MANAGEMENT PLAN

MULTNOMAH COUNTY

Parks Services Division

July 1991

BEGGARS-TICK WILDLIFE REFUGE

MANAGEMENT PLAN

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for

Multnomah County Parks Services Division

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Appendices are printed under separate cover. Copies may be requested by contacting Multnomah County Parks Services Division.

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Foreword

Wetlands are now commonly recognized as valuable ecological systems. In 1977 President Carter issued an executive order directing federal agencies to avoid adverse impacts on wetlands for projects subject to federal review and permits. President Bush has promoted a policy of "no net loss" of wetlands throughout the United States. Just how this policy will be applied in the field is not yet known. Nonetheless, agencies and private individuals alike have gone ahead to find ways to protect these critical ecosystems.

The U.S. Fish and Wildlife Service in cooperation with other federal, state and private entities has defined a wetland basically as follows: an area sufficiently inundated or saturated by water to support vegetation adapted to life in saturated soil conditions. Wetlands include bogs, swamps, wet meadows, and other similar areas. Wetland values include water quality control, flood control, bio-diversity, wildlife habitat, aesthetics, and recreational as well as educational potential.

Urban wetlands are perhaps the most threatened when compared to rural or wild wetlands. Lack of knowledge and rapid growth encouraged filling of these areas to build housing and commercial/industrial complexes. In addition, urban wetlands are more accessible and consequently run greater risk of adverse impacts from human use. Without proper management and regulation enforcement, these areas are subject to a myriad of impacts from hazardous waste to wildlife predation from domestic animals.

Executive Summary

In 1990, the Multnomah County Board of Commissioners unanimously passed a resolution establishing a twenty-acre wetland in Southeast Portland as the first metropolitan wildlife refuge. Beggars-Tick, named for a species of wetland plant, has survived encroaching development and provided unique wildlife habitat for many species of native flora and fauna. Because of its wetland significance and its location adjacent to other regional open space areas, the Board voted to make this property the first Multnomah County wildlife refuge and the first component in the Metropolitan Wildlife Refuge System.

History

In the 1960's Multnomah County purchased several pieces of land for floodwater control, including the marsh now known as Beggars-Tick which lies in the floodplain of Johnson Creek. The proposed flood control district for Southeast Portland was never formed and various other plans for the site arose during the ensuing years. Among these plans was one which would have bisected the marsh and placed fill in the northern section for eventual industrial development.

In 1983, the Army Corps of Engineers and the Oregon Department of Fish and Wildlife notified the county that Beggars-Tick Marsh possessed unique wetland and wildlife habitat values. The area then came under the umbrella of the Clean Water Act and other federal and state legislation which defined land use. Subsequently, Beggars-Tick Marsh was designated as open space, placed under a Significant Environmental Concern Overlay, and zoned Urban Low Density Residential.

Goals and Objectives

The primary management goal for Beggars-Tick Marsh, now officially Beggars-Tick Refuge, is to protect the its outstanding biological qualities and wildlife habitat values as determined by the Board resolution. Specific objectives include: reducing negative human impact; maintaining the natural habitat, including native vegetation and water quality; and providing for educational and wildlife viewing opportunities compatible with habitat protection.

Planning Process

The planning process began in September 1990 with the hiring of a management plan coordinator and the solicitation of public input. In addition, an informal committee of technical and scientific experts was set up to assist in plan development. The next phase included formal investigation into the vegetative, wildlife, hydrology and soil aspects of the refuge and connected lands. With the draft plan completed, public input was solicited during an open comment period which included a public workshop in late April 1991. Subsequent to the public comment period, a final plan was completed and presented to the Parks Advisory Committee for referral to the Board of Commissioners for final approval and adoption.

The Beggars-Tick Refuge Management Plan is organized to give the reader a summary of existing ecological conditions and a list of management actions or prescriptions that address current and anticipated management needs. These actions include, among other things, water quality control, wildlife habitat diversification, and educational opportunities. Appendices to the plan will be printed under separate cover and will provide detailed information on marsh hydrology, general soil conditions, vegetation and wildlife assessments along with public comments and recommendations.

Existing Conditions

Site location: Beggars-Tick Refuge is located in Southeast Portland, bounded on the east by S.E. 111th Ave; on the south by the former Portland Traction Company Belrose Line, now referred to as the Springwater Trail; on the west by various industrial businesses; and on the north by residential and light industrial properties (Figure 1). The refuge is located within the 100 year floodplain of Johnson Creek. The refuge is approximately 20.5 acres of marsh and uplands. It is seasonally inundated from late fall to late spring leaving only two small pockets of water in late summer of less than .1 acre in size.

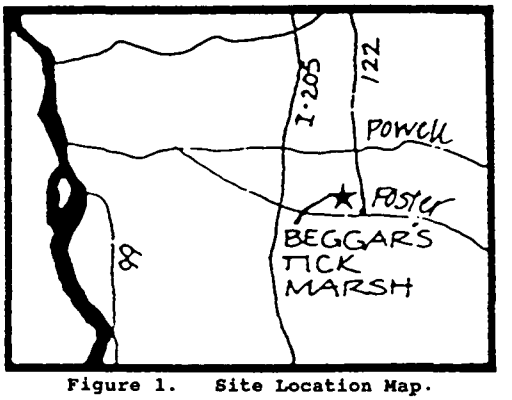


Figure 1. Site Location Map.

Originally, the area which includes the refuge was covered by Douglas fir forests. White settlers, who were attracted to the area by the water source of Johnson Creek, its tributaries, and the availability of game animals, developed the land for agriculture. By the mid-1940's the area was urbanized to nearly the extent it is today. Use of the refuge site for agriculture ceased somewhere between 1963 and 1984 according to historical photos. Past and on-going changes in the general area of the refuge continue to influence the value of Beggars-Tick as a functioning wetland for flood control and wildlife habitat.

Hydrology

Water sources for Beggars-Tick Refuge are four: a small channelized stream that runs perennially and originates about 3000 feet east of the refuge; storm water run-off that enters the refuge

by several means, including two culverts on 111th street; direct rainfall; and groundwater movement through native soils and fills. The stream, which originates on the former Zenger dairy farm, is the major water source for the refuge providing approximately 70% of total inflows into the marsh.

Beggars-Tick lies in a watershed generally defined by Powell Butte to the east; Kelly Butte to the northwest; an unnamed hillcrest to the southwest; an extension of this unnamed hillcrest and Foster Road to the south; and a weak topographic divide to the northeast. Water drains from northeast to southwest generally following the topographic divides in the watershed. However, both surface and groundwater may cross those divides. The watershed has been historically subject to flooding from Johnson Creek.

The hydrologic functions of this watershed have been greatly changed by land development. Wetlands within this watershed have been filled thereby decreasing the flood storage volume of the watershed and increasing the effects of flooding. Beggars-Tick functions as a storm water retention area to a greater degree now than historically due to the loss of these other wetlands. (See Figure 2. Map of BTM Vicinity with Sampling Locations and Hydrologic Functions.)

Water testing conducted at various times during the winter of 1990/91 indicates contamination from storm water run-off in the form of petroleum products, referred to as TPH or Total Petroleum Hydrocarbons. Wetlands function as water quality control agents. However, since the Beggars-Tick watershed is not being managed for downstream resource protection, TPH contamination at Beggars-Tick must be monitored and control measures implemented to protect the wetland and wildlife values of the refuge. Concern is also warranted regarding potential future contamination caused by land use changes along the stream, which is a major water source for the refuge. Refer to Appendix I for refuge hydrology information.

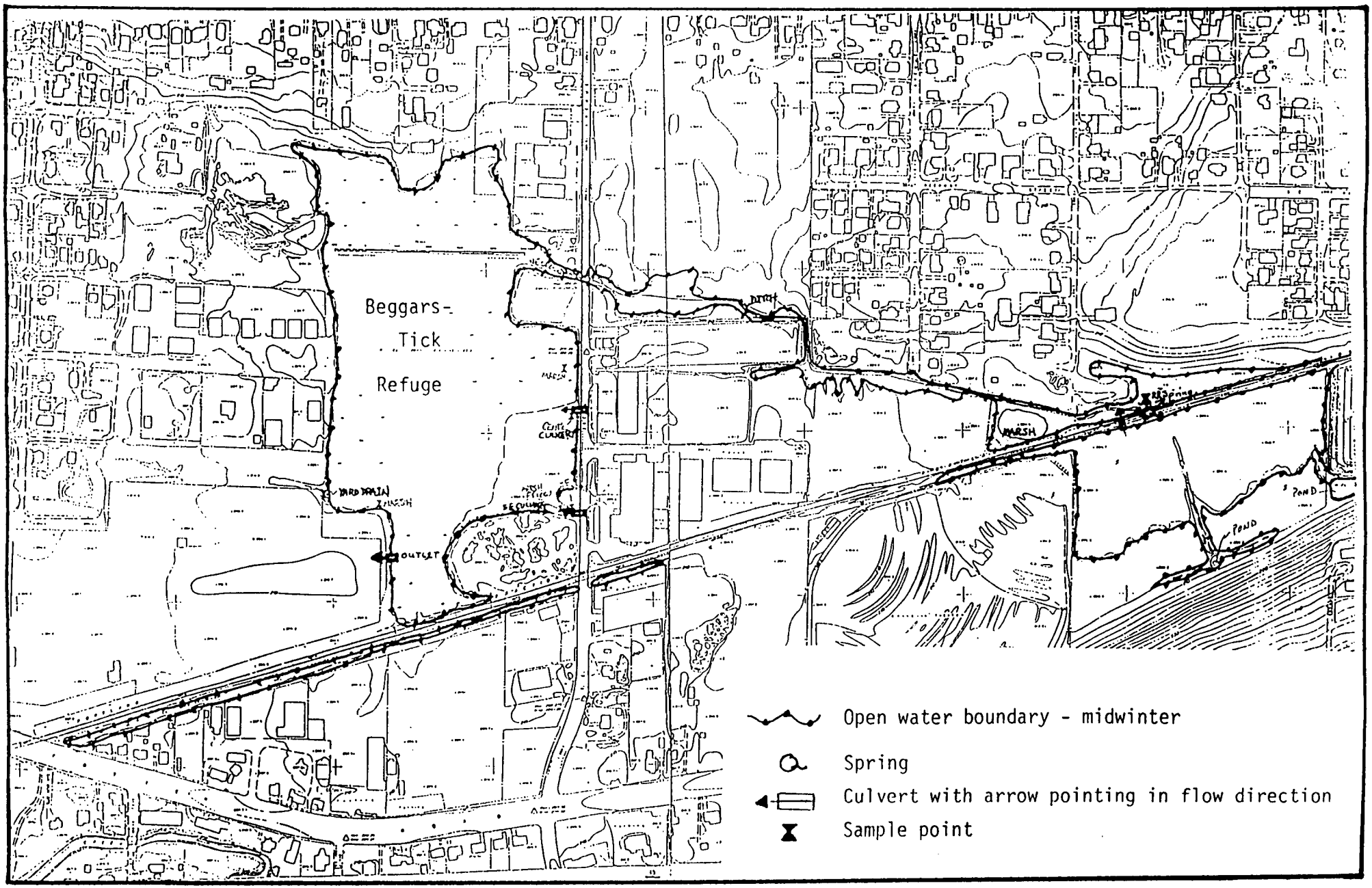


Figure 2. Map of Sampling Locations and Hydrologic Features Beggars-Tick Refuge

Vegetation/Wildlife

Vegetation on the refuge is associated with five basic habitat types -- open water, emergent wetland, scrub/shrub wetland, forested wetland, and upland or disturbed/fill areas (Figure 3). Few snags exist on site but those that do are small, less than 10 inches in diameter at base height (dbh), providing little opportunity for cavity nesting and other use by wildlife. The even-aged nature of trees on the refuge and in the surrounding area reflects recent past agriculture practices. The filled/disturbed areas are dominated by exotic vegetation, such as Himalayan blackberry.

The inundated areas provide wintering habitat for a variety of waterfowl. In addition, there are small populations of upland birds, including various passerine species and pheasant. Muskrats regularly den on the site. The only fish species currently known to exist at Beggars-Tick is Gambusia affinis, a species of minnow introduced to the refuge for mosquito control.

Water contamination and exotic plant invasion pose the most significant threats to wildlife. Improvement of habitat will enhance bio-diversity and increase the overall wildlife value of the refuge. Refer to Appendix II for a detailed description of cover types and associated wildlife species.

Soils

The site contains a wide variety of soil types. Mapped as Wapato silt loam by the U.S. Department of Agriculture (USDA) Soil Conservation Service, the site has been shown through field investigation to possess soil types not typical of Wapato silt loam. Because of inundation and fill materials currently present on the site, a complete listing of native soils is difficult.

The wetland portion of the site appears to be native hydric soils. Investigation shows that the upland areas on the refuge are all

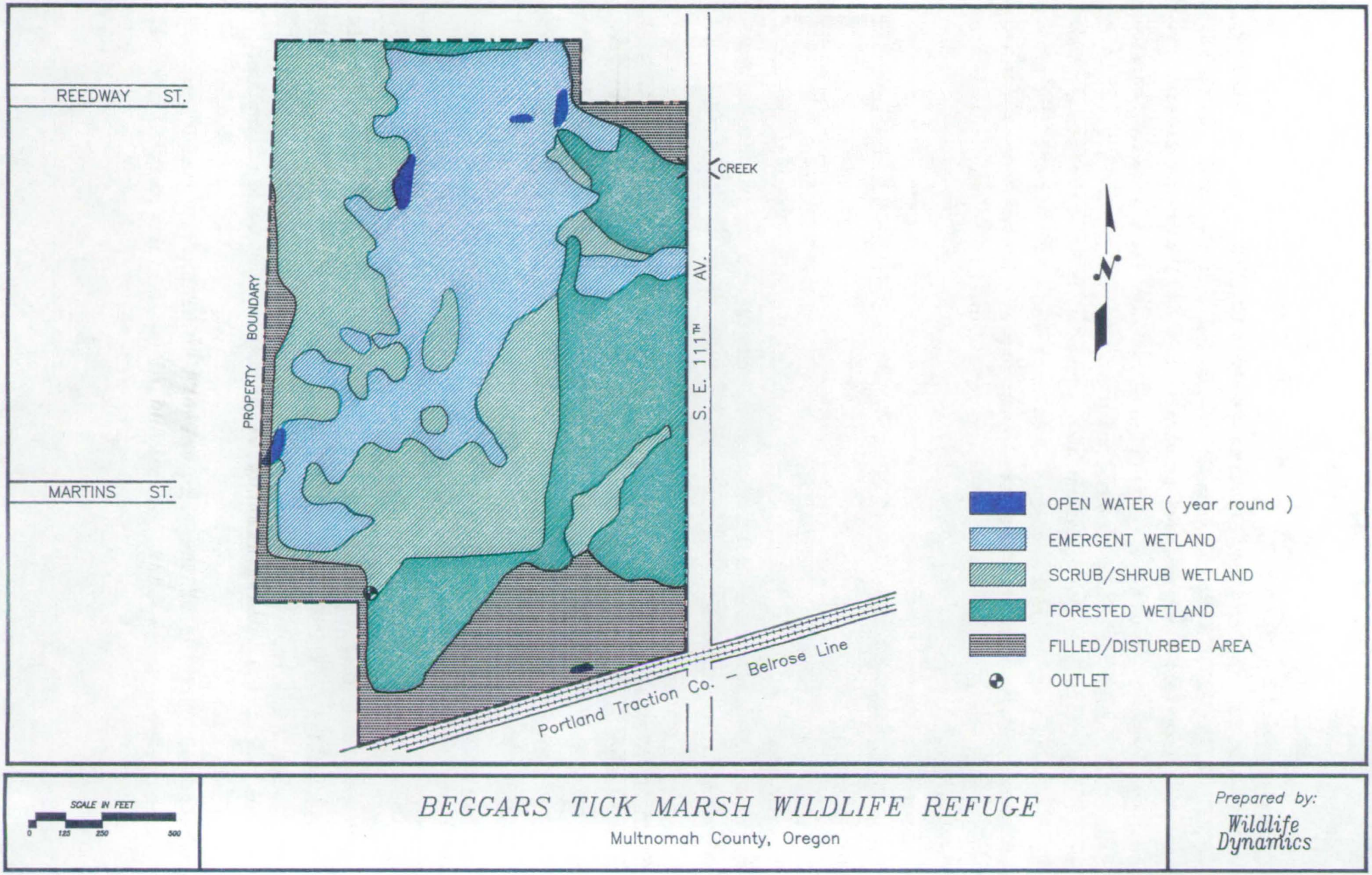


FIGURE 3. Vegetative Cover Types

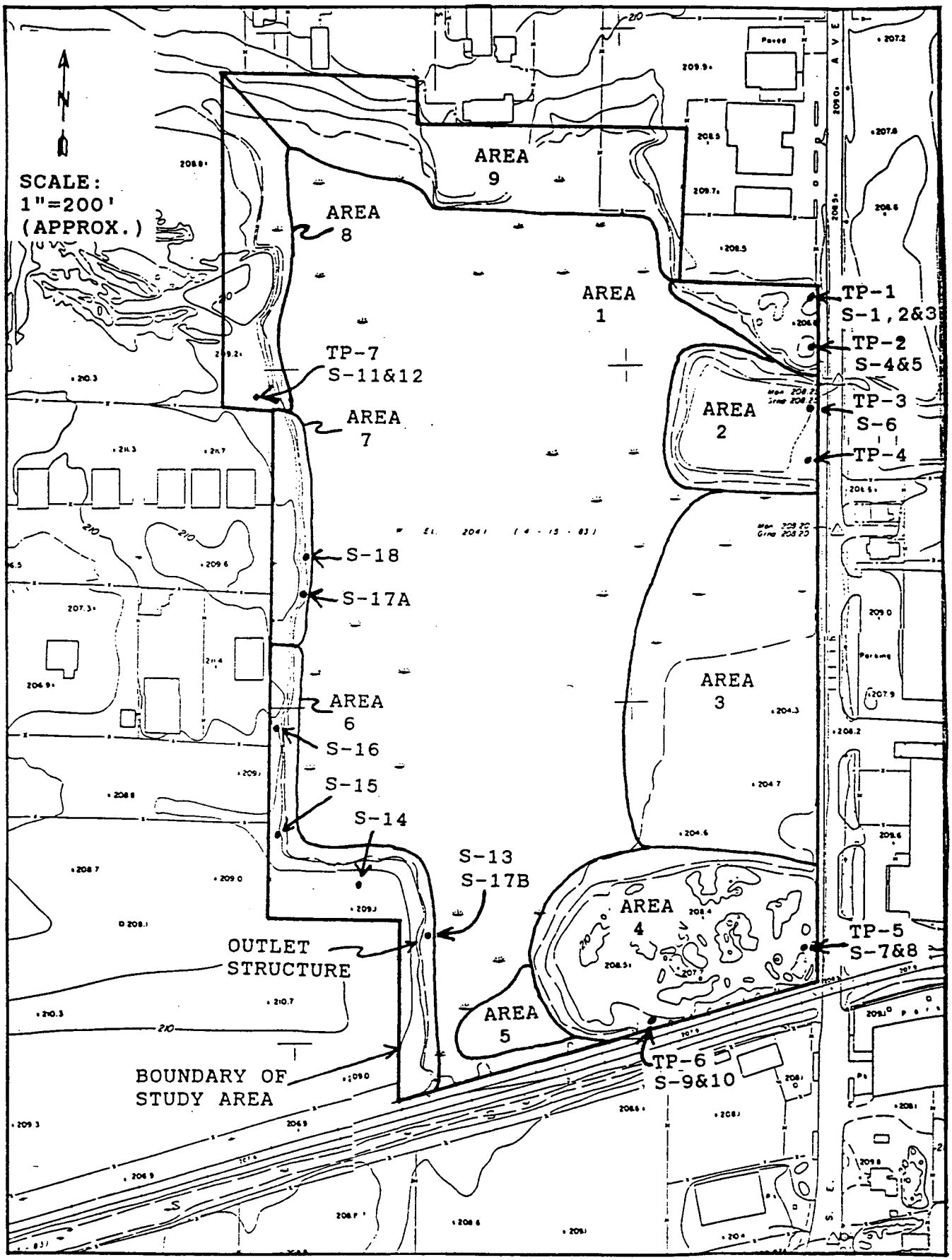
fill material diverse in texture and of a range expected from the original Pleistocene flood deposits. Fill materials also include boulders, gypsum board, small to large chunks of concrete, small to large chunks of asphalt, dump deposits of wasted asphalt, and other domestic wastes - tires, glass, etc.

Little evidence was found to indicate significant soil contamination. However, chemical testing of the soils and fills did indicate a potential minor problem with petroleum hydrocarbons at three specific sites on the refuge (Figure 4. Soil Sampling and Test Pit Locations). Potential problems related to refuge soils include: solid waste dumping, potential migration of petroleum products, and sedimentation. Solutions to these problems need to be addressed in the management plan to avoid future impacts to refuge resources. Refer to Appendix III for the Geology/Soils Study Report.

Human Use

Studies have clearly shown that human impact upon wetlands, especially urban wetlands, can be substantial. In the case of Beggars-Tick, contamination of water from surrounding development (roads and industry), off-road vehicle use during the dry times of year, continuous dumping of solid waste, invasion by exotic plant species, among other impact, have created serious concern for future protection of the refuge and its unique wetland values. In the future wetland impacts from human use are expected to increase because of the anticipated use of Springwater Trail and because of the general public's growing interest in open space. The Beggars-Tick Management Plan is aimed at correcting current environmental problems, maintaining a high quality wetland habitat, and preparing for future impacts and needs.

Figure 4. SITE MAP - BEGGARS TICK MARSH
Subareas, Test Pits (TP), and Soil Sampling Locations (S)



Management Prescriptions

Implementation of the following management prescriptions is predicated upon sufficient funding and staff allocations. Some of the recommended actions require further study, as noted, to determine feasibility and costs.

Water Management

Water Quality

To correct the current problem of storm run-off contamination, options for water quality control must be investigated. Since the Beggars-Tick wetland is being managed for on-site wildlife habitat and not downstream resource protection, it is critical to monitor water quality and to filter TPH contamination entering the refuge through the central culvert and general run-off on 111th Avenue. Options to control this contamination include the use of wetland vegetation, such as cattails, and the construction of a filtration system that would remove or slow down the movement of contaminants before they disperse throughout the marsh. More information is required to identify the feasibility and cost for constructing water quality control mechanisms.

An on-going water quality monitoring program is essential and can be accomplished through a sampling program. Samples should be taken at all intake structures during times most advantageous to determining contamination, such as just after a major rain event. Actual sampling times and locations will be determined through initial and on-going testing procedures.

Water Quantity

Water levels within the marsh are controlled through management of the outflow culvert in the southwestern portion of the refuge. It may be necessary from time to time to remove debris that could cause water levels in the marsh to

breach the surrounding fill boundaries.

Recommendations have been made to provide sufficient annual flows into the refuge to increase habitat diversity and allow for year-round use by waterfowl and amphibians. Cooperative ventures with other jurisdictions and the Corps of Engineers are recommended to develop water control structures in the Springwater section of the Johnson Creek basin which, over time, would extend the water supply to Beggars-Tick.

Water Source Protection

Protection of the source stream and its drainage from land use practices that jeopardize the quality and quantity of the refuge water supply is vitally important to the future of the Beggars-Tick wetland. Land purchase or conservation easements for identified properties along this drainage should be investigated to secure refuge protection. (See Figure 5. Properties Recommended for Refuge Protection.)

Vegetation/Wildlife

Undesirable exotic (non-native or introduced) plants, especially those that threaten the growth of native wildlife plants, should be removed and, if necessary, replaced with native species. Because of the urban environment in which the refuge is located, repeated application of recommended control measures will likely be necessary to avoid longterm threats to the viability of desired native plants. A vegetative management plan will be developed to identify species targeted for removal, to identify areas for enhancement, to establish a schedule for new plantings, and to discuss landscaping options that will not only provide aesthetic buffers to surrounding lands but also enhance the bio-diversity and habitats available for wildlife. Refer to Appendix II for the list of refuge plants species.

The following exotic plants should be removed immediately:

1) Deadly nightshade (Solanum dulcamara). This species is well established in certain parts of the refuge. Options for its removal include herbicides registered by the Environmental Protection Agency (EPA) and manual removal. Because of the extent to which this plant has invaded the wetland areas, the extensive use of the chemical controls required could harm desirable plant species. The preferred option is manual removal, which will be accomplished during the dry season or when the plants are in the peak of seed production. Several attempts may be required to achieve control and allow for establishment of other more desirable species.

2) Reed canary grass (Phalaris arundinacea). (Note: while this species may be native, broad scale use of this plant for water control has lead to its invasion into areas not likely to have supported it in the past.) Currently, the stands of reed canary grass are isolated and limited in size primarily due to water inundation. Options to control future spread of this persistent species include: 1) manual removal, 2) burning, 3) water control management, and 4) application of EPA registered herbicides for use in wetlands. Since reed canary grass forms dense mats of rhizomes, it is extremely difficult to remove by hand with any degree of continued success. Burning is an effective control tool when applied during the peak of seed production. However, burning within urbanized areas is politically sensitive although regulated by law and permitted for use under certain circumstances. Control of water levels within the marsh would be an effective method for limiting the growth of reed canary grass. However, at the present time there is no perennial water source that would provide sufficient water levels to control this plant or to provide year-

round nesting and rearing habitat for waterfowl. Potential sources will be explored and are discussed further in the future needs section of this management plan. The preferred option for initial control of reed canary grass would be the judicious application of EPA registered herbicides. Since this species does not grow under shade conditions, future control may be accomplished through planting of wetland compatible shade plants, such as ash trees or willows.

3) general weedy invaders in filled/disturbed areas. In the north and southwest corners of the refuge, there are several species of exotic "weeds" -- thistles, curly dock, etc. -- that should be removed, where possible, and replaced with native grasses and forbs.

Native plant species will be encouraged and enhanced throughout the refuge in wet and upland areas for diversity and aesthetic purposes. These species will provide additional cover and food for wildlife and provide control of undesirable exotics. Upland areas will be improved to provide habitat for specific bird, mammal, reptile, and invertebrate species. For example, the upland shrub/scrub areas in the northern and southwestern sections of the refuge can be enhanced for bird species, such as pheasant, and invertebrate species, such as butterflies, through proper planting. Refer to Appendix II for the Vegetative Management Implementation Guidelines.

Logs and other downed wood can be strategically placed throughout the marsh to enhance habitat for amphibians and resting waterfowl. At this time sources for this material are off site since the tree stands on the refuge are small and are already used for nesting, roosting, and shade production. Alternative labor would be sought to implement this management action.

Snag trees are few within the refuge boundaries. There are options for creating snags from existing trees but this option is precluded by the young age of the trees currently on site. Another option would be to erect snags from felled trees obtained off site. Since Beggars-Tick is primarily managed for wetland dependent species, this management option is not recommended for implementation at this time.

Nest boxes are recommended for placement in selected locations for use by bats and various bird species, including swallows (which assist in mosquito control) and passerines. Wood ducks boxes are not a practical consideration at this time since there are too few trees of sufficient size to support such structures. Maintenance of these boxes will be conducted on a seasonal basis by the groups that erected them.

Soil Management

The water retention capacity of the marsh can be increased and sources of sedimentation decreased through excavation of fill areas. Fill removal will also allow re-vegetation of natural wetland plants. However, particular attention must be paid to exotic plant encroachment and to potential negative human impacts until native stands become established. The primary limiting factor for implementing this management action is cost.

Those fill areas in the southwestern section and the northern access right of way will be managed through landscaping and the addition of topsoil to improve soil conditions and to enhance wildlife habitat value and aesthetics. Filled areas along the western border of the refuge will be maintained as a trail system. In addition, the area will also contain a wildlife viewing blind.

The recommended management action at this time is to manage fill areas for landscaping to provide additional wildlife habitat and for aesthetics. Periodic testing of native soils and fills is recommended for those areas previously identified as potential problem areas for petroleum hydrocarbon contamination.

Public Access/Use

The primary purpose of this wetland is a wildlife refuge. Therefore, while public access will be allowed for wildlife viewing and education, it must be fashioned carefully to avoid negative environmental impacts.

Fencing of the east boundary and along a section of the western boundary will be erected to control vandalism and to prevent the historical and continual dumping of solid waste.

Parking will be provided along the street and at the designated parking areas on 111th Street.

Trails for public access will be limited. Since the Springwater Trail will be developed as part of the 40-Mile Loop regional trail system, access to the southern end of the refuge will be provided. An existing trail will be modified to allow viewing of key sections of the refuge from the west side by this access. Alternative labor will be sought to improve the trail.

Signing of trail heads with basic information on refuge resources and public use rules is recommended. These signs will also include basic rules for use of the refuge.

A brochure will be developed and disseminated through Parks Services Division describing the refuge, its location, its habitat values, wildlife species, and other pertinent information.

Small sheltered blinds on the east and west sides of the marsh are recommended for wildlife viewing with minimal wildlife disturbance. Construction of these blinds is dependent upon funding and labor costs.

A formal education program is recommended to include the following elements: signing of various parts of the refuge to explain habitat types and their uses by and their value to wildlife, including a kiosk at the main (111th) entrance; a school curriculum including class outline, field trips, slides, follow-up talks and materials, and other props to be determined; and guided hikes.

Maintenance

Regular maintenance of the parking areas, trails, viewing stands, water quality monitoring, and water control structures will be provided by Multnomah County Parks Services Division. Alternative labor will be solicited from various citizen and private groups.

Mosquito Control

Mosquito populations can be controlled through various means. Removal of tires discarded into the center of the marsh will partially reduce the environment for mosquito production. Control options also include the use of EPA registered larval control agents specific to various species of mosquito and the introduction of Gambusia affinis. (Gambusia were released into the marsh in the spring of 1990.) Mosquito control is dependent upon sufficient funding through the county general fund. On-going mosquito control as of the date of this plan is not guaranteed due to county budget reallocations. Refer to Appendix IV, Mosquito Control Plan.

Future Needs

Securing the stream water source is paramount in protecting the integrity of the wetland. It is therefore recommended that the county consider purchase of those properties (Figure 5.) which include the former Zenger farm east of the drive-in off Foster Road and all other properties lying in the stream drainage. It is recommended, in addition to outright land

purchases, that the county consider joint ventures with other jurisdictions and private parties for conservation easements.

The proper management of properties adjacent to Beggars-Tick is necessary to buffer the refuge from potential impacts resulting from future commercial or residential development. Proper management will also increase habitat diversity.

The county will investigate the possibilities for securing a perennial water supply of sufficient quantity to provide habitat diversity, year-round waterfowl nesting, and control of undesirable plants such as reed canary grass.

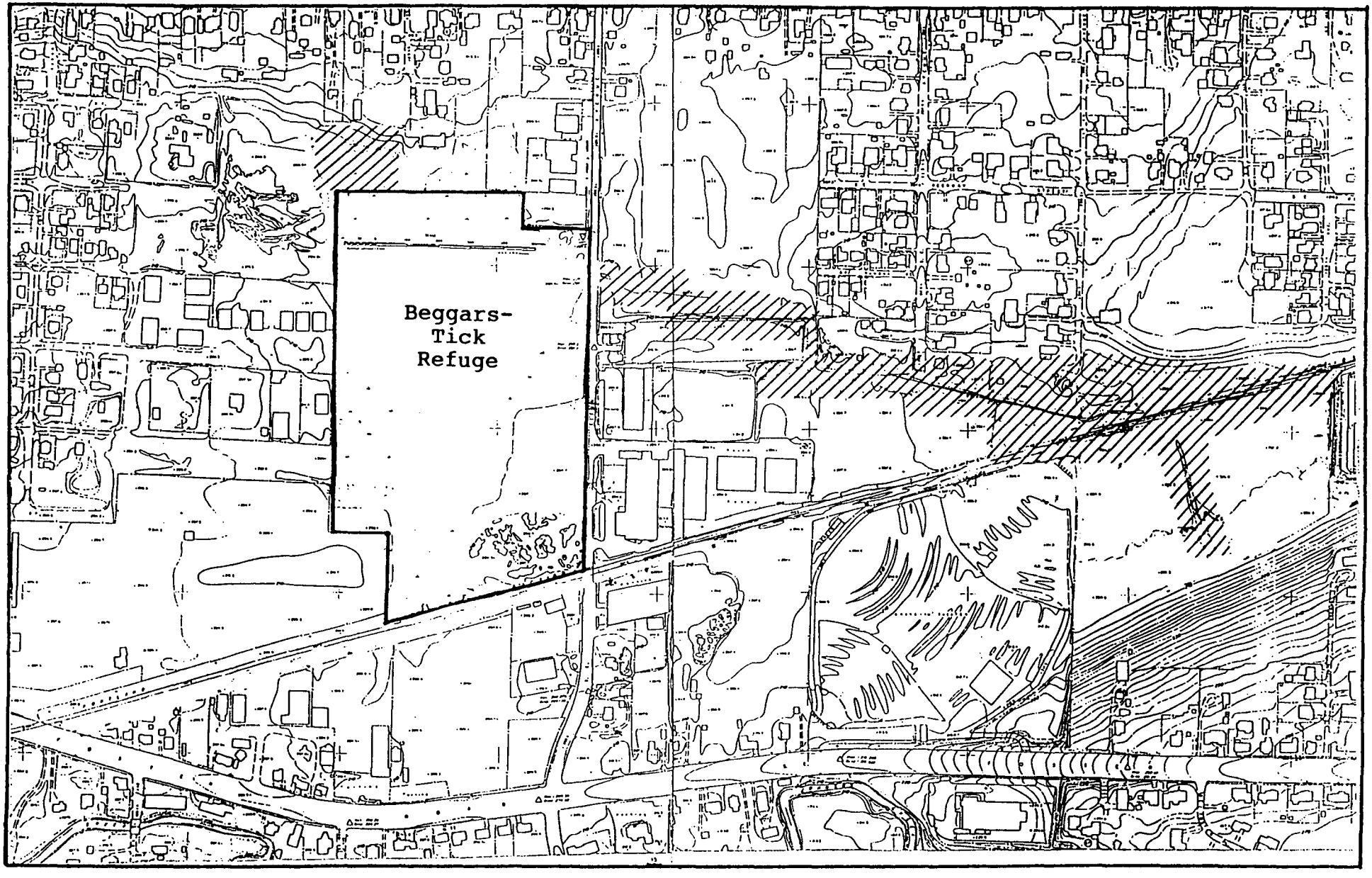


Figure 5. Map of Properties Recommended for Refuge Protection

Summary of Proposed Management Actions

1. Placement of water quality control mechanisms at intake points most likely to receive contaminants.
2. Preparation of soil and planting of native species in designated parts of the refuge to enhance wildlife habitat and biodiversity.
3. Enhance wildlife habitat through various plantings, by erecting snags and nest boxes, and by placement of logs or other down wood.
4. Continued removal of all solid waste, including tires, oil drums, and other refuse.
5. Excavation of fill to increase water storage and wetland habitat. This action will be studied further to determine feasibility and cost.
6. Removal of exotic plant species where their growth inhibits the growth of native or more desirable plant species.
7. Fencing of east boundary and a designated section of the west boundary to reduce solid waste dumping.
8. Signing of refuge entrances with important habitat information and rules and regulations that apply to refuge use.
9. Placing blinds on the east and west sides of the refuge to provide for excellent wildlife viewing while minimizing disturbance to wildlife.
10. Establishment of a formal water quality monitoring program to determine levels of contamination.
11. Control of mosquito populations through a variety of means as outlined in the Summary of Mosquito Production, Control Options and Activities in Beggars Tick Marsh 1989 and 1990.
12. Monitor soil conditions through periodic testing.
13. Develop a formal education program.
14. Explore options for desired perennlial water supply.