ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PDBRA06200
Data Sensitivity: NO

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Pennellia tricornuta*
COMMON NAME: Rincon Mountain rockcress, Chiricahua rock cress
SYNONYMS: *Arabis tricornuta* Rollins
FAMILY: Brassicaceae

AUTHOR, PLACE OF PUBLICATION: R.C. Rollins, J. Wash. Acad. Sci. 29(11): 478-479. 1939.

TYPE LOCALITY: Eastview, Rincon Mountains, Pima County, Arizona, U.S.A. 8200 feet.

TYPE SPECIMEN: HT: GH-18805. J.C. Blumer 3478, 13 October 1909.

TAXONOMIC UNIQUENESS: Although R.C. Price described *Arabis tricornuta* in 1939, he did note that it was not closely related to any other species of Arabis (Rollins 1939). Arabis is a large genus with nearly 90 species, ten of which occur in Arizona, and two of these, including *A. tricornuta*, are endemic (Kearney and Peebles 1951). However, recognizing a difference, Price et el (2001) transferred the two cupulate-flowered species, *A. microsperma* and *A. tricornuta* to the genus *Pennellia*. This name change has not been adapted by all authorities. The Flora of North America (2010) and the Arizona HDMS use the new designation *Pennelli*a. NatureServe (2019) still use *Arabis* at the global and national levels. The USDA Forest Service still lists the plant as Sensitive, under the name *Arabis tricornuta.*

DESCRIPTION: A perennial forb, 30-70 cm (12-28 in) tall, with a single stem that is branched above; dendritic trichomes, branched with 3-5 arms. Lower cauline leaves petiolate, oblanceolate, pubescent with harsh 2- or usually 3-pronged trichomes, 3-5 cm (1.2-2 in) long and 1 cm wide; upper cauline leaves linear to narrowly lanceolate, glabrous. Flowers are small, forming narrow racemes. Sepals are glabrous, oblong, 3-4 mm long, 2-3 mm wide, unequal, not saccate, inner pair tapering at the base. The petals are white (In SEINet, a 1938 collection reports flowers pinkish, while a 1989 collection reports flower purple), lingulate to nearly spatulate, thickened toward base with edges rolled outward, erose to entire along petal margin, not differentiated into blade and claw, 4-5 mm long, ca. 1.5 mm wide. Stamens slightly shorter than petals, filament of short stamen curved, filament of long stamen straight; nectar glands surrounding short stamens, only subtending long stamens; pedicels slender, gently curved downward, glabrous, 1-1.5 cm long. Siliques (fruit of the mustard family) are 3-7 cm (1.2-2.8 in) long, 2-3 mm wide, flat, blunt, narrowly spatulate and widely spreading,

ascending, spreading at right angles or widely curved downward; style ca. 1 mm long; stigma entire. Seeds are flat, conspicuously winged all around, 4-5 mm long, 1.5 mm wide, uniseriate; cotyledons obliquely accumbent (Rollins, 1939, Rollins 1993, Falk and Roller 1999).

AIDS TO IDENTIFICATION: This species resembles *Pennellia micrantha,* particularly during the flowering period. They are almost identical in habit, inflorescence, flower, and pubescence. The most reliable way of distinguishing these two species is by examining the siliques. The siliques of *P. micrantha* are erect, terete, and nerved to the middle or above; the seeds are plump, angled, and marginless (Kearney and Peebles 1951, Rollins 1939, Rollins 1993, Falk and Roller 1999). The siliques of *P. tricornuta* are glabrous, slightly ascending or spring at right angles or widely curved downward, often secund, 3-7 cm long and 2-3 mm wide; the seeds are flat, nearly orbicular to longer than wide about 1.5 mm wide about 2 mm long and conspicuously winged all around. The flower and upper parts of *P. tricornuta* resemble those of *A. laevigata,* an eastern U. S. species that extends west to Colorado, but the petiolate, cauline leaves of *P. tricornuta* easily distinguish the two species. All other species of *Arabis* in Arizona have sessile cauline leaves (Rollins 1939).

ILLUSTRATIONS:
Line drawing (B. Dennis, *in* Falk, Jenkins, et al. 2001)
Color photo of habitat (Mima Falk, *in* Falk, Jenkins, et al. 2001)
Color photos: http://swbiodiversity.org/seinet/taxa/index.php?tid=47.

TOTAL RANGE: Endemic to southeastern Arizona.

RANGE WITHIN ARIZONA: Rincon Mountains (Pima County), Chiricahua and Huachuca Mountains (Cochise County); and the Santa Rita Mountains (Santa Cruz County).

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Evergreen perennial forb.

PHENOLOGY: Flowering: July – September. Fruiting: August - November. Falk et al. (2001) report flowering from July to mid-August, often found covered with siliques by late-August.

BIOLOGY:

HABITAT: Generally found on steep and rocky slopes in the understory with pine trees, and road and sand banks.

ELEVATION: Falk et al (2001) reported elevations from 7,000-9,000 feet (2,130-2,750m). Records from SEINet range from 6,000 – 8,840 ft. (1,830-2,696 m). Flora of North

America report a much wider range from 4,260 – 9,180 (1,300-2,800m).

EXPOSURE: Not specified.

SUBSTRATE: Not specified.

PLANT COMMUNITY: Madrean evergreen woodland and madrean montane conifer forest (Brown 1994). Associated species include: *Pinus arizonica* (Arizona pine), *P. engelmannii* (Engelmann pine), and *Quercus hypoleucoides* (silver-leaf oak), (Bennett et al. 1996). *Pinus ponderosa* (Ponderosa pine), *Pseudotsuga menziesii* (Douglas-fir), *Quercus gambelii* (Gambel oak), and *Q. hypoleucoides* (SEINet accessed 2006).

POPULATION TRENDS: Unknown. Although currently ranked as critically imperiled by NatureServe (2019), the Arizona HDMS program recently (2019) re-evaluated the collection records and determined a new rank of imperiled.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None
STATE STATUS: None
OTHER STATUS: Forest Service Sensitive (USDA, FS Region 3 2013)
[Forest Service Sensitive (USDA, FS Region 3 1999)]

MANAGEMENT FACTORS: None specified.

CONSERVATION MEASURES TAKEN: Listed as a Sensitive species by the USDA Forest Service. This means that the species receives special attention in forest management plans. P. tricornuta has only been found on Forest Service lands.

SUGGESTED PROJECTS: Populations in the Huachuca and Chiricahua Mountains have not been verified for decades. Known collections sites should be re-visited.

LAND MANAGEMENT/OWNERSHIP: USDA Forest Service - Coronado National Forest.

SOURCES OF FURTHER INFORMATION

REFERENCES:

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

Revised: 1998-12-16 (RHB)
1999-11-09 (DJG)
2006-05-04 (SMS)
2019-09-04 (BDT)

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