

## Rough popcornflower (*Plagiobothrys hirtus*)



### ENDANGERED



Flowers (left), habit (center), and habitat (right) of rough popcornflower. Note the plant in the center is smaller than average for the species. Photos by Melissa Carr (left), ODA staff (center), and Troy Maddux (right). If downloading images from this website, please credit the photographer.

### Family

Boraginaceae

### Plant description

Rough popcornflower is an herbaceous plant that can grow to be 50-60 cm tall and perennial, or considerably smaller and annual, depending on environmental conditions. The upper stems are distinctly covered with spreading hairs, and the opposite cauline leaves are linear with hairy margins. Flowering stems are spreading, with paired coiled inflorescences containing many 6-10 mm-wide, five-petaled white flowers with yellow centers. Flowers can produce up to four tan- to black-colored nutlets each; due to fruit abortion or lack of pollination, calyces with fewer than four nutlets are often observed. Plants are self-compatible, but require pollination by insects to produce seeds.

Seeds germinate when fall rains begin, and plants persist throughout the winter as submerged rosettes. As do many vernal pool plants, *P. hirtus* produces foliage during this submerged phase that is distinctly different from that produced by emergent plants. Immersed plants produce rosettes of hairless, cylindrical leaves with extensive internal airspaces - these submerged rosettes are so distinct from the hairy, flattened foliage produced by emergent plants as to be almost unrecognizable as the same species. As pools begin to dry in late spring, rough popcornflower plants grow rapidly, producing large mats of vegetation that develop adventitious roots and quickly fill all available habitat. Flowering begins in June and continues throughout the summer, with seed production beginning by the end of June.

### Distinguishing characteristics

Rough popcornflower is very similar to fragrant popcornflower (*P. figuratus*), as both have bright green linear leaves and white forget-me-not flowers in helicoid racemes. Nutlets, the basis for taxonomic differentiation within *Plagiobothrys*, are remarkably similar in the two species, although the attachment scar is generally basal in *P. hirtus*, and lateral in *P. figuratus*. Fortunately, these two taxa are readily discernible in the

field. Rough popcornflower's distinctly spreading stem hairs (as compared to the appressed stem hairs characteristic of *P. figuratus*), along with the rare species' larger size, stouter stems (4-5 mm wide as compared to approximately 2 mm in *P. figuratus*), and facultatively perennial nature readily distinguish it from the common species.

Two additional popcornflowers also occur in Douglas County, but both are easily distinguishable from the listed species. Unlike the leafy stems characteristic of *P. hirtus*, rusty popcornflower (*P. nothofulvus*) produces a distinct basal rosette, with elongate flowering stems supporting only a few alternate leaves. Additionally, this common species exudes reddish juice when bruised, and blooms in April and May, with flowering completed by early June. Scouler's popcornflower (*P. scouleri*) rarely reaches more than 15 cm in height and has corollas that are generally less than 3 mm (sometimes to 4mm) wide, noticeably smaller than *P. hirtus*' 6-10 mm-wide corollas. Two species of forget-me-not (*Myosotis*) also inhabit Douglas County wetlands, but both of these annual species have at least some flowers that are blue.

### **When to survey**

Due to difficulties in distinguishing vegetative individuals of rough popcornflower from the related *P. figuratus*, surveys should only be conducted when plants are in flower. Flowering begins in late May or early June and is completed by mid July in sites near Sutherlin. Populations near Rice Hill flower later, beginning in late June and continuing into August.

### **Habitat**

Rough popcornflower is restricted to seasonally wet pools that dry completely by mid-summer. Most inhabited sites have soils comprised of Conser silty clay loam, a very deep, poorly drained soil found in depressions on alluvial stream terraces. This soil is usually moist until mid-summer, and is saturated during the winter. Although *P. hirtus* occurs on Conser silty clay loam in most extant sites, three sites are on two other poorly drained soil types: Bashaw clay and Brand silty clay loam. Rough popcornflower requires full sun exposure and occurs in wetlands at elevations of 139 to 167 m. Native plant associates include *Carex feta*, *Beckmannia syzigachne*, *Juncus effusus*, *Juncus oxymiris*, *Veronica scutellata*, *Glyceria occidentalis*, and *Deschampsia caespitosa*. Exotic weeds, including *Dipsacus fullonum*, *Mentha pulegium*, *Rubus bifrons*, and *Centaurea diffusa* also flourish in most sites.

### **Range**

Rough popcornflower is restricted to the Sutherlin Creek, Calapooya Creek, and Yoncalla Creek watersheds in Douglas County. This species has been collected as far north as Yoncalla, and as far east as Nonpareil, but the majority of the 12 extant populations occur in or near Sutherlin.

### **Oregon counties**

Douglas

### **Federal status**

Endangered

### **Threats**

Historically, a great deal of rough popcornflower habitat was lost due to agricultural conversion of wetlands to pasture or crop fields, with grazing probably also contributing to this species' decline. Filling of wetlands for residential and industrial development in the fast-growing Sutherlin area is the greatest current threat; hydrologic disruptions

and competition from exotic weeds threaten even those populations under administrative protection.

### **Conservation planning**

A U.S. Fish and Wildlife Service [Recovery Plan](#) (pdf document, 626 kB) was released for the rough popcornflower in 2003.

### **Did you know?**

The common name of this genus comes from the somewhat fanciful resemblance of a flowering inflorescence to a bowl of buttered popcorn.

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

Range wide survey for *Plagiobothrys hirtus*

Popcornflowers of the Umpqua River watershed: distinguishing rare and common species

### **References**

Amsberry, K. and R.J. Meinke. 2001. Conservation biology of the federally endangered species *Plagiobothrys hirtus*: additional inventory and investigations of sexual reproduction. Report to U.S. Fish and Wildlife Service. Oregon Department of Agriculture, Salem, Oregon.

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