

2025 AOSA Rule Proposal #4

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PURPOSE OF PROPOSAL:

To add *Glyceria declinata* to AOSA Rules Volume 3, Uniform Classification as a weedy species.

PRESENT RULE:

None

PROPOSED RULE:

NOMEN #	SCIENTIFIC NAME	COMMON NAME	FAMILY	SPP. CLASS	CONTAMINATING CLASSIFICATION						
					A	F	H	R	S	T	V
465018	<i>Glyceria declinata</i> Bréb.	manna grass, waxy	Poaceae	W	W	W	W	W	W	W	W

HARMONIZATION/IMPACT STATEMENT:

Taxonomy: In the literature cited *Glyceria declinata* is referred to as “waxy manna grass”, “low mannagrass”, and “waxy mannagrass.” The common name “waxy manna grass” is the current common name described in the Germplasm Resource Information Network (GRIN). While the USDA PLANTS Database lists *Glyceria declinata* as “waxy mannagrass” the former has been selected as a common name to remain consistent with GRIN and with the common names of other *Glyceria spp.* listed in Volume 3 of the AOSA Rules.

Environmental Impact: *Glyceria declinata* is native to Europe and Northern Africa and has been naturalized to Australia, New Zealand, and the United States in Oregon and California. It is a common weed in Oregon grass seed crops. In California *G. declinata* is described as moderately invasive by the California Invasive Plant Council (n.d.) and can pose a threat to endangered or threatened native species. Dense growths of *G. declinata* may reduce native populations of endangered or threatened species of flora in vernal pools where the young plants may be mistaken for *Lolium multiflorum*. (DiTomaso, et al., 2013). The California Department of Fish and Wildlife Native Plant Program has identified *G. declinata* as a direct threat to Sacramento Orcutt grass and has made efforts to reduce the spread of this invasive species. Current recommendations are to keep the presence of *G. declinata* below ten percent where Sacramento Orcutt grass is found. (Bjerke, 2018).

In one vernal pool sampled in 2001, the cover of *Glyceria sp.* (initially identified as *G. occidentalis*) was determined to be 2%. When sampled in 2006 the *Glyceria sp.* found was determined to be morphologically consistent with *G. declinata* with over 90% coverage of the same area. Dense coverage of *G. declinata* can also make it difficult to cultivate fields. (Gerlach, 2006). In pools where *G. declinata* was incorrectly identified as a variation of *G. occidentalis* there has been significant spread of *G. declinata* to the point that the invasive *G. declinata* is now the likely the only *Glyceria* species present in these pools. In a survey of central valley

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pools in California (Gerlach et al. 2009) determined that all samples of *Glyceria* spp. collected from these pools were morphologically consistent with *Glyceria declinata*.

Impact on international trade: There are four very similar species of concern in Australia, *G. declinata* and *G. fluitans* are found on the Australia list of permitted species for import, while *G. leptostachya* and *G. occidentalis* (listed as *G. ×occidentalis*) are listed as species that are weeds and prohibited from entry to Australia (BICON, 2024a, 2024b). Accordingly, it is necessary to confirm identification of *Glyceria* at species level for contaminants found in seed for export to Australia. As the only diploid species of this grouping, *G. declinata* is the most easily identifiable without conducting a lengthy grow out test (Church, 1949). *Glyceria fluitans* is listed as tetraploid in the Kew Royal Botanical Gardens C-Values Database (Leitch et al. 2019). Ploidy testing identifying a *Glyceria* sp. contaminant as having a ploidy level consistent with that of *G. declinata* has been satisfactory to issue a preliminary report for samples with this contaminant for export to Australia (Garay 2007).

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Canada M&P: Not listed in Canada Methods and Procedures or Weed Seed Order

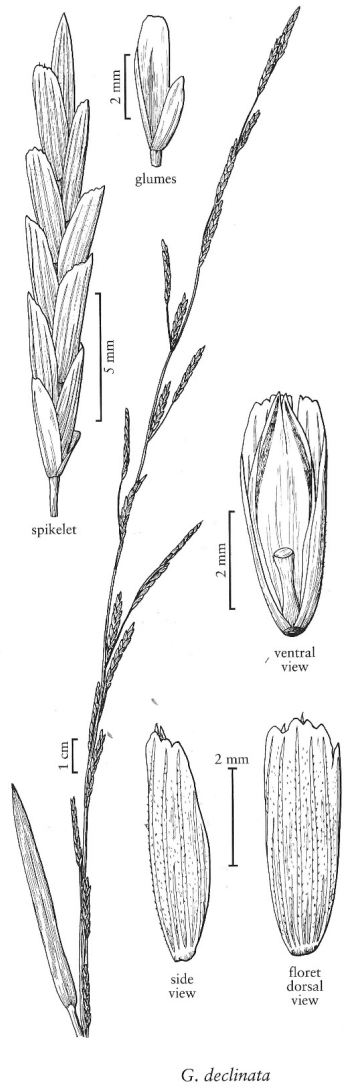
ISTA: ISTA Stabilized List of Plant Names only describes *Glyceria fluitans* and *Glyceria maxima*.

Australian Biosecurity Import Conditions: *Glyceria declinata* is listed in Case: Permitted Seed for Sowing.

SUPPORTING EVIDENCE:

Although described as a separate and distinct species in multiple references based on short stature, bilobed palea tips, lobed lemma tips, and narrow leaf blades (Hitchcock, 1951), *G. declinata* has also been described as a variation of *G. occidentalis* (Holmgren and Holmgren, 1977). To answer the question of whether *G. declinata* found in California was truly the same as the native European species and not a variation of *G. occidentalis* the team at Flora of North America conducted a study to determine molecular and morphological markers to identify *G. declinata*. In their study, samples of *Glyceria* found in California vernal pools proved to be *Glyceria declinata* with chloroplast genotypes identical to the native European *Glyceria declinata* samples. From Whipple et al. (2007) “*Glyceria declinata* is usually shorter and more decumbent than *G. occidentalis*, its panicle branches tend to be shorter, straighter, and have fewer spikelets than those of *G. occidentalis*, and its lemmas have two more or less equal lobes on either side of the tip rather than inconspicuous, unequal lobes (see images at <http://herbarium.usu.edu/webmanual/>). The morphological and cpDNA data support both recognition of *G. declinata* as a distinct species and its presence in western North America.” These lobes on the lemmas of *G. declinata* can be an important point of identification and are well described by Flora of North America in their identification key at <http://floranorthamerica.org/Glyceria#Key>.

Glyceria declinata is one of four species of the *Glyceria* spp. complex which may be indistinguishable from one another when the identifying features are damaged or missing as the caryopses of these species are very similar. The distinctive lobes present on the lemma may be easily broken off during processing. Official descriptions of *Glyceria* spp. are also typically based on the lowest lemma present in a spikelet, but there can be a great deal of variation within the panicle (Barkworth et al. 2019) which may also make purely morphological identification difficult. Other species in this grouping include *Glyceria fluitans*, previously mentioned *Glyceria occidentalis*, and *Glyceria leptostachya*. Of these four species, only *Glyceria declinata* may be distinguished via ploidy testing, either using a root tip squash method or by ploidy via flow cytometry as *Glyceria declinata* is the only diploid species of these four morphologically similar species (Church 1949). *G. fluitans*, *G. occidentalis*, and *G. leptostachya* are all tetraploid species (Leitch et al., 2019). *G. declinata* may also be identified by grow out tests (Garay 2007).



GLYCERIA

Fig. 1: *Glyceria declinata* illustration. (Roche 2019)

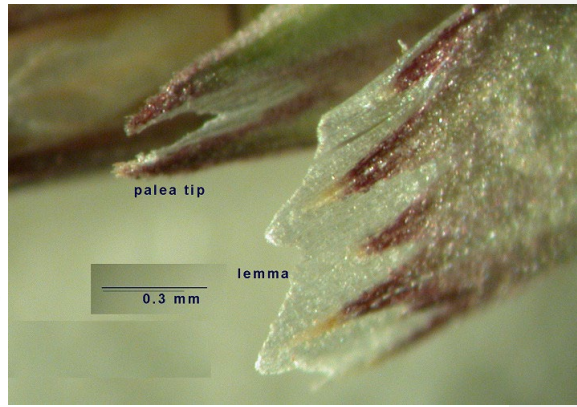


Fig. 2: Bilobed palea and lemma lobes of *Glyceria declinata* (image by Fred Hrusa2006)

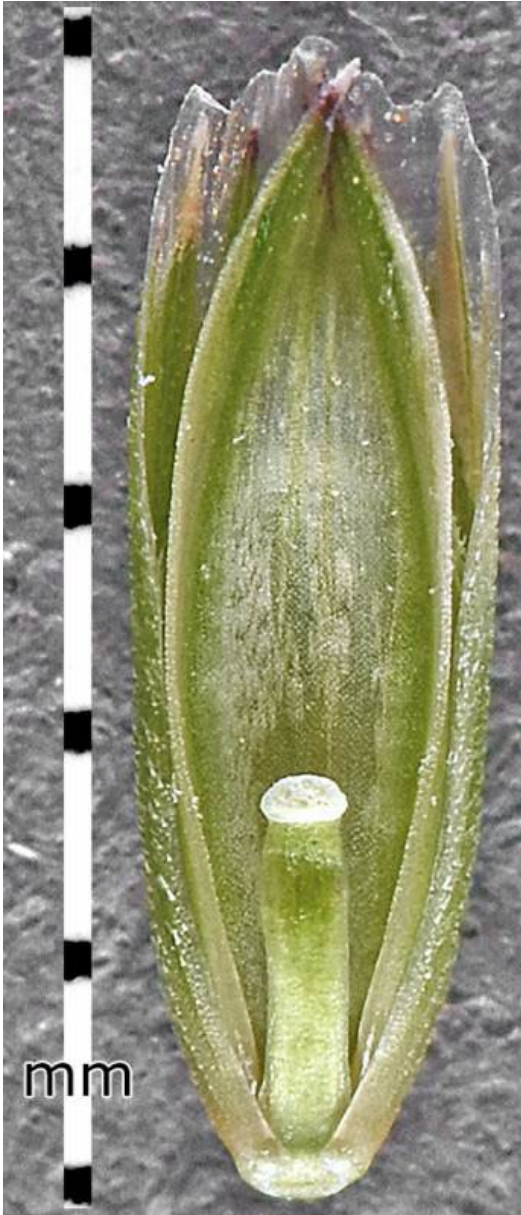


Fig. 3 *Glyceria declinata* (G. D. Carr 2022)

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Images:

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TECHNICAL COMMITTEE REVIEW:

This proposal was reviewed by the chairs of the AOSA-SCST Purity Subcommittee.