

**ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM**

**Plant Abstract**

**Element Code:** PDFAB1D0V0

**Data Sensitivity:** No

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Desmodium metcalfei*

**COMMON NAME:** Metcalf's Tick-trefoil

**SYNONYMS:** *Meibomia metcalfei*

**FAMILY:** Fabaceae

**AUTHOR, PLACE OF PUBLICATION:** Kearney, Thomas Henry, Jr. and Robert Hibbs Peebles. Jour. Wash. Acad. Sci. 29(11): 485. 1939.

**TYPE LOCALITY:** New Mexico: Sierra County: Animas Creek, in and around the south end of the Black Range.

**TYPE SPECIMEN:** Amherst College, AC 319913 (isotype for *Meibomia metcalfei*). O.B. Metcalf, #1137. July 13, 1904.

**TAXONOMIC UNIQUENESS:** NatureServe (2015) lists 49 species of *Desmodium* in the U.S. and Canada, with another eight varieties. Fourteen of these species are found in Arizona, and four of these found *only* in Arizona.

**DESCRIPTION:** Perennial, Herbs, Stems woody below, or from woody crown or caudex, Taproot present, Nodules present, Stems erect or ascending, Stems less than 1 m tall, Stems solid, Stems or young twigs glabrous or sparsely glabrate, Leaves alternate, Leaves petiolate, Stipules free, Leaves compound, Leaves pinnately 3-foliolate, Leaves odd pinnate, Leaf or leaflet margins entire, Leaflets opposite, Stipels present at base of leaflets, Leaflets 3, Leaves hairy on one or both surfaces, Inflorescences racemes, Inflorescence axillary, Inflorescence terminal, Bracts conspicuously present, Bracteoles present, Flowers zygomorphic, Calyx 2-lipped or 2-lobed, Calyx hairy, Petals separate, Corolla papilionaceous, Petals clawed, Petals blue, lavender to purple, or violet, Banner petal ovoid or obovate, Wing petals narrow, oblanceolate to oblong, Wing tips obtuse or rounded, Keel tips obtuse or rounded, not beaked, Stamens 9-10, Stamens diadelphous, 9 united, 1 free, Filaments glabrous, Style terete, Fruit a loment, jointed, separating into articles, Fruit stipitate, Fruit unilocular, Fruit indehiscent, Fruit elongate, straight, Fruit spirally coiled or contorted, Fruit exserted from calyx, Fruit compressed between seeds, Fruit hairy, Fruit 3-10 seeded, Seeds ovoid to rounded in outline, Seeds reniform, Seed surface smooth, Seeds olive, brown, or black (Bogler 2015).

**AIDS TO IDENTIFICATION:** *Desmodium metcalfei* is similar to *D. cinerascens*, which occurs in southeastern Arizona, but whose leaflets are villous below. The trifoliolate-leaves of *Desmodium* are similar to those in *Phaseolus*, whose stems are twining. Other trifoliolate sympatric genera, *Cologania* and *Galactia*, as well as *Phaseolus*, all have diadelphous stamens (united by their filaments into two unequal sets), whereas *D. metcalfei* has monadelphous stamens (Bleakly 2009).

A taxonomic key to all the species of *Desmodium* in Arizona can be found in Kearney and Peebles 1960.

**ILLUSTRATIONS:**

Photos and Herbarium Mount:

<http://swbiodiversity.org/seinet/taxa/index.php?taxon=Desmodium%20metcalfei>.

Photos and Line Drawing:

[http://nmrareplants.unm.edu/rarelist\\_single\\_photo.php?SpeciesID=67&FileName=desmet\\_h2.jpg&Phototype=N&Photographer=Max+Licher+at+swbiodiversity.org%2Fseinet%2Findex.php](http://nmrareplants.unm.edu/rarelist_single_photo.php?SpeciesID=67&FileName=desmet_h2.jpg&Phototype=N&Photographer=Max+Licher+at+swbiodiversity.org%2Fseinet%2Findex.php).

**TOTAL RANGE:** Arizona, New Mexico, and Sinaloa, Mexico.

**RANGE WITHIN ARIZONA:** Although somewhat widely distributed across the State, there are only 11 collections. The species occurs in Coconino, Yavapai, Gila, Greenlee, Santa Cruz and Cochise Counties.

**SPECIES BIOLOGY AND POPULATION TRENDS**

**GROWTH FORM:** Perennial forb.

**PHENOLOGY:** Flowers: August to October. Arizona collections reported fruits in September and October.

**BIOLOGY:**

**HABITAT:** Rocky slopes and canyons in grasslands, oak/pinyon-juniper woodlands, and riparian settings

**ELEVATION:** Per Bleakly (2009) in New Mexico: 4000-6500 feet (1310-2000m). Collections in Arizona range from 2760 – 8200 feet (840-2500m).

**EXPOSURE:** Not specified.

**SUBSTRATE:** Not specified.

**PLANT COMMUNITY:** Ponderosa Pine/Gambel Oak, mesquite wash, grassland and riparian or cienega were noted from Arizona collections. Other associated species included: *Pinus cembroides*, *Juniperus deppeana*, *Nolina microcarpa*, *Dasyllirion wheeleri*, *Agave parryi ssp. huachucensis*, *Quercus gambelii*, *Quercus hypoleucoides*, *Quercus grisea*, *Quercus rugosa*, *Yucca schottii*, *Cercocarpus montanus*, *Ceanothus fendleri*, *Ipomoea thurberi*, *Vitis arizonica*, *Penstemon barbatus*, *Sanguisorba minor*, *Salix gooddingii*, *Baccharis salicifolia*, *Cynodon dactylon*, *Schoenoplectus americana*, *Agrostis stolonifera*, *Helianthus annuus*, *Lythrum californicum*, *Polygonum lapathifolium*, *Leersia oryzoides*, *Echinochloa crusgali*, *Paspalum dilatatum*, *Epilobium ciliatum*, *Hymenoclea monogyra*, *Xanthium strumarium*, *Polypogon monspeliensis*, *Plantago wrightiana*, *Juglans major*, *Fraxinus velutina*, *Celtis reticulata*, *Brickellia californica*, *Achillea millefolium*, *Arctostaphylos pringlei*, *Aristida orcuttiana*, *Asclepias tuberosa*, *Bouteloua gracilis*, *Carex occidentalis*, *Dalea leporina*, *Dichanthelium oligosanthes*, *Eragrostis curvula*, *Geranium caespitosum*, *Muhlenbergia rigens*, *Panicum bulbosum*, *Piptochaetium pringlei*, *Pseudocymopterus montanus*, *Quercus emoryi*, *Rhamnus californica*, *Schizachyrium sanguineum*, *Tragia nepetifolia*, *Heterotheca villosa*, *Solidago wrightii*, *Quercus turbinella*, *Platanus wrightii*, *Pinus ponderosa*.

**POPULATION HISTORY AND TRENDS:** Unknown. There are only eleven known occurrences of *D. metcalfei* in Arizona. Two of these are historical (1968 and 1970); all others have been collected since 2000. Notes from collection records have both indicated the species was infrequent, or common, at some sites. There are no multi-date collections from the same site, or other data that can be used to infer population abundance or trend. NatureServe considers this species to be vulnerable in Arizona, based on the limited number of collections.

## **SPECIES PROTECTION AND CONSERVATION**

<b>ENDANGERED SPECIES ACT STATUS:</b>	None.
<b>STATE STATUS:</b>	None.
<b>OTHER STATUS:</b>	Forest Service Sensitive (USDA FS Region 3 2013) [Forest Service Sensitive (USDA FS Region 3 2007)] New Mexico Rare Plant List (NMRPTC 1999)

**MANAGEMENT FACTORS:** According to Bleakly (2009), current land use practices in New Mexico apparently pose no threat to this species.

**PROTECTIVE MEASURES TAKEN:** Listed as Forest Service Sensitive and considered Rare in New Mexico. About one-fourth of the known collections were found within wilderness or primitive areas.

**SUGGESTED PROJECTS:** Bleakly (2009) recommends additional field searches to determine the rarity of this plant.

**LAND MANAGEMENT/OWNERSHIP:** USDA Forest Service (Coconino, Apache Sitgreaves, Coronado, Prescott, and Tonto National Forests and Fossil Creek and Miller Peak Wilderness Areas and Blue Range Primitive Area); Arizona State Trust Land; USDI Bureau of Land Management; USDI Bureau of Indian Affairs Fort Apache Indian Reservation; and private land holdings.

## **SOURCES OF FURTHER INFORMATION**

### **REFERENCES:**

- Bleakly, David. 2009 (updated). *Desmodium metcalfei*, in New Mexico Rare Plants, accessed 9/24/2015, [http://nmrareplants.unm.edu/rarelist\\_single.php?SpeciesID=67](http://nmrareplants.unm.edu/rarelist_single.php?SpeciesID=67).
- Bogler, David, accessed 9/24/2015, <http://swbiodiversity.org/seinet/taxa/index.php?taxon=Desmodium%20metcalfei>. Also from USDA NRCS PLANTS Database at [www.plants.usda.gov](http://www.plants.usda.gov).
- JStor| Global Plants, accessed 9/24/2015, <http://plants.jstor.org/stable/10.5555/al.ap.specimen.ac00319913>.
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- Tropicos, accessed 9/24/2015, <http://www.tropicos.org/Name/13017703>.
- USDI, Forest Service Region 3. 2007. Regional Forester's List of Sensitive Plants.
- USDI, Forest Service Region 3. 2013. Regional Forester's List of Sensitive Plants.

### **MAJOR KNOWLEDGEABLE INDIVIDUALS:**

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**ADDITIONAL INFORMATION:** This plant is broadly distributed in Arizona, but there are relatively few collections in the database of the Southwest Environmental Information Network (SEINet). The specimen from Sinaloa, Mexico, is about 1,000 km (625 mi) disjunct from the nearest collections in southeastern Arizona. This genus is often considered to be difficult because collected specimens often lack fruit, and intermediate leaf shapes and sizes are common (Bleakly 2009).

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