Malheur Valley fiddleneck (*Amsinckia carinata*)

Oregon Department of Agriculture

THREATENED

Flowers (left), habit (center), and habitat (right) of Malheur Valley fiddleneck. Photos by Rebecca Currin (left) and Robert Meinke (center and right). If downloading images from this website, please credit the photographer.

Family
Boraginaceae

Taxonomic notes
Amsinckia carinata was treated as a synonym of *A. vernicosa* in the 1993 publication of *The Jepson Manual*. However, *Amsinckia vernicosa* is an uncommon species found primarily in the foothills of central California, over 800 km (500 miles) from *A. carinata* populations, and although the two species do share similar morphological and habitat characteristics, later research by Meinke (1995) produced significant morphological, cytological, and geographic data indicating that *A. carinata* and *A. vernicosa* are distinct species.

Plant description
Malheur Valley fiddleneck is an erect annual, 10-50 cm tall, glabrous to mostly glaucous below and sparsely bristly above. Leaves are ovate to broadly lanceolate and acute at the tip, with pustuliferous-based hairs on both lower and upper leaf surfaces. Plants produce from one to several flowering stalks which may be branched above. The inflorescence is a coiled cyme, up to 25 cm long in fruit, bearing 5-25 flowers. Sepals are sometimes unequal in width, some of them connate in pairs or triplets. The corolla is typically a broadly flaring funnel shape with blunt, ovate-rounded lobes and is burnt orange to deep yellow, with prominent deeper orange sinuses. The corolla limb is broad, its width approximately 0.5-0.9 times the length of the corolla tube. The tube is 10-nerved below the attachment of the stamens. Nutlets are shiny and smooth, 0.4-0.7 cm long, overall much longer than broad, lanceolate and trigonous with an elongate, acuminate tip, keel-like ventrally, less so dorsally.

Distinguishing characteristics
A few other *Amsinckia* species occur within the range of *A. carinata*, including *A. lycopsoides*, *A. menziesii*, and *A. tessellata*. Malheur Valley fiddleneck is distinguished from these more common and widespread congeners by its glassy-smooth nutlets and nearly glabrous, almost succulent stems and sparsely hairy foliage. Malheur Valley

fiddleneck frequently co-occurs with *A. tessellata*, although it is primarily found higher upslope in areas with larger talus fragments and greater talus depth than *A. tessellata*. Morphologically intermediate hybrids between *A. carinata* and *A. tessellata* have been documented in zones where the two species directly overlap, typically along the lower periphery of hillsides.

When to survey
Surveys for Malheur Valley fiddleneck should be completed when the species is in flower, from late April to early June, depending on conditions.

Habitat
Malheur Valley fiddleneck occurs on yellowish cobbly, tufaceous hillsides, often near the exposed rock summits where talus fragments are large and talus depth is greatest. Plants are usually found on southern exposures at elevations ranging from 835-945 m (2740-3100 ft).

Although the immediate habitat in which this species occurs is severe and sparsely vegetated, several species are directly associated with Malheur Valley fiddleneck, including *Asclepias cryptoceras, Atriplex spinosa, Blepharipappus scaber, Cymopterus corrugatus, Hordeum jubatum, Malocothrix torreyi, Mentzelia albicaulis, Oenothera brevipes, Penstemon miser, Tetradymia glabrata*, and (mostly on lower slopes) *Amsinckia tessellata*. Plant communities immediately surrounding the hillsides on which Malheur Valley fiddleneck occurs were probably dominated by native species of *Poa, Agropyron, Elymus*, and *Artemisia* prior to intensive grazing in the region. These sites are currently plagued by numerous invasive weeds, including *Bromus tectorum, Cirsium* spp., *Ranunculus testiculatus*, and several other exotic Brassicaceae.

Range
This species is a narrow edaphic endemic restricted to only seven known occurrences in eastern Oregon near the town of Harper in northern Malheur County. The total range of Malheur Valley fiddleneck is less than 30 square km (12 square miles), with the populations covering a combined area of approximately 30 acres. It occurs within the Northern Basin and Range ecoregion.

Oregon counties
Malheur

Federal status
Species of Concern

Threats
Livestock movement within Malheur Valley fiddleneck sites degrades the habitat and threatens the plants by direct trampling and the displacement or crushing of larger talus fragments (the preferred substrate of the rare fiddleneck). Invasive weeds, often introduced by grazing activity, may compete with and negatively impact Malheur Valley fiddleneck, particularly where the rare species occurs on lower slopes. Hybridization between Malheur Valley fiddleneck and the common *Amsinckia tessellata* has been observed in the field where the species co-occur, and may result in genetic swamping (if backcrossing occurs) or in the pre-emption of habitat and resources by hybrid plants that would otherwise be available to the rare parent. Potential mining activities threaten the species and its unique habitat, as well. Researchers observed complete germination failure at three populations of Malheur Valley fiddleneck in 1990, a severe drought year, in areas where thousands of plants were observed the previous year. A

series of years with unfavorable climatic conditions would likely pose a serious threat to the survival of this species.

Did you know?
Malheur Valley fiddleneck was first collected in June 1896 by John Leiberg and was not seen again in the field until June 1984, 88 years after its original discovery. Botanist Elaine Joyal rediscovered the species using information from an isotype specimen of Malheur Valley fiddleneck collected by Leiberg, as well as copies of Leiberg's original field notes obtained from the archives of the Smithsonian Institution.

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