Invasive Perennial Pepperweed (*Lepidium latifolium*) Control on Grizzly Island Wildlife Area Complex

Third Annual Report to the Natural Resource Trustee Council Representatives

Background

On 27 April 2004, an underground 14-inch diameter petroleum pipeline owned or operated by Kinder Morgan Energy Partners, L.P. and SFPP L.P. (the responsible parties) ruptured and discharged approximately 123,774 gallons of diesel fuel into a managed marsh in Suisun Marsh, Solano County, California.

Following the initial response activities, the Natural Resource Trustees (in this case, the United States Fish and Wildlife Service [USFWS] and the California Department of Fish and Game [CDFG]) along with the responsible parties cooperatively developed a natural resource damage assessment (NRDA) for natural resources, including both plants and animals, affected by the discharge. The NRDA was followed by a monetary settlement for projects to compensate for injuries and a damage assessment and restoration plan (DARP). The Natural Resource Trustees entered into a Memorandum of Understanding (MOU) dated July 24, 2008 for the purpose of coordinating their trust responsibilities and utilizing the settlement monies for restoring, rehabilitating, replacing, and/or acquiring the equivalent of injured natural resources resulting from the spill. The MOU established a Trustee Council to oversee restoration planning and implementation and associated management of the settlement money.

In 2010, the DARP identified two restoration projects within Suisun Marsh, with a combined cost of $950,000, which could best compensate the public for the loss of the damaged natural resources. One project will restore tidal flow to a managed marsh ($800,000), and the other will control the invasive weed, perennial pepperweed (*Lepidium latifolium*). This annual report addresses only the weed control project.

Perennial pepperweed control benefits the endangered salt marsh harvest mouse and California clapper rail and two endangered plant species. In addition to these sensitive species, pepperweed control benefits nesting and foraging waterfowl, Suisun shrew, northern harrier, burrowing owl, song sparrow, and other species.

The goal of this project is to expand control measures on perennial pepperweed in marshland within the Grizzly Island Wildlife Area Complex (all CDFG owned

lands in Suisun Marsh with the exception of the Garibaldi Unit). The tasks include chemically treating pepperweed with Chlorsulfuron (Telar®), which has been found to be the most effective herbicide for eradicating pepperweed (J. Trumbo, pers. comm.).

Location of project

This project is being implemented on the Grizzly Island Wildlife Area Complex (Complex), set within the Suisun Marsh, which occupies about 15,300 acres of prime wildlife habitat. The complex is a patchwork of 10 distinct land parcels, many of which are not connected and are surrounded by private land.

Objectives of project

The main objective of this project is to reduce acreage of perennial pepperweed in the Complex. Complete eradication is probably not possible due to continued input of propagules from private lands within Suisun Marsh and areas outside of Suisun Marsh. The currently affected acreage will be prioritized, with areas containing sensitive or otherwise highly desirable resources, as well as areas where control has a high probability of success (*e.g.*, recent invasions), treated first. A secondary objective is to limit perennial pepperweed spread to adjacent public and private lands.

Performance criteria and monitoring

CDFG personnel are responsible for periodic monitoring and follow-up treatments of the habitat to ensure longer-lasting benefits from these weed control efforts. Annual updates by the CDFG staff of the Complex are provided to the Trustee Council Representatives regarding the status of the habitat and the success of the weed control treatments. In addition, every three years, aerial photographs of the Suisun Marsh are taken in conjunction with the Triennial Vegetation Survey of Suisun Marsh. These were last taken in June 2012 and will presumably be taken again in June 2015. Since the white flowers of perennial pepperweed in June are easily identifiable in these photographs, these photographs and subsequent vegetation analyses serve as an easy and accurate method of measuring the success of the project.

Tasks accomplished in 2012

Task 1. Identify and prioritize treatment areas.

A biologist, Sarah Estrella, met with the Grizzly Island Wildlife Area supervisor, Pat Graham, to identify and prioritize treatment areas.

Task 2. Purchase 1 Model 9TDE150 Intelli-Spray remote control retractable hose reel system, with 150 gal. tank, trailer, and 1,200' hose.

This was purchased in 2010.

Task 3. Purchase chemicals to treat 40 acres.

CDFG still had some chemicals in stock from a previous project. These were used first and additional chemicals will be purchased as needed in 2013.

Task 4. Conduct any rare plant surveys.

Cirsium hydrophilum var. *hydrophilum* (Suisun thistle) surveys were conducted by CDFG biologists in late summer, 2012, on much of CDFG lands where this species may occur. Populations were mapped and reported to the California Natural Diversity Database.

Task 5. Conduct any necessary training in herbicide application or avoidance of sensitive resources.

The lead on this project received annual continuing education from CDFG's Pesticide Investigations Unit and renewed her Qualified Applicator's Certificate from the Department of Pesticide Regulation in 2012. A scientific aide was trained in 2012 to assist in the project.

Task 6. Pay one CDFG Scientific Aide to assist CDFG staff with chemical applications in sensitive areas.

In 2012, a scientific aide assisted staff with chemical applications using the Intelli-Spray system. Between May 1 and June 1, 2012, CDFG staff treated 5 acres on the Joice Island Unit and 3 acres on Pond 10 at the Grizzly Island Wildlife Area; and 11 acres on Ponds 4 and 4A at the Hill Slough Wildlife Area. A scientific aide assisted for a total of 6 days at a cost of approximately $1,200.00.

Task 7. Hire a contractor to treat 100 acres.

The contracted spray company, DeAngelo Brothers, Inc., began treating fields in May. They treated 38 acres May 5-8, 2012, on ponds 11 and 13 at the Grizzly Island Wildlife Area at a cost of $14,474.58.

Task 8. Provide an Annual Report of results of treatment to the Trustee Council Representatives by December 31 each year.

This is the third annual report summarizing activities in 2012.

Reference

United States Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG). 2010. Exhibit A – Scope of Work and Budget: Invasive Perennial Pepperweed (*Lepidium latifolium*) Control on Grizzly Island Wildlife Area Complex. 12 pp.

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