recreation in 1980 was a $41 billion industry, largely based on wetland resources.

Recreation in wetlands, such as hiking, nature observation and photography, swimming, boating, and ice-skating, is generally not evaluated in economic terms. Many people simply enjoy the beauty and sounds of nature and spend their leisure time walking or boating in or near wetlands observing plan and animal life. The aesthetic value of wetlands is extremely difficult to evaluate or quantify monetarily. Nonetheless, it is very important, because in 1980 alone, 28.8 million people (17% of the U.S. population) took special trips simply to observe or photograph wildlife.

Easily accessible wetlands that are close to major population centers often have higher direct outdoor recreation value than non-accessible wetlands located some distance from any population centers. The Oregon Wildlife Viewing Guide, recently published by Defenders of Wildlife, promotes the passive use of ecological sites. Of the sites identified for wildlife viewing opportunities, a majority are wetland sites.

4. Other Wetland Values

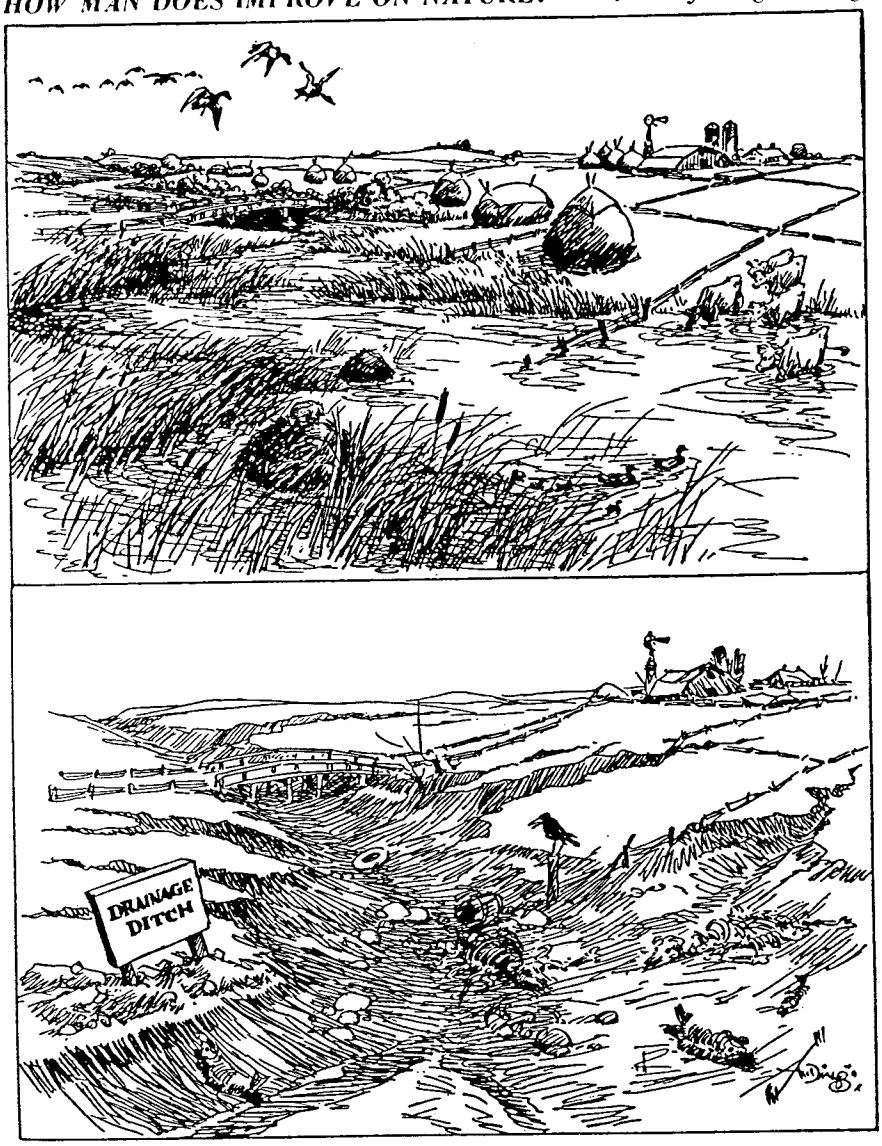
Wetland values in addition to those mentioned in Section 301(c) of the Act, include economic (e.g., agriculture, commercial fishing, timber harvest), and societal (e.g., scenic, archaeological, historical, open space).

Society often more readily identifies with socioeconomic values than wildlife resource (e.g., habitat) or hydrologic (e.g., water quality) values, because socioeconomic values are more tangible (i.e., scenic or commercial fishing values are easily apparent to users). Although tangible values of wetlands (e.g., timber, peat, commercial fishery) are monetarily quantifiable, there is no clear agreement on an assessment methodology for defining such functional values of wetlands. Little work has been conducted to define or quantify the intangible values of wetlands.

Since intangible societal values of wetlands are generally detached from economic goals, these values, usually, are highest when wetland quality undisturbed habitats, non-polluted water, and fish and wildlife resource diversity are high and there is good accessibility for outdoor recreation uses. Certain uses of wetlands (e.g., timber removal or crop production) may cause degradation and reduction of intangible wetland values (such as fish and wildlife, recreational, or scenic values). Such uses of wetlands to achieve a direct economic return may also lower other functional wetland values, such as habitat and water quality.

Wetland environments have been protected for their natural heritage value by public and private organizations (South Slough National Estuarine Research Reserve, the Wetlands Conservancy, the Nature Conservancy, etc.). Some of the protected sites provide significant opportunity for education, research and public enjoyment.

HOW MAN DOES IMPROVE ON NATURE! -:- *By Ding Darling*



WETLAND TRENDS

IV. WETLAND TRENDS

A. NATIONAL TRENDS

Wetland losses are continuing throughout the United States, including Oregon, in spite of increased federal, state and local efforts to protect these areas. Of the estimated original (i.e., at the time of European settlement) 215 million acres of wetlands that existed in the conterminous U.S., less than 95 million acres (44%) probably remain. For example, between 1954 and 1974, about 9 million acres of wetlands were lost (Frayer et al. 1983). Net annual wetland losses during this period averaged 458,000 acres (440,000 acres inland and 18,000 acres coastal). About 396,000 acres/year (87%) of this estimated annual wetland loss has been attributed to agricultural conversion. Wetland losses were also due to residential and commercial developments, ports and harbors, roads, water development projects, mining for mineral resources, livestock grazing, and other land use activities.

Destruction or alteration of wetlands eliminates or reduces their values. Drainage of wetlands, for example, eliminates all the beneficial effects of the wetland on water quality and directly contributes to flooding problems. When wetland landowners gain financial profit by converting wetlands to another use, the general public loses incremental flood, erosion and storm damage control, water quality maintenance, outdoor recreation and fish and wildlife resource benefits from the wetland. The broad public interest is protected when these wetland values are preserved.

The USFW under the National Wetlands Inventory Program studied trends in wetland habitats in the conterminous United States during the 20-year period between 1954 and 1974 to develop information on losses and gains of wetland types (Frayer, et al., 1983) The NWI trends study was designed to obtain a high degree of accuracy and precision at the national level. During this study, less emphasis was placed on sub-national levels (e.g.,States). The NWI trends study did not address the significant reduction in quality of many wetlands and did not address losses on a state level. In Oregon, the greatest losses have occurred in the early 1900's.

National Losses by Wetland Type

A USFW analysis of trends study data for the 48 states indicates that some wetland types, as described by Cowardin et al. (1979), declined significantly, others remained relatively stable and some increased since 1954. Using this information, the wetland types have been grouped as follows in three categories that correspond with declining, stable and increasing wetland trends (Table 5).

Table 5: National Wetland Trends 1950's-1970's

	Declining Types	1954-1974 % Change
1.	Palustrine Emergent	-14.1
2.	Palustrine Forested	-10.8
3.	Estuarine Intertidal Emergent	- 8.3
4.	Marine Intertidal	- 4.9
5.	Palustrine Scrub/Shrub	- 3.5
6.	Estuarine Intertidal Forested & Scrub-Shrub	- 3.2
	Stable Types	
7.	Estuarine Intertidal Non-Vegetated	+ 0.7
8.	Estuarine Subtidal	+ 1.4
9.	Lacustrine	+ 2.4
	Increasing Types	
10.	Palustrine - Other	+45.0
11.	Palustrine Unconsolidated Shore	+51.8
12.	Palustrine Open Water	+89.4

It is recognized that the national trends study data may not accurately portray the wetland loss or scarcity situation for certain local or regional areas. Recent analysts of wetland status in the state of Washington indicate significant lower overall losses of wetlands than national averages.

B. WETLAND TRENDS IN OREGON

The problem areas and threatened wetlands identified in the national trends study data applicable to Oregon includes:

(1) Estuarine wetlands;
(2) Western riparian wetlands; and
(3) Urban wetlands.

The most significant wetland losses have been due to conversion of wetlands to agricultural uses. The effect of urbanization and industrial development is more localized in Oregon.

Oregon, as well as in many western U.S. areas, experienced some of its greatest wetland conversion from the mid-1800's to the mid-1900's. Many losses are due to the passage of the Swamp Land Acts of 1849, 1850, and 1860. These acts granted swamp and overflow lands in Oregon and fourteen other states to those respective states (Shaw and Ferdine 1956). The Swamp Land Acts encouraged the conversion of wetlands to agriculture use by constructing levees and drainage ditches. About 65 million acres had been transferred from the Federal government to these 15 states by 1954. The largest areas affected by Swamp Land Acts in Oregon are wetlands in the Klamath Basin and estuarine lands.

Estuarine Wetlands

Recent analysis of estuarine wetland losses (Boule and Bierly, 1987) described losses of 50% to 80% or greater of intertidal marsh to have occurred within Oregon's larger estuaries. The primary activity resulting in loss of estuarine wetland was diking for agricultural purposes (Thomas, 1983). Diking in many areas has resulted in conversion of estuarine wetlands to palustrine wetlands, particularly in the upper reaches of tidal influence.

Filling for port and other development has occurred predominantly in two estuarine systems in Oregon (Columbia River and Coos Bay Estuary). Losses attributable to fill constitute less than 2,000 acres in all of Oregon's major estuaries.

No accurate figures are available for the rate of change in estuarine filling or other forms of alteration. Recent analysis of fill projects in Oregon estuaries by the Division of State Lands identified less than 40 acres of fill placed in Oregon estuaries between 1971 and 1986. The analysis indicated a trend toward smaller estuarine fills since 1971.

Riparian Wetlands

Lands within the active flood plain of streams and along the margins of ponds and lakes are commonly called riparian ecosystems. These include both wetlands along streams and water bodies, and uplands on flood plain terraces. Loss of riparian habitats in general serves to reflect trends in associated wetlands.

Riparian ecosystems are disproportionately significant for wildlife in arid regions. Riparian ecosystems provide abundant food, cover and water for resident and migrating animals. Woody vegetation is used for nesting by birds and for food and shelter by various mammals. Deer migrate along streams between high elevation summer ranges and low elevation winter ranges (Thomas, et al 1979). Cottonwood and willow wetlands are prime bird habitats in the west (Anderson et al, 1977).

Riparian ecosystems are a highly modified land type in the west. Many riparian forests have been cleared for crop or pasture use. Heavy grazing has destroyed understory vegetation and has prevented regeneration of riparian vegetation in many places. Water diversion and pumping of ground water for irrigation has altered the water table affecting riparian wetlands. Flood control porjects have altered flood patterns. This, in combination with channelization, has adversely affected riparian habitats.

Data for riparian habitat losses is not generally available for Oregon. Frenkel, et al, (1984) determined vegetation change along the Willamette River by analyzing aerial photographs taken between 1972 and 1981. This analysis identified loss of riparian vegetation predominantly due to agricultural expansion. Conversion of riparian vegetation to agricultural use constituted 80% of the loss of riparian cover. The remaining 20% was related to conversion of riparian cover to non-agricultural development, chiefly gravel extraction operations.

Urban Wetlands

Proposed uses of land in metropolitan areas are often in dispute. Pressure for urban development brings the wetlands to the planning table on an ongoing basis. Oregon's statewide

land use planning program has identified some wetland sites for protection. Many local communities have conducted detailed inventories and developed specific planning programs to avoid continued wetland losses. Significant losses have occurred in the Portland metropolitan area. Recent documentation of the losses in the Columbia South Shore area typify floodplain alteration in urban areas. The dominant factor leading to wetland loss have been the construction of flood control structures and drainage projects. Flood control districts were created to authorize structures that prevent floodplain inundation. These projects were constructed primarily in the first half of the 1900's.

Data for historical loss of wetlands is incomplete for the state. Two cursory analyses of wetland losses in the Willamette Valley have been conducted to identify order of magnitude losses of palustrine and riverine wetland systems. Baker (1981) identified only 200 acres remaining of an original acreage estimate of between 150,000 and 350,000 acres of Deschampsia prairie wetland in the Willamette Valley. Frenkel (1982) found a similar level of impact to Willamette Valley palustrine wetlands.

Agricultural Losses

The Willamette Valley has been identified as an area of high potential for conversion of wetlands to agricultural purposes (Heimlich and Langner, 1986). At the present time, Oregon State University Department of Geography, is conducting an analysis of conversion of wetland to agricultural purposes and effectiveness of regulations under the Farm Commodities Act of 1985 ("swampbuster" provisions). This project is designed to review proposed and completed agricultural conversions, provide wetland mapping and conversion mapping to determine the effectiveness of the "swampbuster" provision of the Farm Commodities Act on stopping wetland losses to agricultural

development in the Willamette Valley. Initial results by Mitchell (1989) conclude that there was a 10% loss of wetland area in the Tualatin Basin between 1975 and 1988. The most significant losses were of palustrine emergent wetlands and open water wetlands. There was little change to forested and aquatic bed wetlands. Scrub shrub wetlands increased significantly, primarily due to shrub development in emergent wetlands.

Other data on wetland resource loss was compiled by Akins (1970) on wetlands losses in the Upper Klamath Basin. A 1905 federal reclamation project was adopted by the U.S. Government designating the Upper Klamath basin as a reclamation project to convert wetlands to agricultural use. The states of Oregon and California adopted state statutes promoting the agricultural drainage and development of these natural wetland systems. Data compiled by Akins (1970) indicated that of the original 350,000 acres of wetland in the Upper Klamath Basin, approximately 30,000 acres remains today. The major losses of wetlands in Klamath Basin occurred during the early part of this century.

THREAT OF FUTURE WETLAND LOSS

V. THREAT OF FUTURE WETLAND LOSS

A. NATIONAL PERSPECTIVE

Wetlands continue to be threatened with loss or degradation due to such factors as agricultural practices, commercial and residential development; drainage and filling; road building; water development projects; groundwater withdrawal; loss of instream flows; water pollution; and vegetation removal. During the NWI trends study, agricultural practices were responsible for 87 percent of the man-induced wetland losses. Residential and commercial development accounted for most of the remaining losses. While these land use activities in wetlands may require federal permits the regulatory program has not halted all wetland losses or degradation.

A number of factors influence the type, degree, and imminence of threat. Degree of threat, addresses the percentage of the wetland area likely to be lost or degraded by all types of wetland threats. Imminence of threat measures the time period within which the wetland is likely to be destroyed or altered. These factors include changes in population growth and movements; food and energy policies and supplies; local, State and Federal laws and ordinances; and land or resource use controls. For example, the movement of people into the Pacific Northwest or from rural areas to urban centers may fuel a demand for more conversion of wetlands to urban development.

The National Planning Association has estimated that 80 percent of the Nation's population growth for the period 1980-2000 will occur in the south and west. A depressed agricultural economy due to crop surplus, low prices, and weak export demand could result in less conversion of wetlands to agricultural lands. Conversely, increased demand for U.S. agricultural products could promote conversions of wetlands to agricultural lands.

B. THREAT OF FUTURE LOSS IN OREGON

EPA has conducted a Priority Wetlands Threat Assessment (Jones & Stokes, 1988) for Region X. The threat assessment is based on the identification of high growth areas, assessment of wetland resources of the growth areas and identifying the level of threat for each area. Areas of growth with wetland threat in Oregon were:

1) Eugene area
2) Portland area
3) Washington County area
4) Warrenton area - high threat
5) Beaverton area
6) Hillsboro area

These areas were identified for the purpose of applying EPA's Advanced Identification program.

Coastal Wetlands

Various land use controls are achieved through local zoning, state and federal permitting programs for activities in wetlands influence human activities that cause wetland losses or alterations. For example, coastal wetland losses have been reduced in Oregon through State wetland protection laws. Current wetland conversions in Oregon's coastal regions are diked tidal lands being converted to urban used. Estuarine wetland losses have been significantly reduced in Oregon's planning and state regulatory program.

Riparian Wetlands

Riparian zones are of significant value to wildlife. Nearly 55% of the state of Oregon is in public ownership which puts a

significant role over riparian zone protection with public land management agencies. The recognition of these public values in federal land management planning is important to the state of Oregon. The Bureau of Land Management has adopted policies to enhance riparian systems.

Urban Wetlands

Wetlands near urban centers are under increasing development pressure for residential housing, industry, and commercial facilities. Rising population and economic growth create high demand for real estate in suburban localities and urban localities that support wetlands. In many communities inland wetlands represent the last large parcels of open space within the urban growth boundary.

With accelerating development of adjacent uplands, the role of wetlands in flood protection and water quality may become more important. Urban development increases the amount of surface water runoff from the land after rainfall. This raises flood heights and increases flow rates of the rivers, thereby increasing the risks of flood damages. Increased runoff also brings with it various substances that degrade water quality, such as fertilizer, pesticides, grease and oil, and sediment. Effluent from some sewage treatment plants built to handle the needs of growing communities also reduces water quality. Passing effluent through wetlands (where nutrient uptake and immobilization takes place) can improve the quality of Oregon's water.

A number of Oregon's urban communities have conducted detailed wetland inventories and developed wetland protection ordinances. The Portland metropolitan area, including the cities of Beaverton, Portland, Gresham, West Linn and Milwaukie have conducted wetland inventories. The city of Albany has

recently conducted a detailed wetland inventory and is in the process of adopting a wetlands management program. The cities of Eugene and Springfield are conducting wetland inventory for the purpose of advanced identification of wetlands.

While wetlands planning has not uniformly protected urban wetlands, planning for wetlands protection in Oregon's urban areas is giving wetland resources close scrutiny.

WETLAND PRIORITIES IN OREGON

VI. WETLAND PRIORITIES IN OREGON

State and federal agencies have identified wetland resources as priorities for protection and conservation within the state of Oregon. The following discussion summarizes the priority areas identified in previous wetland resource planning processes.

A. FEDERAL PRIORITIES IN OREGON

The U.S. Fish and Wildlife Service has been very active in developing policy guidance and planning for public fish and wildlife resources in the United States. The Service Management Plan (U.S. Fish and WIldlife Service, 1982) identifies Columbia Basin steelhead, trout, chinook, and sockeye salmon as the number one nationally ranked important resource problem in the United States. Other resources identified as important resource problems are: 1) migratory waterfowl and marine birds in coastal Washington and Oregon, which ranks thirty-first in the United States; 2) salmon and steelhead in the Klamath Basin which ranks nationally as the eighteenth important resource problem; 3) migratory waterfowl and other migratory birds in the Klamath Basin ranks thirty-fifth as an important resource problem in the United States; and 4) waterfowl and other water birds in the Harney Basin rank fifty-eighth as an important resource problem. The number of resource issues that are directly and indirectly related to wetlands in the state of Oregon highlight the focus of protection and conservation needs in the state of Oregon.

The Fish and Wildlife Service has identified wetlands for protection of redhead duck breeding habitat in Oregon's Harney, Malheur, Lake and Klamath counties as specific areas of concern (U.S. Fish and Wildlife Service, undated). In 1979 the U.S. Fish and Wildlife Service identified coastal wetlands in the

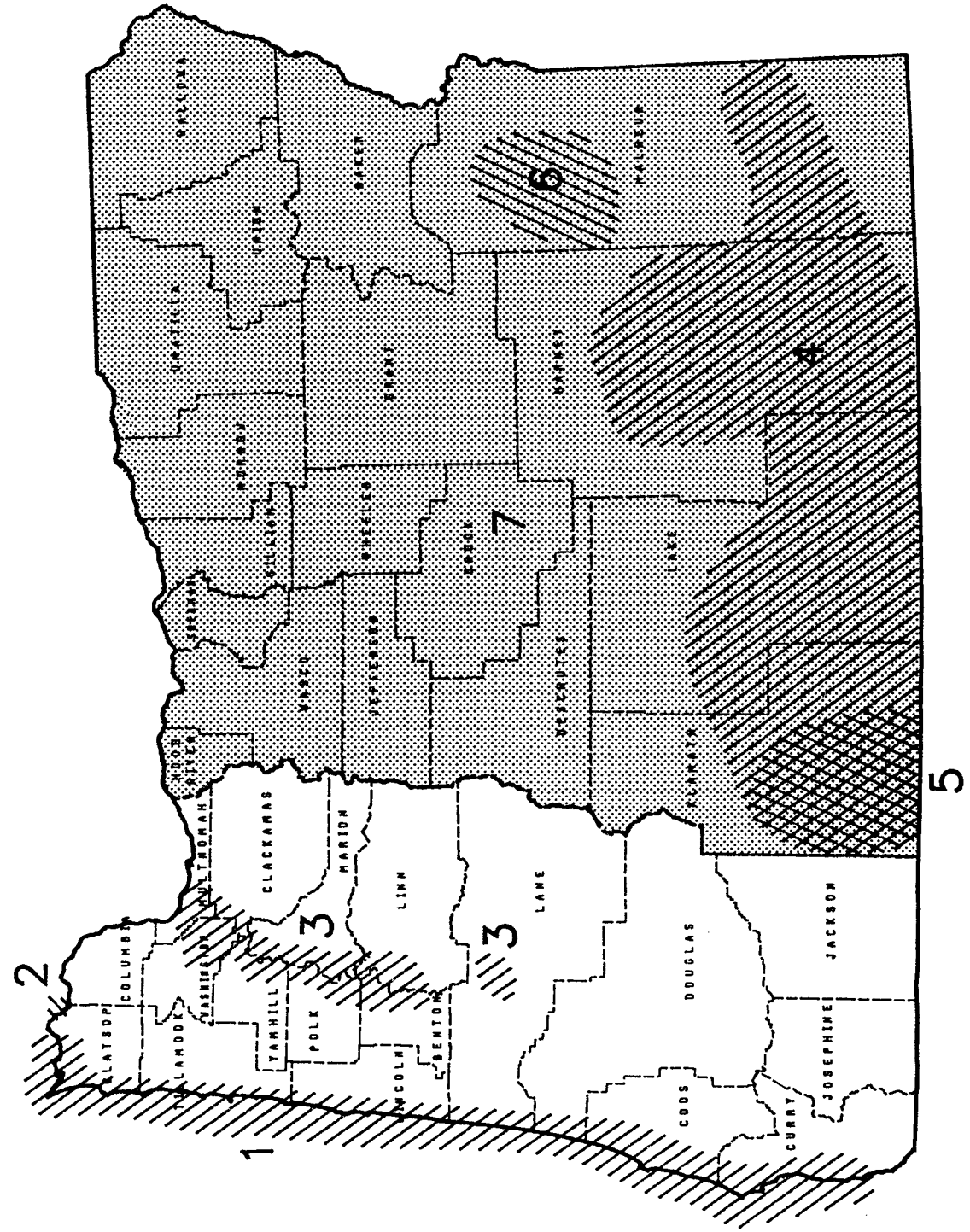
state of Oregon and prioritized them for potential acquisition and restoration (U.S. Fish and Wildlife Service, 1979). These planning efforts for preservation of waterfowl habitat provide an evaluation of individual wetland sites for specific purposes. A more recent analysis of waterfowl habitat areas of major concern identifies the Pacific Coast, KLamath Basin, and the Intermountain West as areas of concern (U.S. Fish and Wildlife Service, 1986). This geographic identification of specific resource needs can aid in establishing priorities for acquisition.

The Draft National Wetland Priority Conservation Plan identifies national wetlands problem areas (U.S. Fish and Wildlife Service, 1987 and Tiner, 1984). The national wetlands problem areas that are found in the state of Oregon are estuarine wetlands, western riparian wetlands and urban wetlands.

Wetland areas in the Lower Columbia River are critical for the endangered Columbia River white-tailed deer (U.S. Fish and Wildlife Service, 1983). Acquisition of wetlands for the purpose of Columbia River white-tailed deer habitat could provide a broader base for maintenance of the endangered population. Figure 3 identifies the geographic distribution of wetlands and resource priorities identified by the U.S. Fish and Wildlife Service in the state of Oregon.

Passage of the Northwest Power Act in 1980 required the federal government to complete mitigation for federal hydroelectric projects constructed within the Columbia River Basin. Preston et al, (1987), identified potential mitigation opportunities for riverine wetland and other resource losses associated with hydroelectric development in the Willamette River Basin. This planning process, recommended as an option, is the purchase of private lands as a form of mitigation for historical habitat losses. The planning process identified priorities for potential acquisition.

FIGURE 3 FEDERAL WETLANDS AND RESOURCE PROTECTION PRIORITIES



Each of EPA's 10 Regional Offices has prepared a list of priority wetlands within their region. These lists seek to identify the most valuable and vulnerable wetlands based on input from various agencies and organizations. The purpose of the list is to assist EPA in focusing wetlands protection efforts under the Section 404 regulatory program. These authorities include Section 230.80 of the Guidelines, Section 404(c) actions (both in response to, and in advance of, permit applications), Section 404(q) elevations, and actions under the National Environmental Policy Act and Section 309 of the Clean Air Act.

EPA has determined that there will be no ranking among wetlands and that the Regional Priority Wetland Lists will be periodically updated.

B. STATE WETLAND PRIORITIES

In 1973, the state of Oregon identified and evaluated areas of environmental concern in a published report by Battelle Pacific Northwest Laboratories. Areas designated as critical priority included estuarine and tidal marsh wetlands, freshwater lakes and waterways and outstanding scenic areas.

Also in 1973, the Oregon Legislative Assembly enacted ORS Chapter 390, adopting the Willamette River Greenway Act to establish as a state priority the protection of resources within and adjacent to the Willamette River. This protection provision has been incorporated into Oregon's statewide planning goals (Goal 5) as a required element of local comprehensive plans for cities and counties along the Willamette River. Oregon State Parks and Recreation Division has identified acquisition priorities associated with the Willamette River Greenway Program.

Other planning and prioritization efforts by the state of Oregon have included:

1. Inventory and recommendations developed by the Oregon Coastal Conservation and Development Commission (Akins and Jefferson, 1973) for coastal wetlands. Focus at this time was on brackish wetlands; freshwater wetlands were not systematically evaluated. Estuarine protection has been provided through local plans implementing Statewide Planning Goal 16 (Estuaries). Nearly 90% of Oregon's estuarine area has been protected through the local planning process.

2. State scenic waterways have been a concern to the people of the state of Oregon since 1972 when the State Scenic Waterway Act was adopted by the Oregon Legislative Assembly. There are currently ten river segments within Oregon's Scenic Waterway Program. These waterways (and their attendant riverine wetlands) receive special attention for protection purposes under state law. This program has been significantly expanded by initiative referendum this year.

3. The Natural Heritage Advisory Council, operating under the Oregon Natural Heritage Act of 1979 (ORS 273.561-273.591), produced the Oregon Natural Heritage Plan in 1981 (and revised in 1988) which identifies and prioritizes terrestrial and aquatic ecosystem types which should be protected as representatives of Oregon's natural resource heritage.

4. Oregon Department of Fish and Wildlife (1986) has identified wetlands as a resource of significance to nongame wildlife. Acquisition in some cases is identified as a means of maintaining adequate quality, quantity and

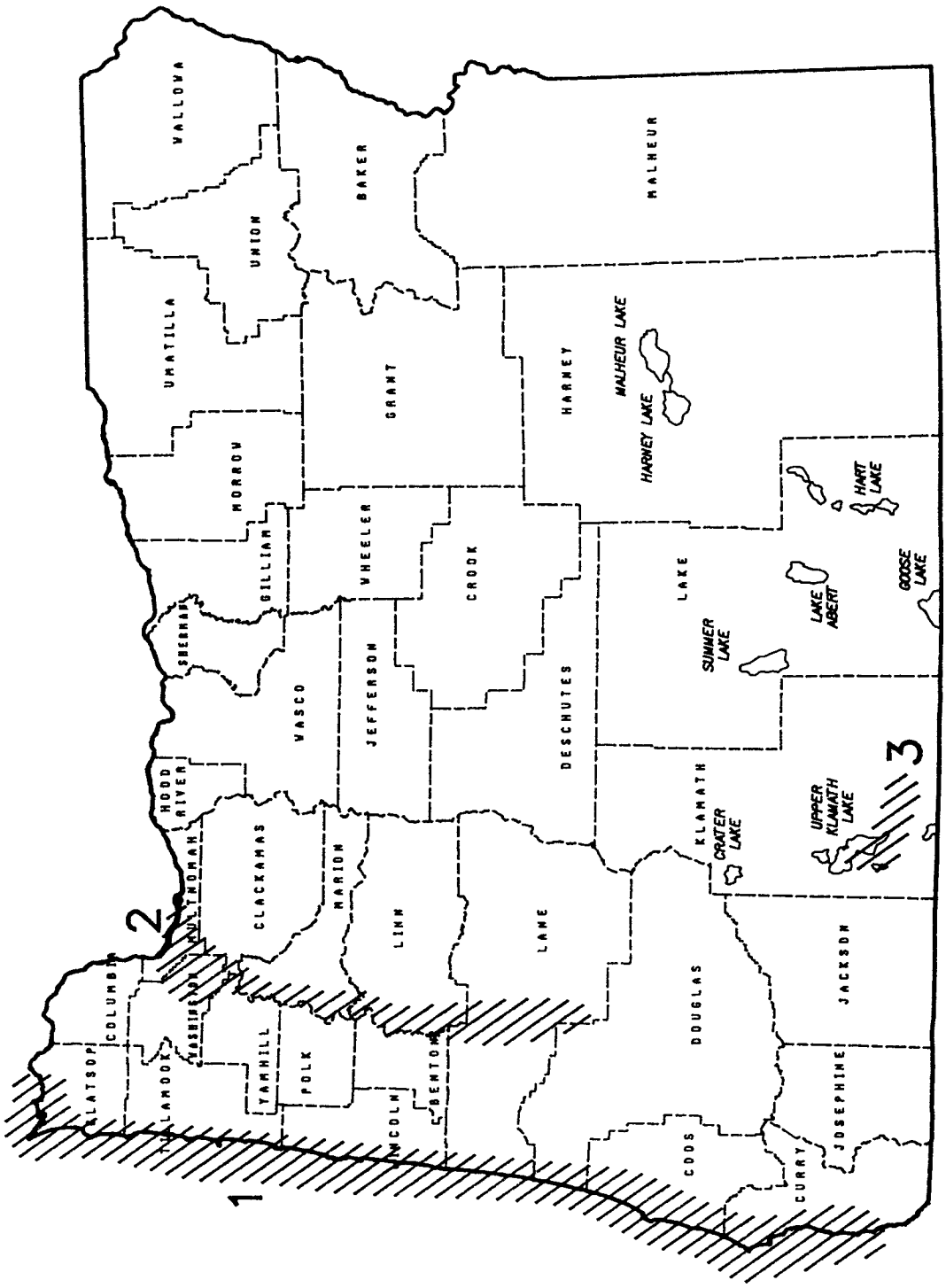
distribution of wetlands for the purpose of production of nongame wildlife. A priority within the Oregon Department of Fish and Wildlife Nongame Wildlife Management Plan is to determine wetland gains and losses on a geographic basis to assess the effect on nongame wildlife populations. A cursory overview by ODFW included these categories of wetlands:

a. Those high desert wetlands that have high biological and recreational values;
b. Wetlands important to threatened and endangered species;
c. Wetlands of significance within Urban Growth Boundaries;
d. Specific estuaries.

Oregon Department of Fish and Wildlife is also developing basin management plans and fish species management plans for Oregon's fishery resources. These plans will address wetland and other forms of fish habitat protection.

Based upon existing data on historic wetland losses and current policy, three regions of the state have wetland areas of concern or threat from the standpoints of historical loss and/or present development pressure. These regions, as identified on Figure 4, are (1) coastal estuaries and coastal zone wetlands; (2) Willamette River Greenway and urban area riparian and palustrine wetlands; and (3) wetlands of the Great Basin and Klamath Basin.

FIGURE 4 STATE WETLANDS AND RESOURCE PROTECTION PRIORITIES



ACQUISITION PRIORITIES

VII. ACQUISITION PRIORITIES

A. ACQUISITION CONSIDERATIONS

It is necessary in the acquisition planning process to determine the appropriate interest (easement, deed restriction, etc.) in the wetland under consideration in order to achieve the acquisition objectives. The following key factors should be considered when assessing the appropriate acquisition process:

- Priority consideration will be given to acquisition methods that are the most cost-effective available while fully and permanently allowing for protection and/or improvement of the public values provided by the wetland. Fee title, perpetual easements, leases, deed restrictions, land donations and exchanges, or other methods may be employed.

- Priority consideration will be given to wetlands which can be acquired from willing sellers.

- Priority may be assigned regardless of size (large or small) or the physical or biological condition of the wetland site (degraded or disturbed). Either restorable or pristine wetland sites or systems may warrant priority.

- Priority consideration should be given wetlands sites having minimal management and maintenance requirements.

Section 304 of the Act authorizes the Secretary of the Interior to purchase wetlands or "interests in wetlands" consistent with the NWCP.

> **"Acquisition should be limited to those purchases of fee title or easements of wetlands and associated upland areas that contribute appreciably to the long-term preservation of such wetlands and associated populations of fish, wildlife, and plants. Acquisition of upland areas adjacent to wetlands is often essential to maintaining the values of those wetlands. Acquisition of less than fee interests, such as acquiring the surface estate but not the mineral interests, or acquiring an easement, is often appropriate. Long-term preservation of wetlands and associated uplands may often best be achieved through obtaining easement in perpetuity."**

Section 305 of the Act, directs that the powers of condemnation or eminent domain shall not be used to acquire wetlands which either have been constructed for the purpose of farming or ranching (e.g., ponds) or have resulted from conservation activities associated with farming or ranching (e.g., wetlands incidental to irrigation practices).

Fee title acquisition of wetlands generally offers the greatest opportunity for land use management and control. Acquisition of a lesser interest, such as an easement or deed restriction may be less effective in protecting a wetland unless sufficient restrictions are secured to protect the desired public interest values. In general, the following factors must be considered in establishing the effectiveness for wetland protection of a purchase that is less than fee title:

1) Time Period - In perpetuity easements are preferred over short-term (e.g., 10 or 20 year) easements.

2) Protection of Wetland Resource Values - Restrictions on wetland uses by the landowner must be specified in the easement to protect the fish and wildlife habitat, water sources/supply, public access, and/or other appropriate functions or values of the site.

3) Cost Effectiveness - The cost for securing the easement (or other interest in the wetland) with the appropriate land use restrictions should be less than the cost of fee title purchase.

Fee title or easement acquisition need not only involve cash purchases; land donations or exchanges are also acceptable. Local groups such as The Nature Conservancy, The Wetlands Conservancy, or the Audubon Society or similar non-profit groups, may be involved in the wetland acquisition process.

Wetland Restoration

A wetland site may have been significantly altered by human activities yet still have important functions and values or have potential for having functions and values improved significantly. Such sites may warrant special consideration for federal or state acquisition because of the potential for recovery of historically lost wetland functions and values at a relatively low cost. For example, some diked wetlands could have the dikes breached to restore tidal flooding. This action could significantly reverse historical actions.

Management

Management needs and costs are important considerations for federal or state wetland acquisition planning. In order to minimize operation and maintenance costs and manpower, it may be appropriate to give priority consideration to wetland sites requiring only limited long-term physical maintenance and management to protect and enhance wetlands functions and values. Use of personnel from a non-profit or volunteer group for management purposes may be a feasible option in appropriate circumstances.

The Division of State Lands has the mandate to manage wetlands acquired under the authority of the Emergency Wetlands Resource Act and (ORS 541.670). However, in other situations, federal, state or local agencies (e.g. National Park Service, US Bureau of Land Management, US Forest Service, Oregon State Parks and Recreation, Oregon Department of Fish and Wildlife, county parks and recreation departments) and private conservation organizations (e.g., The Wetlands Conservancy) may be responsible, or share responsibility with other agencies, for management of acquired wetlands.

Characteristics of a site that could generate management constraints (i.e., biological or political problems) should be carefully evaluated in the acquisition planning process, e.g. lack of water rights, environmental contaminants or extraction of energy or mineral resources. Likewise, off-site factors (e.g., soil erosion, pesticides, contaminated irrigation water) should be assessed to determine if they may adversely affect a potential wetland site.

Land use activities proposed on a potential acquisition site should be compatible with protection of the wetlands functions and values. Hunting, fishing, trapping, boating, and birdwatching are examples of recreational activities in wetlands that could be compatible with maintaining the integrity of the wetland.

The size of a wetland site should not be a sole factor in establishing priority consideration for acquisition. Certain acquisition processes are better suited to smaller units while some realize increased efficiency in larger units. Sound natural resource protection and management principles should guide the determination of appropriate size and buffer requirements in determining wetland acquisition sites.

B. FURTHER PLANNING NEEDS

The state of Oregon has not developed statewide information sufficient to provide other than general criteria for wetland acquisition. Further planning will be required by the state. The Division of State Lands has recommended completion of the National Wetlands Inventory for the state. This project could be completed in approximately two years with complete funding. This funding should be a high priority to help focus planning efforts.

Determination of the current status and recent trends in wetland abundance can help provide a state perspective for establishing wetland priorities for protection/acquisition. Analysis of wetland trends involves aerial photographic analysis of a statistically selected set of photographs representing the time period of interest. The national analysis conducted in the early 1980's represented the time period between the 1970's and 1980's (Freyer et al, 1983). This analysis included insufficient samples from the state of Oregon to reach any conclusions regarding the state's wetland trends. Completion of an analysis of Oregon's wetland trends over at least three time period (late 1930's, 1970's and 1980's) would provide excellent information to establish priorities for wetland acquisition based on historical losses. Completion of the analysis is a high priority for effective wetlands planning.

There is no inventory of wetland community types throughout the state. With an inventory of wetland plant communities and a determination of rarity and commoness will provide guidance for the acquisition of uncommon sites or sites with rare species. An inventory and analysis of the commoness and rarity of wetland community types in Oregon should be a high priority to establish criteria for wetland acquisition.

There should be allocation of funds for planning to focus the priorities for wetland acquisition in Oregon. Updating the Oregon Wetlands Priority Plan is required by rule on an annual basis. As analysis elements are completed, greater focus and specificity can be provided in the plan process.

C. SITE SELECTION PRIORITIES

Until a wetland status and trends analysis is completed for the state of Oregon, detailed trends cannot be utilized for prioritization purposes. Without a complete inventory of state wetlands, rare or unique types cannot be systematically identified. Site selection priorities can be established from existing information and previously developed priorities. The following site selection priorities include:

- Wetland types that have declined in the ecoregion

  Documentation of historical conversion of estuarine wetlands to other uses (Boule and Bierly, 1987) and known conversion of Willamette Valley and Klamath Valley wetlands to agricultural use make these regional wetland complexes a priority. Other wetland complexes that have been systematically altered are riparian systems throughout Oregon's coastal, Willamette, Rogue, Umpqua and interior valley drainages. Wetland losses through historical channelization, stabilization and water withdrawal make riparian wetland systems throughout the state of high priority.

- Wetland types that are subject to threat of future loss

  Oregon's statewide comprehensive land use planning program has clearly delineated areas subject to future urban growth and development. These "urban growth boundaries"

are the areas within the state designated for the focus of future growth and development. Thus, urban growth boundaries are clearly defined areas of wetland threat. As Oregon's statewide land use program identifies "secondary lands" or lands within agricultural or forest regions without "primary" resource production potential, these areas may be subject to threat of land use conversion that could alter wetlands.

- Wetland types that have been degraded or altered by historical actions that can be restored to self-maintaining functions

  Many of Oregon's wetlands have been converted or altered by diking, drainage works or other activities. Dike removal has successfully restored estuarine tidal marshes (Mitchell, 1981). Dike removal and drainage blockage has been utilized to reestablish unlawfully altered wetland hydrology. Failure of drainage tile has allowed historically drained agricultural land to revert to wetland. A priority for acquisition of lands susceptible for restoration to wetland conditions could reverse historical wetland trends.

- Wetland types with public values recognized by local communities

  Local communities in Oregon have developed comprehensive land use plans to designate appropriate locations for different land uses. Some of these plans have identified wetland sites for open space protection. To date, most sites identified are currently in public ownership. Establishing wetlands identified in local comprehensive plans as a priority for acquisition could create an incentive for identifying sites through a public process.

- Wetland types identified by state programs for protection

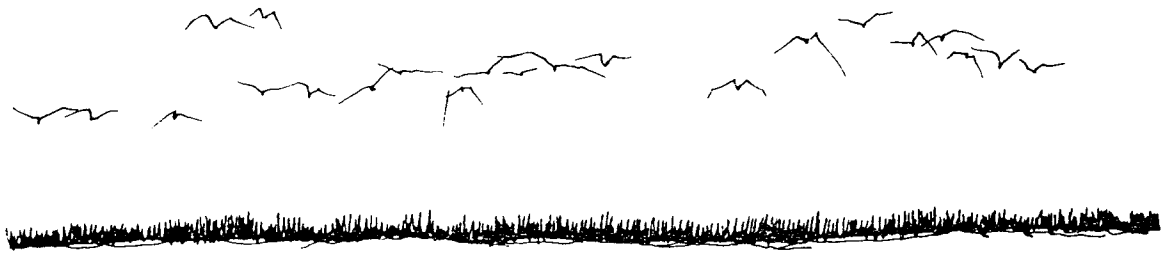
  State programs including the Willamette River Greenway, Natural Heritage Program, Bear Creek Greenway, Non Game Wildlife Program, Waterfowl Stamp and Poster Program, etc. all have some wetland acquisition elements. Wetland sites identified by state agency programs should be a priority.

Priority Procedure

Wetland sites proposed for acquisition should be nominated by completion of the wetland assessment checklist (Appendix B). High priority should be given where:

1. There is documentation of historical losses of the type(s) involved,
2. There is a potential threat of future impacts to the type(s) involved,
3. There is potential for restoration of wetland values,
4. The local comprehensive plan identifies protection of the resource, and
5. The site is identified by other federal or state programs for protection or acquisition.

Sites having three of the five criteria should be considered to be a high priority for acquisition. Sites having 1-3 of the five criteria should be considered to be a moderate priority for acquisition.



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APPENDIX A

Agencies Contacted / Consulted