ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PDASTE8380
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Symphyotrichum welshii*
COMMON NAME: Welsh's American Aster
SYNONYMS: *Aster welshii*
FAMILY: Asteraceae

AUTHOR, PLACE OF PUBLICATION: Nesom, Guy L. Phytologia 77(3): 294. 1994[1995].

TYPE LOCALITY: Zion Canyon, Utah

TYPE SPECIMEN: BRY 24379 (Holotype *Aster welshii*). Welsh and Hays.

TAXONOMIC UNIQUENESS: *Symphyotrichum*, formerly in the genus *Astor*, is a large genus with over 150 species and varieties recognized by NatureServe in the U.S. and Canada. *S. welshii* is one of eight species found in Arizona. Another species, *S. potosinum*, is only found in Arizona.

DESCRIPTION: Perennials, 30–100 cm colonial; rhizomes shallow and long, often relatively thick (those of the season each producing a distal rosette near the parent plant). Stems 1–2, ascending to erect (sometimes lax, sometimes reddish), glabrous or sparsely strigoso-villosulous distally (arrays). Leaves (adaxially green, abaxially pale green, sometimes glaucous) thin (proximal) to stiff (distal), margins serrulate (proximal) or entire or nearly so, ± revolute, scabrous, apices mucronulate or sometimes callous-pointed, faces glabrous; basal withering by flowering, petiolate (petioles narrowly winged, sheathing), blades oblanceolate to spatulate, 10–40+ × 4–9+ mm, bases attenuate, margins entire, apices obtuse; proximal cauline withering by flowering, sessile or winged-petiolate, blades lanceolate to oblanceolate, 50–150 × 8–11 mm, bases slightly clasping, margins sparsely serrulate, apices acute; distal sessile, blades linear to linear-lanceolate, 50–130 × 4–6 mm, gradually reduced distally, bases ± clasping, apices acute. Heads in open, slender, leafy, paniculiform or racemiform arrays, branches ascending. Peduncles 0.5–2 cm, scabro-villosulous, bracts linear, scabro-ciliolate. Involucres cylindro-campanulate, 4–7 mm. Phyllaries in 3–4 series, lanceolate (outer) to linear (inner), ± unequal, bases indurate, margins hyaline, erose, distally scabro-ciliolate to ciliolate, green zones ± foliaceous (outer) or lanceolate, apices acute to acuminate, sometimes purplish, faces glabrous. Ray florets 18–25; corollas pink to white, laminae 9–12 × 0.8–1.5 mm. Disc florets 23–60; corollas pale yellow, 3.8–6.4 mm, tubes shorter than funnelform throats, lobes narrowly triangular, 0.4–0.8 mm.

Cypselae pinkish tan (nerves stramineous), obovoid, ± compressed, 0.8–1.6 mm, 3–5-nerved, faces sparsely strigillose; pappi white, 2.8–5.3 mm. (Flora of North America 2015)

AIDS TO IDENTIFICATION: *S. welshii* has been confused with *Astor eatonii* and *A. hesperius*. It has the feature of pubescence in decurrent lines below the leaf bases of *A. hesperius*, but differs from both species in the production of basal offsets and overwintering rosettes from which next season's flowering stems develop (Welsh et al 1993).

ILLUSTRATIONS:

Herbarium Mounts:
http://swbiodiversity.org/seinet/taxa/index.php?taxon=Symphyotrichum%20welshii.
Line Drawing and Photos: http://www.utahrareplants.org/rpg_species.html.

TOTAL RANGE: Predominantly found in southwestern Utah, but there are some occurrences elsewhere in Utah as well as Idaho, Montana, Wyoming and Arizona (Flora of North America 2015). NatureServe only lists the species as occurring in Arizona, Utah and Wyoming.

RANGE WITHIN ARIZONA: There are three known collection sites in Arizona. Two are found in the canyons at the southern extent of Skeleton Mesa, west of Kayenta, in Navajo County. The third is along the Marble Canyon reach of the Colorado River, Coconino County. Since the species shows a preference for wet hanging gardens associated with sandstone, there are likely to be additional distributions on Navajo Nation lands.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Perennial, colonial, herbaceous forb.

PHENOLOGY: Flowers: August to October (Flora of North America 2015). This corresponds with information from Arizona, which noted both flowers and fruits from July 29 and September 21 collections.

BIOLOGY:

HABITAT: Wet soils in dry areas, hanging gardens, seeps, wet ledges, stream banks.

ELEVATION: 4360 – 8530 feet (1300-2600m) according to Flora of North America 2015. Two of the Arizona collections, from 6600 and 7200 feet, correspond with the published elevation range. The third collection, however, is along the banks of the Colorado River at an elevation of 2800 feet. Rather than a significant extension of natural elevational range, this may only be a fortuitous population from seed that traveled down the Colorado River from Utah.

EXPOSURE: Not specified.

SUBSTRATE: Wet sandstone (including Navajo Sandstone) and wet limestone.

PLANT COMMUNITY: Associated species from Arizona collections on the Navajo Nation: *Quercus gambelii, Smilacina racemosa. Thalictrum fendleri, Mimulus eastwoodiae, Rhamnus betulifolia, Pseudotsuga menziesii, Brickellia californica, Carex specuicola, Gentiana, Platanthera zothecina, Smilacina stellata, Brickellia longifolia, Salix lutea, Schizachiyrum scoparium, Juncus torreyi, Juncus cf. mexicanus, Polypogon.* Associated species noted at the Colorado River collection include: Tamarix, *Salix exigua, Baccaris emoryi*.

POPULATION HISTORY AND TRENDS: Unknown for Arizona. The species was first described in 1994 and the three collections in the State were made in 2000, 2007 and 2010. None of these collections provided data on population abundance or trend. Overall, there are only about 21 known occurrences, and most of these are found in southwestern Utah. Although the number of plants at some of these sites is abundant, they are still limited by the available habitat. Due to the limited number of occurrences, as well as its rather specialized habitat, the species is considered imperiled or critically imperiled throughout its range at this time. However, knowledgeable persons in both Arizona and Utah believe that the species may be under-collected and may be found in a wider variety of wetland habitats than is currently known (NatureServe 2015).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None.
STATE STATUS: None.
OTHER STATUS: Group 4 (NNDFW, NESL 2008)

MANAGEMENT FACTORS: Livestock accessibility and damage from flash floods are noted as detracting from the species' viability, as is the fact that hanging gardens might be drying up on the Navajo Nation.

PROTECTIVE MEASURES TAKEN: The inaccessible nature of the hanging garden habitats offers some protection for the Arizona sites. The species is currently listed as a Group 4 plant on the Navajo Endangered Species List. The other Arizona collection site is within the USNPS Marble Canyon National Monument.

SUGGESTED PROJECTS: Conduct surveys at other known hanging gardens within the Navajo Nation to determine if the species' distribution can be expanded.

LAND MANAGEMENT/OWNERSHIP: BLM Navajo Nation, Navajo County (two sites), and NPS Marble Canyon NM, Coconino County (one site).

SOURCES OF FURTHER INFORMATION

REFERENCES:

Flora of North America, eFloras.org, accessed online 06/26/2015, http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=250067695.

NatureServe Explorer, an Online Encyclopedia of Life, accessed 6/29/2015, http://explorer.natureserve.org/index.htm.

Navajo Nation Department of Fish and Wildlife. 2008. Endangered Species List for the Navajo Nation. The Navajo Nation, Window Rock, Arizona.

Nesom, G. L. 1994. Review of the taxonomy of Aster *sensu lato* (Asteraceae: Astereae), emphasizing the New World species. Phytologia 77:294.

Tropicos, accessed online 06/26/2015, http://www.tropicos.org/Name/50111983.

Welsh, Stanley L., N. Duane Atwood, Sherel Goodrich, and Larry C. Higgens, eds. 19936. A Utah Flora, 2nd ed, revised. Brigham Young University, Provo, Utah. p. 174.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

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ADDITIONAL INFORMATION: Welsh's Astor is a remarkable species of hanging gardens in Zion Canyon; in many of them the plants obscure the wet sandstone surface and appear to cascade from the gardens. Otherwise it margins the stream and seep edges throughout its range, At Calf Creek falls in Garfield County Utah, it clings to the wet Navajo Sandstone surface in patches, where it is occasionally removed by cascading water (Welsh et al 1993).

Revised: 2015-06-29 (BDT)