

## OSTLER'S PEPPERWEED

*Lepidium ostleri* S.L. Welsh &  
Goodrich

Plant Symbol = LEOS

Contributed by: USDA NRCS Idaho Plant Materials Program



Ostler's pepperweed. Daniela Roth, USDI Fish and Wildlife Service

### Status

In 2007 the US Fish and Wildlife Service (FWS) was petitioned to list Ostler's pepperweed as either endangered or threatened. In 2011 FWS announced a determination that listing was warranted; however listing of Ostler's pepperweed was precluded by higher priority actions (USDI-FWS 2011). Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

### Description

**General:** Mustard family (Brassicaceae). Ostler's pepperweed is a long-lived, clump-forming perennial forb rising from a branching root crown (Welsh et al. 2008). The stems are erect, forming dense tufts up to 5 cm (2 in) tall. The leaves are linear, entire, 4 to 15 mm (in) long and

covered with grayish green hairs. The basal leaves may be 3 to 5 lobed. The flowering stems are covered with 5 to 35 white to purplish tinted flowers. Flowering occurs from June to early July (USDI-FWS 2011).

**Distribution:** Ostler's pepperweed is endemic to the Great Basin. It is known from four populations in the San Francisco Mountains in north-central Beaver County, Utah. All populations occur on privately owned lands. Ostler's pepperweed shares the same distribution as Frisco buckwheat (*Eriogonum soledium*).

Population estimates vary widely. The mound-forming nature of the plants makes it difficult to make accurate plant estimates where each mound could be counted as one or several plants. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

**Habitat:** Ostler's pepperweed is found only on soils derived from Ordovician limestone outcrops. These rare soils are home to other rare plant species including Frisco buckwheat and Frisco clover (*Trifolium friscanum*). All four populations of Ostler's pepperweed exist on sparsely populated slopes in pinion-juniper and sagebrush communities from 1,890 to 2,200 m (6,200 to 7,200 ft). Other associated species include Mormon tea (*Ephedra* sp.), snakeweed (*Gutierrezia sarothrae*), dwarf mountain mahogany (*Cercocarpus intricatus*), and rock goldenrod (*Petroradia pumila*) (USDI-FWS 2011).

### Adaptation

Ostler's pepperweed is adapted to white limestone outcrops in areas receiving 200 to 300 mm (8 to 12 in) mean annual precipitation. Ostler's pepperweed populations cover approximately 52 acres out of approximately 845 acres of suitable habitat. It is unknown if there are other factors limiting Ostler's pepperweed distribution (USDI FWS 2011).

### Establishment

There is no known seed establishment information for Ostler's pepperweed.

### Management

Over 90 percent of the known habitat for Ostler's pepperweed occurs on private mining claims. There are no laws protecting endangered plant species on private, State or Tribal lands in Utah. However, mining operations must prepare State environmental impact assessments and address the potential effects on State and federally listed species for operations that create 5 acres or more surface disturbance.

### **Pests and Potential Problems**

The greatest threat to Ostler's pepperweed comes from mining operations in close proximity to Ostler's pepperweed populations. The area has historically been mined for precious metals, and is currently used for gravel quarrying for crushed limestone. These operations are expected to increase in the future due to increased demand (USDI-FWS 2011).

### **Environmental Concerns**

There are a number of environmental factors which may affect Ostler's pepperweed. Prolonged drought due to climate change has the potential to eliminate the small populations of Ostler's pepperweed. Additionally, invasion of cheatgrass (*Bromus tectorum*) has the potential to greatly increase the fire return interval in the Great Basin (Whisenant 1990). Ostler's pepperweed is adapted to sparsely covered plant communities and is likely not adapted to frequent fires (USDI-FWS 2011).

### **Seeds and Plant Production**

There is no known plant propagation information for Ostler's pepperweed.

### **References**

USDI Fish and Wildlife Service. 2011. Endangered and threatened wildlife and plants; 12-month finding on a petition to list *Astragalus hamiltonii*, Penstemon flowersii, *Eriogonum soredium*, *Lepidium ostleri*, and *Trifolium friscanum* as endangered or threatened. Federal Register. 76 (36): 10166-10199.

Welsh, S.L., N.D. Atwood, S. Goodrich, and L.C. Higgins [eds]. 2008. A Utah flora, fourth edition, revised. Provo, Utah: Brigham Young University. 1019 pp.

Whisenant, S. G. 1990. Changing fire frequencies on Idaho's Snake River plains: ecological and management implications. In: Proceeding-Symposium on cheatgrass invasion, shrub die-off, and other aspects of shrub biology and management, (Eds., E. D. McArthur, E. M. Romney, S. D. Smith, and P. T. Tueller), USDA Forest Service Intermountain Research Station General Technical Report INT-276:4-10.

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