

## Davis' peppergrass (*Lepidium davisii*)



### THREATENED



Flowers (left), habit (center), and habitat (right) of Davis' peppergrass. Photos by Robert Meinke. If downloading images from this website, please credit the photographer.

### Family

Brassicaceae

### Plant description

Davis' peppergrass is a deep-rooted perennial that forms low (4-8 cm tall) clumps. Individual plants produce many, mostly unbranched, stems with a pubescence of simple hairs. The sessile, simple leaves are green, but often appear grayish due to a dusting of the white clay in which they grow. Several dozen or more white, four-petaled flowers typical of the mustard family are produced in each rounded inflorescence. Upon fruiting, these are followed by a crowded cluster of smooth or slightly hairy siliques. Plants typically begin flowering in May and can continue until August, with the peak flowering time and the ability of plants to produce fruit dependent on hydrologic conditions.

### Distinguishing characteristics

Davis' peppergrass is usually the only species in the mustard family inhabiting the drying clay hardpan soils of its playa habitat, though it occasionally co-occurs with a larger (usually 2-4 dm tall), more common *Lepidium* species, *L. montanum*. However, the fleshy, leathery leaves, more compact growth, and woodier base of the rare peppergrass distinguish it from this associate.

### When to survey

Surveys for *Lepidium davisii* can be completed anytime plants are emergent and actively growing, usually April to July. However, weather in the winter prior to the target survey season should be considered when selecting optimal survey times, as variation in precipitation influences the phenology of this species and affects access to its habitat.

### Habitat

This species is restricted to a few clay-soiled playas at 950–1700 m (3100–5600 ft), within sagebrush (*A. tridentata*) dominated steppe. These playas are frequently inundated in the early season by standing water, with soils drying to a concrete-like

substrate by early summer. As soils dehydrate, shrinkage causes the formation of cracks, creating a relatively hospitable micro-environment in which seedlings germinate. Due to the extreme temperature and moisture fluctuations characteristic of this harsh habitat, few plants colonize these playas, and most populations of Davis' peppergrass are largely monocultures. Plants are interspersed among areas of bare soil or cobbles; sparsely distributed associates include *Atriplex confertifolia* and *Artemisia cana*.

### **Range**

This species occurs in approximately 11 sites in southeastern Oregon, and one in far northern Nevada. Davis' peppergrass is more common in Idaho, with over 200 playas supporting extant populations. However, Idaho's populations, especially in the Mountain Home Desert area, have been heavily impacted by vehicle use, development, weed infestations, and cattle grazing, prompting an increase in concern by conservation agencies in that state.

### **Oregon counties**

Malheur

### **Federal status**

Species of Concern

### **Threats**

Davis' peppergrass is restricted to only a few unique disjunct sites in remote, harsh habitats, most of which have so far escaped alteration or disturbance. However, sedimentation resulting from the degradation of the surrounding landscape has resulted in the decline of populations of this species in Idaho, and heavy grazing has been indicated as a cause of extirpation of *L. davisii* from several sites. Damage from off-road vehicle use or trampling by livestock, weed infestations (*Salsola kali* and *Halogeton glomeratus*), and alterations in hydrology due to agricultural use or climate change also threaten this species.

### **Did you know?**

The population of Davis' peppergrass in Oregon's Palomino Playa Research Natural Area (managed by Bureau of Land Management) is the largest known population of this species, with over two million plants estimated to occur in this unique site.

### **Current/Recent ODA projects**

Very little work has been completed on this species in Oregon. A conservation status survey of Oregon's populations is needed, as extant sites have not recently been evaluated, and further inventory in the far southeastern corner of the state may document the existence of additional populations.

### **References**

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