PROJECT DESCRIPTION

.39

The Oaks Bottom Wildlife Refuge South Fill Enhancement Project improved wildlife habitat values on the seven acre "south fill" through the removal of non-native grasses and weeds and the establishment of a native grassland. In addition, native small trees and shrubs were planted in the perimeter of the south fill. In coming years, the project will enrich the native grassland through additional plantings of native forbs. The creation of a native prairie at the south fill compliments other habitat types present at Oaks Bottom and maximizes habitat potential at this former landfill site without comprimising the integrity of the landfill's clay cap (which helps prevent landfill leachate from reaching adjacent wetlands).

Proposed in the fall of 1992, the Project had the appearance of a straightforward project. But it took a change of tactics and three growing seasons to achieve an acceptable level of weed control before native grasses could be planted. Initially, weed control strategies were used that excluded the use of herbicides. But due to the presence of perennial weed species that were deep-rooted and persistent; and due to difficult conditions for tillage, herbicides were used at the conclusion of the second year and throughout the third year. In the late summer of 1996, weed control was considered good enough to proceed with a fall drilling of native grasses. Grass stands appear to be very good, and in the summer of 1997, we look forward to a healthy mixture of (name the species) across the seven acre area. Native trees and shrubs planted in the winter of 1995-96 have good survival rates and are growing well.

In the coming years, the south fill will be managed with controlled burns and enhanced with plug plantings of native forb species.

GOALS AND BENEFITS OF THE PROJECT

The Oaks Bottom Wildlife Refuge Management Plan calls for maximizing wildlife habitat value in each of the six habitat areas at Oaks Bottom. The "south fill" is singled out as an area infested with non-native grass and weed species that sustantially underachieves its potential. The south fill is constrainted by its former use as a landfill. An 18" clay cap over the landfill intended to protect adjacent areas from leachate must remain intact. Fortunately, a native prairie is perhaps the most compatible native landscape with the clay cap, as well as complimentary to existing habitat types at Oaks Bottom. So, the enhancement of the south fill area through the development of a native prairie that would attract birds, invertebrates, amphibians, reptiles and small mammals was the goal of the enhancement project.

Specific objectives included the establishment of a variety of native grasses and forbs to provide nectar and seed over a long period; the establishment of native emergent plant species at small, seasonally wet areas; and establishment of small growing native trees and native shrubs around the perimeter to provide cover and additional food sources.

Other benefits include the reduction of sources of non-native plant seeds (e.g., Himalayan blackberry, teasel); the development a reservoir of native plant seed; additional educational opportunities; and additional opportunities for community involvement.

HOW PROJECT RELATES TO THE GREENSPACES PROGRAM

21.

In the Portland-Vancouver region, Oaks Bottom is a well-known urban natural area. The location of the project at Oaks Bottom provides good visibility for the Greenspaces Program and specifically for Greenspaces and US Fish & Wildlife Service sponsored Restoration Projects. The Oaks Bottom project is a direct hit on the stated objectives of the Greenspaces Program as well as the objectives of the Oaks Bottom Wildlife Refuge Management Plan. The central location of the project should provide many opportunities to display the accomplishments and benefits of the Greenspaces Program.

In addition, the project is an example of an effective partnership involving Metro Greenspaces, US Fish & Wildlife, community volunteers, and Portland Parks and Recreation.

WHAT WORKED, WHAT DIDN'T, AND HELPFUL HINTS

Getting an established population of weeds under control is key to the success of this kind of enhancement project. This means not only the removal of existing weeds, but a reduction of the weed "seed bank" in the soil. Initially, we thought that doing approximately two acres at a time and progressing across the south fill over several years would be the best approach. When we realized that weed infestation from adjacent, untreated areas could jeopardize replanted areas, we expanded the project to the entire area, a total of seven acres. From the beginning we were committed to using weed control methods with the least environmental impact. This meant hand removal of woody species such as cottonwoods and blackberries. It also meant using mechanical tillage to remove non-native grasses, and annual and perennial weeds. While mechanical removal of the obvious woody species appeared to be succeeding, mechanical tillage proved to be ineffective with deep rooted, perennial weeds. Other weeds that escaped mechanical tillage were winter weeds that germinate with fall rains and grow through the rainy winter and early spring when tillage was impossible. After a year and a half of tillage, we found that we had little choice but to use glyphosphate herbicide.

An important note about the tillage conditions on the former landfill site is that the clay cap became greasy, then soupy with fall and early winter rains. This condition persisted until late spring and early summer. By mid summer, when the clay cap dried, it became brick hard. If that were not bad enough, concrete rubble and other debris was scattered across the seven acre area at or near the surface. It would be hard to prescribe more difficult conditions for mechanical tillage. We had several rock removal work parties, and it was pretty rough on our equipment.

Time will tell, but we believe that the extra time taken to gain better control of weeds will be worth the wait. Evaluating where we were with weeds through the project period, being careful not to waste our effort (and precious native seed), maintaining a long-term perspective that allows being flexible with time, and learning to live within the particular constraints of the site were decision-making themes that we found helpful.

To achieve an acceptible success rate with the native tree and shrub plantings, we installed a simple snap-valve irrigation system. We believe this was critical for success at this site.

One more rather fundamental thing. Having a good management plan in place is really helpful. The plan provides background information about the site and surrounding systems, and helps to keep things in perspective. The planning process provides a basis for consensus, identifies and prioritizes opportunities, and helps prevent mistakes such as attempting to get a site to perform in ways that are marginally helpful or in ways that it simply can't.

ADVICE FOR OTHER PROJECT MANAGERS

If feasible, complete a management plan first. If you have a management plan, refer to it and try to follow it. At a minimum, know what you are doing and be ready to explain it to someone who doesn't.

Take some time to appreciate and understand the site. Constraints often exist that you will need to recognize and will have to accept.

Understand the difference between a restoration and an enhancement. Understand and acknowledge which applies to your project.

Figure on watering trees and shrubs for two summers.

Monitor the project's progress as you go and be flexible. Be particularly flexible with time-line if conditions aren't yet right to proceed. Be patient.

Protect your investment of money and time.

MONITORING AND MAINTENANCE PLAN

Oaks Bottom Wildlife Refuge is an important natural area for the City of Portland. Even with the City's current funding situation, Oaks Bottom will be proactively managed by Portland Parks. This will assure reasonable follow up on this enhancement project. In the near term, the following monitoring and maintenance will (or may) occur.

- Tree and shrub plantings will be watered at least one more summer.

- Native grass plantings will be checked for weed infestation regularly this summer

(1997). If necessary, intervention will occur to control weed infestation.

- Native forb species will be grown as plugs and will be planted in the grassland. Due to the large size of the south fill, this planting will take several years.

- If possible, the grassland will be burned off periodically. At the earliest, this would occur in the late summer of 1998.

- If possible, public information will be developed to provide public information about and enable interpretation of the south fill and the enhancement project.

- If possible, wildlife monitoring will occur to help determine the effect of the enhancement project. Results will be compared with the 1994-95 baseline data.