

ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract

Element Code: PDAST64073

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Dieteria bigelovii* var. *mucronata*
COMMON NAME: Bristle-tipped Aster
SYNONYMS: *Machaeranthera mucronata*, *Machaeranthera bigelovii* var. *mucronata*, *Aster adenolepis*
FAMILY: Asteraceae

AUTHOR, PLACE OF PUBLICATION: Morgan, David Randal and Ronald Lee Hartman. *Sida* 20(4): 1394. 2003.

TYPE LOCALITY: Arizona. Thompson Canyon [in the Grand Canyon NP].

TYPE SPECIMEN: US 128853 (syntype of *Machaeranthera mucronata*). M.E. Jones, #6056 bl. Sept. 19, 1894.

TAXONOMIC UNIQUENESS: The family Asteraceae is the largest plant family in the world by most accounts. The genus *Dieteria* has five species in North America, and the species *bigelovii* has three recognized varieties, two of which occur within Arizona.

DESCRIPTION: **Leaf blades** linear to linear-oblongate, mid 20–80 × 2–6 mm, margins entire, faces glabrate, puberulent, or canescent. **Involucres** hemispheric, 8–12 mm, widths 2–3 times heights. **Phyllaries** 90–100, 0.5–1 mm wide (at midpoint), apices long-acuminate, 2–5 mm. **Ray florets** 20–60. *2n* = 8. Flora of North America 2016.

AIDS TO IDENTIFICATION: The following key from Flora of North America can be used to separate the three varieties:

- 1 Involucres hemispheric, widths 2–3 times heights; phyllaries 90–100, 0.5–1 mm wide (at midpoint), apices long-acuminate, 2–5 mm..... *Dieteria bigelovii* var. *mucronata*
- 1a Involucres broadly turbinate to hemispheric, 1–2(–3) times heights; phyllaries 25–100, 1–2 mm wide (at midpoint), apices acute to long-acuminate (2)
- 2 Phyllaries 50–100, apices long-acuminate, 3–6 mm, ray florets 30–60..... *D. bigelovii* var. *bigelovii*
- 2a Phyllaries 25–50, apices acute to acuminate, 2–4 mm; ray florets 12–30..... *D. bigelovii* var. *commixta*

ILLUSTRATIONS:

Herbarium Mounts:

<http://swbiodiversity.org/seinet/taxa/index.php?taxon=Dieteria%20bigelovii%20var.%20mucronata>.

TOTAL RANGE: According to the Flora of North America (2016) the plant is endemic to the Kaibab Plateau, Coconino County, Arizona. A review of current records in SEINet, however, indicates that the variety also extends to the vicinity of Flagstaff and south to Mormon Lake. There are two other records, even further south, from the Mogollon Rim near Strawberry and the Houston Mesa, in Gila County. There is also a single record from Kane County, Utah.

RANGE WITHIN ARIZONA: See Total Range.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Biennial or short-lived perennial herbaceous plant.

PHENOLOGY: Flowering Aug – Sept.

BIOLOGY:

HABITAT: Meadows and open areas in coniferous forests. High open meadows between Jacob Lake and the North Rim (Fletcher 1978).

ELEVATION: 7870 – 9840 feet (2400 – 3000m) from Flora of North America 2016. Noted only in higher meadows or disturbed areas about 8500 feet (Fletcher 1978). The two collections along the Mogollon Rim are from 4930 and 5800 feet (1500-1770m).

EXPOSURE: Grows in full sunshine, slope 0-20% (Phillips et al 1982).

SUBSTRATE: Loam, pH 5.0, SCS Soil Association is Soldier-Hogg. Litter 0-2 cm. Bedrock is limestone, so habitat usually has fair drainage (Phillips et al 1982).

PLANT COMMUNITY: Open meadows in Spruce-Fir-Douglas Fir Forest (*Picea*, *Abies*, *Pseudotsuga*). Along the Mogollon Rim found with *Pinus ponderosa*, *Juniperus deppeana*, *Arctostaphylos*, and *Quercus*.

POPULATION HISTORY AND TRENDS: In 1981, the population was numerous and extended over an airline distance of 41.6 km from East Lake to Thompson Canyon. The species was common along roadways and abundant in open meadows and forest openings. Plants were healthy and reproducing successfully. Five populations were censused. Densities

ranged from 1.2 – 9 plants/100m², with an average of about 4 plants/100m². The area of potential habitat was estimated to be 500 km², Phillips et al 1982.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None.
STATE STATUS: None.
OTHER STATUS: None.

MANAGEMENT FACTORS: Extensive grazing in the meadows between 8090 and 9000 feet have benefited this plant. The high mountain meadow area of the North Kaibab (De Motte Park) is unique and should be managed accordingly (Fletcher 1978). The species is not grazed by wildlife or livestock. The species seems to be tolerant of disturbance in the form of fire, logging, road building, grazing and land use by humans (Phillips et al 1982). There are no known threats.

PROTECTIVE MEASURES TAKEN: Was proposed as a Category Two Candidate species in 1980 (Fed Reg. 45 (242)). The Status Report prepared by Phillips et al in 1982 recommended that this plant be removed from consideration. Not listed as Forest Service Sensitive.

SUGGESTED PROJECTS:

Ralph Gierisch recommended continued studies to determine distribution, habitat and ecological factors affecting this species (Fletcher 1978).

LAND MANAGEMENT/OWNERSHIP: USDA Forest Service (Kaibab, Coconino and Tonto NF), USDI National Park Service (Grand Canyon NP).

SOURCES OF FURTHER INFORMATION

REFERENCES:

- Fletcher, Reggie, Botanist, R-3 USFS. March 1978. *Machaeranthera mucronata*. Manuscript in AGFD HDMS files.
- Flora of North America (eFloras), accessed 11-21-2016,
http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=250068252.
- JStor| Global Plants, accessed 11-21-2016,
http://plants.jstor.org/search?filter=namewithsynonyms&so=ps_group_by_genus_species+asc&Query=%28Machaeranthera+mucronata%29.
- Phillips, Arthur M. III, Nancy Brian, Barbara G. Phillips, and Christine Babcock. 1982 (December 22). Status Report: *Machaeranthera mucronata*. Submitted to Office of

Endangered Species, USFWS, USDI, Albuquerque, NM. Museum of Northern Arizona, Flagstaff.

Tropicos, accessed 11-21-2016, <http://www.tropicos.org/Name/50246492>.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

Revised: 2016-11-22 (BDT)

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