

MOLLUGINACEAE CARPET-WEED FAMILY

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Plants annual herbs (shrubs); glabrous or with stellate hairs. STEMS prostrate to erect. LEAVES simple, alternate, opposite or whorled; stipules present or absent. INFLORESCENCE axillary or terminal, a diffuse to congested cyme or umbel, or flower solitary. FLOWERS inconspicuous, mostly perfect, actinomorphic, hypogynous; sepals (4-)5, persistent, mostly distinct, free; petals 0 in ours; stamens 3-5 (-20); pistil compound, mostly 3-5-carpellate, the locules sometimes incompletely divided above; placentation mostly axile. FRUITS loculicidal capsules or rarely achenes. SEEDS (1-) numerous; aril present or absent; perisperm starchy. --14 genera, ca. 100 species, worldwide, mostly trop. and subtrop. Bogle, A. L. 1970. *J. Arnold Arb.* 51:431-462. This family was formerly included in the Aizoaceae by many authors.

1. Plant with stellate hairs; seed with conspicuous white aril *Glinus*
 1' Plant glabrous; seed lacking an aril *Mollugo*

Glinus L.

Annual herbs with stellate hairs. STEMS several from base, prostrate to ascending. LEAVES alternate to whorled, unequal, petiolate, exstipulate, the margins entire or toothed, the blade spatulate, elliptic or obovate to orbicular, the base cuneate. FLOWERS several to many, sessile or short-pedicellate; sepals 5, scarious margined, the green midrib extending to the apex; stamens 3-5(-20), fascicled when numerous; pistil 3(-5) -carpellate, the stigmas sessile or subsessile. FRUITS capsules, in ours slightly shorter than the sepals. SEEDS numerous, reniform, the funiculus persistent, the aril conspicuous, white, with a filiform appendage coiled around the seed. $x = 9$. --13 spp.; pantropical, and weeds of temperate areas. (Greek: *glinos* = sweet juice). Our species can form large mats when robust. Identification requires mature seeds.

1. Seeds visibly reticulate but smooth; sepals mostly 4-5 mm long, the apex attenuate *G. radiatus*
 1' Seeds tuberculate; sepals mostly 5-7 mm long, the apex acute *G. lotoides*

Glinus lotoides L. (like *Lotus*). --STEMS to 25 cm long. LEAVES to 26 mm long, to 14 mm wide. FLOWERS mostly 4-10 per cluster, the pedicels to 2 mm long; sepals 5-7 mm long, the apex acute to slightly mucronate. SEEDS ca. 0.4-0.6 mm long, red-brown to dark brown, tuberculate. $2n = 36$. --Margins of stock ponds: Pima co.; 350 m (1090 ft); mostly summer-fall, potentially year-round; s. U. S., Mex., native to Eur. Known in AZ from three collections (*Felger 92-565, 92-714 & 93-94, ARIZ*), all from the José Juan Tank (stock pond) in Cabeza Prieta National Wildlife Refuge.

Glinus radiatus (Ruiz & Pav.) Rohrb. (radiating). --STEMS to 35 cm long. LEAVES to 20 mm long, to 12 mm wide. FLOWERS mostly 4-10 per cluster, the pedicels to 2 mm long; sepals 4-5(-6) mm long, the apex attenuate or long-acuminate. SEEDS ca. 0.4-0.5 mm long, red-brown, smooth but visibly reticulate with a cross-hatched pattern. $2n = 18, 36$. --Disturbed areas, often associated with stock tanks: Cochise, Gila, Maricopa, Pima, Santa Cruz, Yuma cos.; 250-1200 m (900-4000 ft.); May-Oct; CA, LA, OK, TX, s to C Amer., W. Ind.

First collected in Arizona in 1975 (Lane, M. A. and D. J. Keil. 1976. *Madroño* 23:457).

Mollugo L. Carpet-weed

Annual herbs (subshrubs), glabrous, sometimes glaucous. STEMS one to several from base, prostrate to ascending or erect. LEAVES whorled, unequal, short-petiolate to sessile, exstipulate, the margins entire, the blade linear or lanceolate to oblanceolate or obovate, the base cuneate. FLOWERS 1-several, pedicellate; sepals 5, scarious-margined, the midrib not extending to the apex; stamens 3-5 (10); pistils mostly 3-carpellate, the styles short or stigmas sessile. FRUITS capsules, shorter or longer than the sepals. SEEDS numerous, reniform to rounded, detaching from the funiculus, without aril or filiform appendage. $x = 9$. --ca. 35 spp.; cosmopolitan, some weedy. (Probably from the Latin: *mollis* = soft).

1. Stems erect; leaves to 1 mm wide; seeds reticulate, with a slight keel *M. cerviana*
 1' Stems prostrate to ascending; leaves 1-10 mm wide; seeds striate, with several conspicuous parallel ridges *M. verticillata*

Mollugo cerviana (L.) Ser. (of deer). -- STEMS erect, to 12(-18) cm tall. LEAVES of basal rosette to 20 mm long, 1-2(-4) mm wide, linear or narrowly lanceolate to oblanceolate; cauline leaves to 20 mm long, to 1 mm wide, linear. FLOWERS: sepals 1-1.5 mm long, 1-nerved; stamens usually 5, shorter than the sepals. FRUITS slightly shorter than the sepals, the apex not or only obscurely lobed. SEEDS ca. 0.4 mm, broadly half-moon shaped, with a single keel along the rounded back, net-sculptured, shiny, red-brown. $2n = 18$. --Cochise, Gila, Maricopa, Pima, Pinal, Yavapai cos.; 350-1700 m (1100-5500 ft); Aug-Oct; CA, TX; Mex.; Old World.

This taxon is superficially similar to *Drymaria molluginea* (Lag.) Didr. (Caryophyllaceae) which, however, has petals, a distinctly cymose inflorescence with scarious bracts and dull gray-brown seeds that are at least 1 mm long.

Mollugo verticillata L. (whorled). -- STEMS mostly prostrate or ascending, to 28(-40) cm long. LEAVES of basal rosette to 40 mm long, to 10(-16) mm wide, oblanceolate to obovate; cauline leaves to 20(-36) mm long, 1-5(-7) mm wide, oblanceolate. FLOWERS: sepals 1.5-3 mm long, mostly 3-nerved; stamens usually 3, nearly equalling the sepals in length. FRUITS exceeding the sepals by 1/4-1/2 of their length, the apex 3-lobed. SEEDS ca. 0.6 mm, broadly reniform, the rounded back with (0-)6-8 parallel dark brown ridges, the surface otherwise striate, shiny red-brown. $2n = 64$. --Cochise, Gila, Graham, Navajo, Pima, Pinal, Santa Cruz, Yavapai cos., 800-2300 m (2600-7600 ft); Jul-Nov; N. Amer., C. Amer.

Depauperate specimens can be superficially similar to *M. cerviana*. The prominent dark ridges on the seeds of *G. verticillata* are a variable character in out-of-state material, ranging from 8 to 0.

I thank the curators of ASU and ARIZ for allowing me to study their specimens. Dr. Michael A. Vincent provided assistance with *Glinus*, including pointing out the sepal apex character.

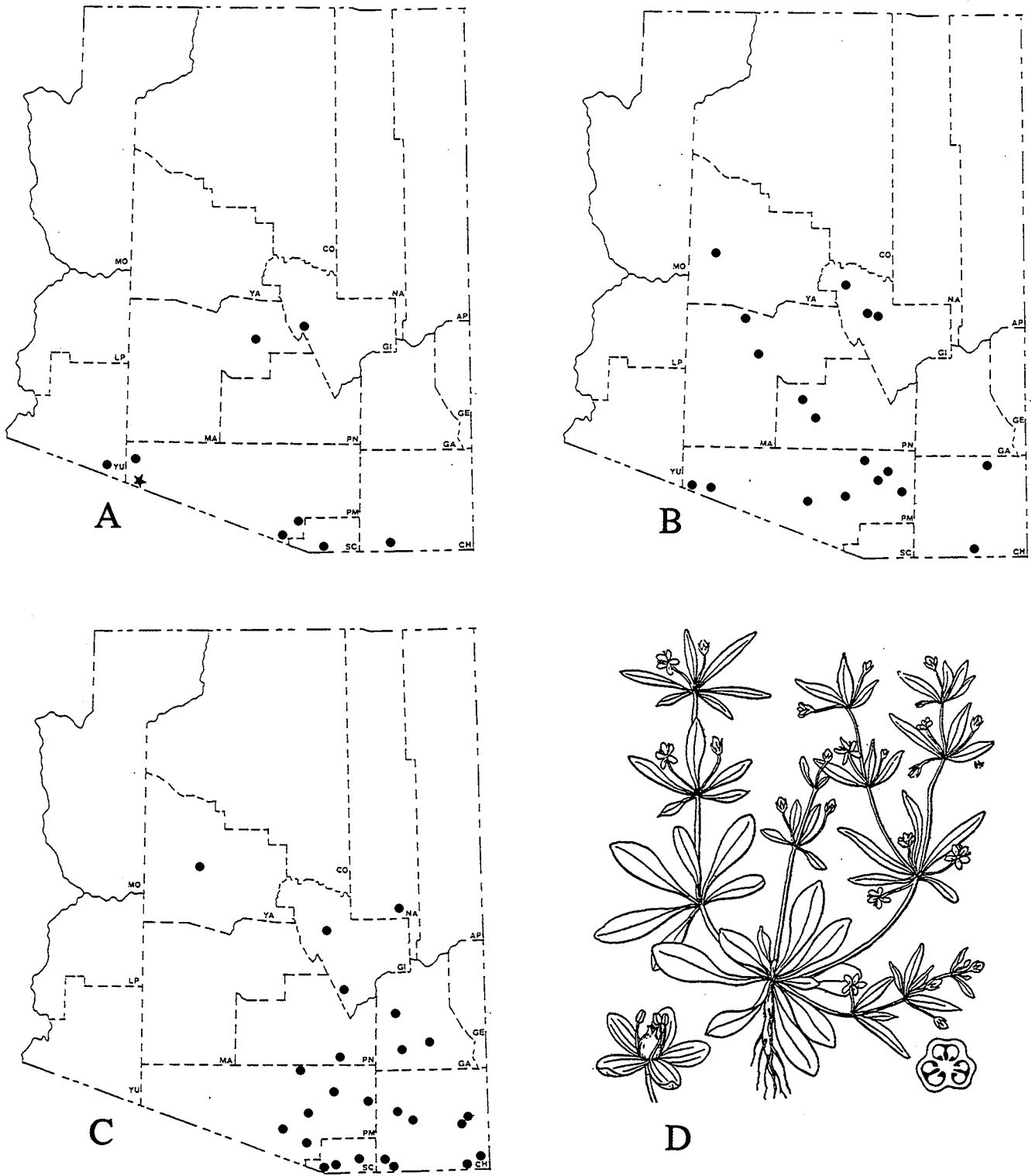


Figure 1. Distribution of: A, *Glinus lotoides* (star), *G. radiata* (dots); B, *Mollugo cerviana*; C, *Mollugo verticillata*. D, *Mollugo verticillata* from "An Illustrated Flora of the Northern United States and Canada" by N. L. Britton and A. Brown (1913); habit about natural size.