Large-flowered rush lily (*Hastingsia bracteosa*)

THREATENED

Flowers (left), habit (center), and habitat (right) of large-flowered rush lily. Photos by Melissa Carr. If downloading images from this website, please credit the photographer.

Family
Asparagaceae

Taxonomic notes
This taxon was formerly included within the Liliaceae.

Plant description
Hastingsia bracteosa (large-flowered rush lily) is a bulbous perennial with a solitary flowering stalk up to a meter in height. The bluish-green leaves are mostly basal, grass-like, 25-55 cm long, and glabrous, with only a few small cauline leaves. Dead and shriveled leaves are often present at the base of the flowering stalk. Flowers are arranged in racemes with the terminal raceme having 20-70 flowers. In branched stalks, 1-3 smaller lateral racemes are also present. The narrow, 9-12 mm sepals and petals have pointed tips, and flowers occur as one of two color forms, white (*H. bracteosa* var. *bracteosa*) or dull purple (*H. bracteosa* var. *atropurpurea*). These color forms were once considered separate species. However, more recent genetic and morphological research supports recognition of these forms as varieties; both varieties have Threatened status. Intermediate, pink-flowered forms have been reported from one site where the two varieties co-occur.

Distinguishing characteristics
Hastingsia alba (white-flowered rush lily) also grows in the serpentine bogs and meadows of southwestern Oregon and northern California. This species can be distinguished from *H. bracteosa* by its shorter-petaled flowers (petals less than 8 mm long) and stamens that are longer than the petals and sepals. The stamens in *H. bracteosa* are distinctly shorter than the perianth parts. *Hastingsia serpentinicola*, an additional taxon sometimes included within *H. alba*, has a similar morphology to the latter taxon but is found on dry, open hillsides, rather than the bogs inhabited by *H. bracteosa*. *Camassia howellii* also occurs in this area but has purple (occasionally white) petals and sepals that are greater than 20 mm. *Narthecium californicum*, another potential associate in serpentine fens, has yellow flowers, and leaves in two rows on opposite sides of the stem. *Toxicoscordion venenosum* (death camas) also occurs

throughout this area, but can be readily distinguished from *Hastingsia* by its rounded sepals and petals and open perianth.

When to survey
Because flower characteristics are required to distinguish *Hastingsia bracteosa* from similar species, surveys should be completed when plants are in flower, from late May to June.

Habitat
Both varieties of *Hastingsia bracteosa* occur in wetland areas on Dubakella-Pearsoll series serpentine/peridotite soils. Serpentine substrates support a flora rich in endemic species due to high concentrations of nickel and chromium, and low concentrations of nutrients needed by plants (calcium, nitrogen, and phosphorus). The serpentine wetlands inhabited by *H. bracteosa* are variously described as seeps and rills, seepage areas, *Darlingtonia* bogs, hillside marshes, fens, or small streams. These wetlands occur in openings within Jeffrey pine "savannah" at elevations of 350-700 m (1150-2300 ft). Sites are often open and sunny, but *H. bracteosa* is also found at one site that is heavily shaded by Port Orford cedar (*Chamaecyparis lawsoniana*). Other associated species include *Darlingtonia californica, Gentiana bisetaea, Rudbeckia californica, Rhododendron occidentale, Habenaria sparsiflora, Helenium bigelovii, Narthecium californicum, Lilium vollmeri,* and *Pinus jeffreyi.*

Range
Hastingsia bracteosa is restricted to the Illinois River Valley in southwestern Oregon. The approximately twenty populations of *H. b.* var. *bracteosa* are concentrated around Eight Dollar Mountain, while most of the 12-15 populations of *H.b.* var. *atropurpurea* occur farther south between Tennessee Mountain and O'Brien.

Oregon counties
Josephine

Federal status
Species of Concern

Threats
Alterations to the hydrology of serpentine wetland habitats provide the greatest threat to large-flowered rush lily. Commercial mining claims exist within the area, and recreational off-road vehicle use is common; both of these activities have the potential to alter wetland hydrology and negatively impact populations of this species.

Conservation planning
A conservation agreement (pdf, 926 KB) for *Hastingsia bracteosa*, *Hastingsia atropurpurea*, *Gentiana setigera*, *Epilobium oreganum*, and *Viola primulifolia* ssp. *occidentalis* and serpentine *Darlingtonia* wetlands and fens from southwestern Oregon and northwestern California was developed by U.S. Forest Service, Bureau of Land Management, and U.S. Fish and Wildlife Service in 2006.

Did you know?
All *Hastingsia* taxa found in Oregon occur on serpentine soils. These soils contain relatively high levels of heavy metals and thus support uniquely-adapted plant communities.

References

Becking, R.W. 1986. *Hastingsia atropurpurea* (Liliaceae: Asphodeleae), a new species from southwestern Oregon. Madroño 33:175-181.

Lang, F.A. and P.F. Zika. 1997. A nomenclatural note on *Hastingsia bracteosa* and *Hastingsia atropurpurea* (Liliaceae). Madroño 44:189-192.

ORNHIC (Oregon Natural Heritage Information Center). 2003. Oregon Natural Heritage Information Center Database. Oregon Natural Heritage Information Center, Portland, Oregon.