

## **Grimmia arizonae Renault & Cardot - Rev. Bryol. 19: 85. 1892.**

**Type:** U.S.A., Arizona, Fort Grand, leg. La Forêt, lectotype, designated by Muñoz (1999), PC !; isolectotypes FH !, NY!

**Synonyms:** *Grimmia santaritae* Bartr., *G. arsenei* Card.

**Distribution:** Am.1,2

### **Description**

*Grimmia arizonae* grows in robust, dark green, usually extremely hoary tufts, the leaves are flexuose, soft and loosely appressed when dry, patent to spreading when moist, broadly lanceolate with shoulders, weakly keeled above, the costa is projecting on dorsal side, hair-points are long and denticulate, the margins are recurved on one or both sides toward the base. The distal areolation is bistratose, mid-leaf cells are irregularly rounded with incrassate walls, basal marginal cells are short-rectangular with thin walls, basal juxtacostal cells are elongate with incrassate and sinuose walls. The sexuality is dioicous and capsules on short, straight setae are occasionally present, they are immersed, oblong-ovoid, smooth with a rostrate operculum.

### **Discussion:**

*Grimmia arizonae* is endemic to the south-eastern states of the U.S.A. and adjacent areas in Mexico. Bartram (1924) described the species as *G. santaritae*, and found it growing abundantly in the mountains of southern Arizona, extending eastwards through southern New Mexico to the mountains of western Texas. *G. arizonae* is related to *G. pilifera* from the northwestern states, this species is characterized by dark green to blackish-green cushions with rigid, narrowly lanceolate leaves with an ovate, somewhat sheathing base, suddenly narrowed into upper subulate part, forming distinct shoulders, the lamina is bistratose in the upper half of the leaf, and the margins thickened in 3-4 cell layers in the upper part (Greven 1999). In 2009, *G. arizonae* was found richly occurring in the vicinity of Fort Davis (Texas, Jeff Davis Co.). At a north-facing rock-wall on route 166, 11 miles from Fort Davis, *G. arizonae* was found associated with *Grimmia americana*, *G. longirostris*, *G. laevigata*, and a related new species that has been described as *Grimmia texicana*. The difference with *G. arizonae* are pointed out under that species.

### **Specimens examined**

**U.S.A.** Arizona, Santa Cruz Co., Santa Rita mts., White House Canyon, alt. 6000 ft, leg. 20-02-1923, H-Br.; Arizona, Santa Cruz Co., Santa Rita mts., Baldy trail,

alt 6500 ft, leg. Bartram nr. 1304, 10-12-1924, H-Br. 1825017; Arizona, Santa Cruz Co., Santa Rita mts., alt. 7500 ft, leg. J. Holzinger 17-11-1924 (distributed as *Grimmia catalinensis* Bartr.), H-Br. 1825016; Oklahoma, Kiowa Co., One mile south of Lake Altus along Hwy 44, leg. C.D. Bird nr. 3435, 27-11-1959; Arizona, Cochise Co., Cave Creek, Chiricahua mts., near S.W. research station, 6 miles west of Portal, alt. 2000 m, leg. Weber & Shusan nr. 4359, 15-04-1957; Oklahoma, Greer Co., north of Altus, 3.2 km west of Quartz mts state park, leg. Churchill nr. 8438, 24-03-1977; Colorado, Boulder Co., Boulder canyon, 12 miles northwest of Boulder at Castle Rock, alt. 2250 m, leg. Weber & Schlueter, 04-07-1979, COLO B-67606; Texas, Jeff Davis Co., Boys Camp Ground, 15 miles W of Fort Davis, Whitehouse 24673, NY; New Mexico. San Miguel Co., 2 miles W of Las Vegas, 6500 ft, Richards & Drouet 379, NY; New Mexico, 10 miles SW-ward on road to Silver City, at Pinelawn, 6300 ft, Frye 2875, NY; Oklahoma, Greer Co., N of Altus, 3.2 km W of Quartz Mts. State Park, Churchill 8438, NY; Arizona, Santa Cruz Co., Madera Canyon, 5000 ft, Hermann 19718, NY; Arizona, Cochise Co., Cave Creek, Chiricahua Mts., 6 miles W of Portal, 6000 ft, Weber & Shushan 10527, NY; Arizona, Santa Cruz Co., White House Canyon, Santa Rita Mts, Bartram 1453, NY; Arizona, Pima Co., Tucson Mts., Picture rocks, 2500 ft, Bartram 1356, NY; Texas, Jeff Davis Co., 1 mile W of Ft. Davis, Norris 11556, NY; Arizona, Santa Rita Mts., Pima Co., Florida Pass, 8200 ft, Haskell 3416, NY; Arizona, Cochise Co., Chiricahua Mts., trail to Barfoot Lookout, 8500 ft, Weber B 6078, NY; Texas, Brewster Co., Chisos Mts., Boot Springs, 6800 ft, Magill 1902, NY; Texas, Jeff Davis Co., route 118, 10 miles north of Fort Davis, alt. 1650 m, leg. H.C. Greven nr. Tex. 14, 15, 16, 17, 18, 17-03-2009; Texas, Jeff Davis County, route 166, Boys Camp, alt. 1313 m, leg. H.C. Greven nr. Tex. 19, 17-03-2009;

**Mexico.** El Rosal, above D 57, between San Juan del Rio and Jilotepec mts., alt. 2870 m, leg. R. Düll, 11-08-1975; Oaxaca, road Oaxaca to Tuxtepec, ca. 75 km after begin road, alt. 1870 m, leg. R. Düll nr. 2/186, 17-08-1975;

## References

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- Jones, G.N. 1933. Grimmiaceae. In: Grout (ed.), Moss Flora of North America Vol. II, Part I: 1-66. Newfane, Vermont.