

APACHERIA CHIRICAHUENSIS:
A NEW GENUS AND SPECIES FROM ARIZONA

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To find a new species in Arizona is unusual, but to find an undescribed genus is indeed rare, especially when the discovery is made in the well botanized Chiricahua Mountains of southeastern Arizona.

Apacheria C. T. Mason, gen. nov. Frutex parvus. Folia opposita parva integra vel triloba; stipulae minutae. Flores singulares sessiles vel brevipedunculati; hypanthium praesens. Sepala 4. Petala 4. Stamina 8. Carpella 1 ad 4 plerumque 4 libera; ovula 2. Fructus folliculares. TYPUS: *A. chiricahuensis* C. T. Mason.

Apacheria chiricahuensis C. T. Mason, sp. nov. Frutex ad 50 cm altus. Folia oblanceolata vel spathulata 3.5–7.5 mm longa 1.0–2.3 mm lata apiculata glabra. Sepala 3.0–3.5 mm longa. Petala alba 4–5 mm longa. Stamina labris hypanthiorum insidens; antherae 0.5–1.0 mm longae; fila 3 mm longa. Ovaria hispidula. Stigmata linearia introrsa. Folliculi prominenter venosi. Semina 1 vel 2 minutissime papillose brunnea reniformia 1.5 mm longa 1.0 mm lata; endosperma abunda. Fig. 1.

TYPE: Arizona, Cochise Co., crevices in rock outcrops and ledges, West Picket Park Research Natural Area, Chiricahua National Monument, ca 5,800 feet in Upper Picket Canyon, mid-May 1973, *William Moir s.n.* (Holotype: ARIZ; isotypes to be distributed.)

In addition to the type material, a specimen collected in Picket Park by O. M. Clark (8950) was examined at the Chiricahua National Monument Herbarium. Further collections were made by the author from Picket Canyon (*Mason 3138, 3139*), from adjacent Bonita Canyon (*Mason 3137*), and from Echo Canyon Trail (*Mason 3145*). Since attention has been directed to this new genus, a specimen collected by Chris Barry (*s.n.*) from Surprise Canyon has been examined, and Dr. Vince Roth of the Southwest Research Station has reported finding specimens of it in the Heart of Rocks Area (pers. comm.). All localities are in Chiricahua National Monument. So far *Apacheria chiricahuensis* has been observed growing only in crevices and on ledges of bare north and south exposed rhyolitic rock outcrops.

This endemic small shrub is named to honor the Chiricahua Apache Indians who once inhabited the area.

The new taxon is assigned as the second genus in the family Crossosomataceae although it also shows affinities to members of the Saxifragaceae and Rosaceae. It is similar to *Crossosoma bigelovii* Wats. in its

glabrous, highly branched habit and rock crevice habitat. The white flowers of each are borne singly on the ends of short shoots and have a similar perigynous cup with the perianth parts and stamens arising from the rim of the hypanthium. In the base of the concave axis are the free

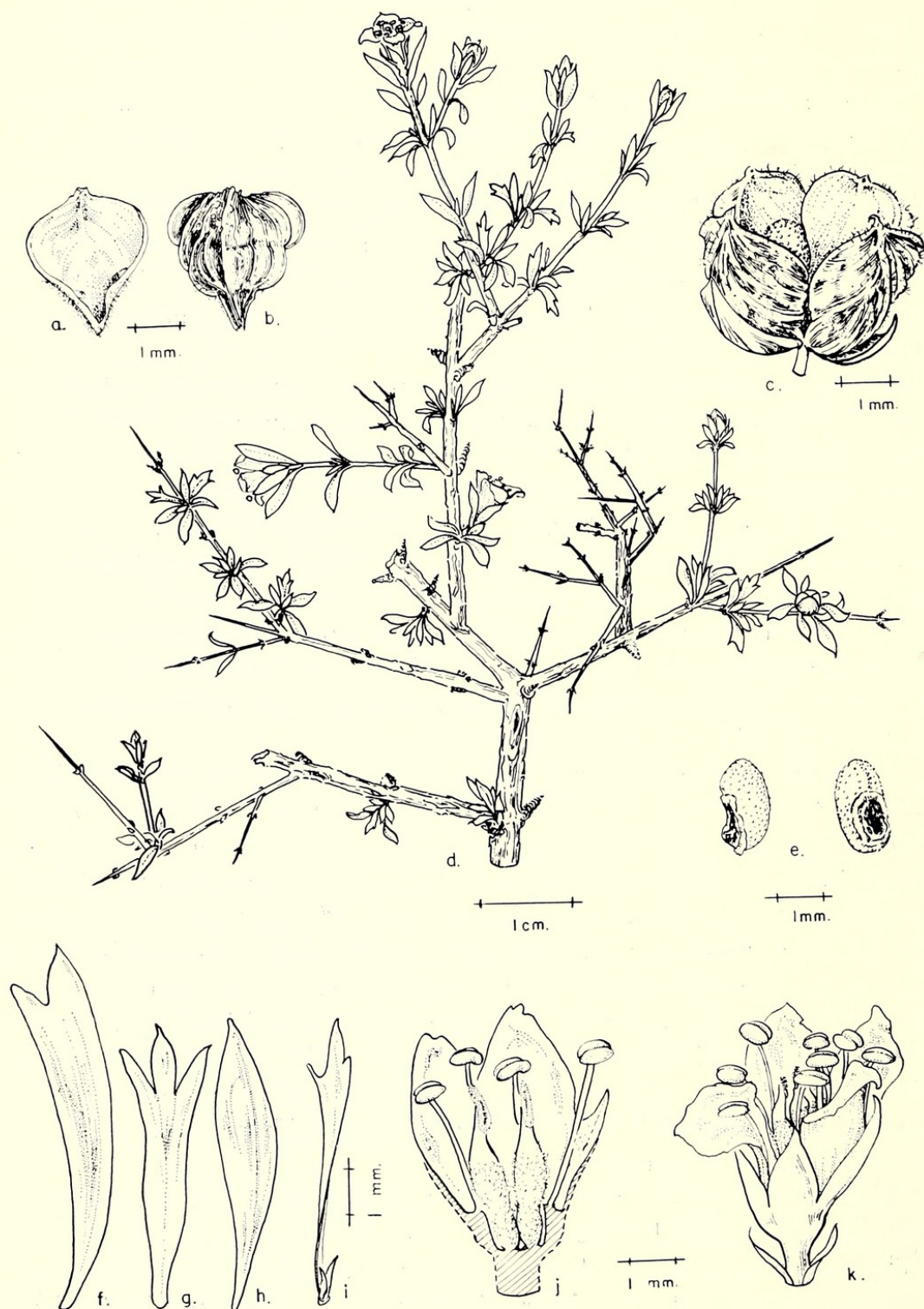


FIG. 1. *Apacheria chiricahuensis* C. T. Mason. a and b, single open follicle (a, adaxial, b, abaxial); c, four follicles in situ; d, branch; e, seeds; f, g, and h, leaf variation; i, leaf with stipules; j, flower (median longitudinal section); k, flower (entire). Illustrations by Patricia Mason.

carpels, which mature into follicles. The seeds of both tend to be reniform and possess an aril. The straight or slightly curved embryos are embedded in the endosperm. The pollen of *Apacheria* is not significantly different from that of *Crossosoma bigelovii* (fig. 2). *Apacheria* pollen is spherical with an average size of $14.8\text{ }\mu\text{m}$ from pole to pole and $15.2\text{ }\mu\text{m}$ in equatorial diameter. The exine is semitectate and per-reticulate with a heterobrochate reticulum. The grains are tricolporate; the elongate colpi are rounded at the ends. The pores are rounded, $4\text{ }\mu\text{m}$ in diameter and partially hidden beneath the exine at the equator. *Crossosoma bigelovii* pollen differs only on a slightly larger size ($18.7\text{ }\mu\text{m}$ polar diameter; $20.0\text{ }\mu\text{m}$ equatorial diameter) and larger pores ($6\text{ }\mu\text{m}$ diameter). However, the variability in each of these quantities is as great among pollen grains of the same species as between pollen grains of the two different species.

Crossosoma bigelovii differs from *Apacheria* in having alternate, estipulate leaves and 5-merous flowers with 20 or more stamens. The carpels of both genera are similar in shape, but those of *Crossosoma* contain numerous ovules. The aril is large and fimbriate in *Crossosoma* but entire to fimbriolate in *Apacheria*.

The Philadelphieae, (Saxifragaceae, subfamily Hydrangeoideae) has also been considered as a possible placement for this new taxon on the basis of the opposite leaves, tetramerous flowers, and seeds with endosperm. Comparisons between *Apacheria* and some native woody species of Saxifragaceae in southeastern Arizona, such as *Jamesia*, *Philadelphus*, *Fendlerella*, and especially *Fendlera*, show some similarities in vegetative

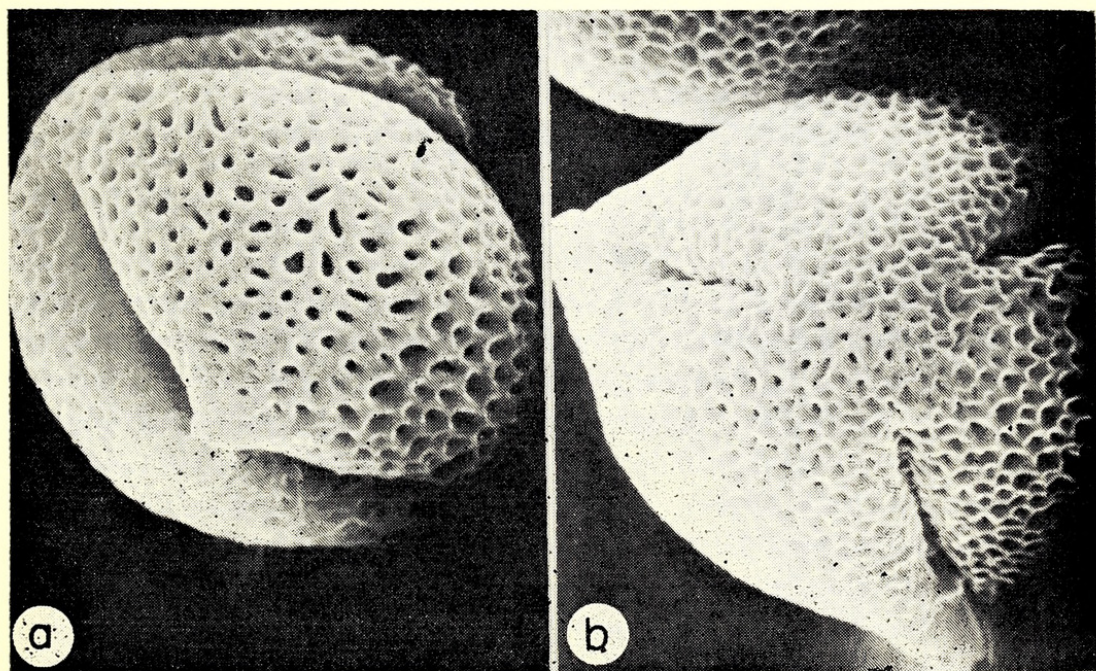


FIG. 2. Scanning electron photomicrographs of pollen: a, *Apacheria chiricahuensis*; b, *Crossosoma bigelovii*.

and floral morphology, but *Apacheria* differs in having stipules, an aril on the seeds, and wholly superior follicular fruits (rather than capsules) developing in a perigynous cup. Furthermore, this new species is glabrous except for the hispidulous ovaries, whereas species of the other genera are most commonly pubescent and often copiously so.

The Spiraeoideae (Rosaceae) was also considered because of the follicular fruits in a concave receptacle but was ruled out on the basis of the endosperm and aril of the seeds and the opposite leaves. *Lyonothamnus*, the only southwestern genus in the Spiraeoideae with opposite leaves, shows a similarity only in the follicular fruits. The resemblance to *Coleogyne*, a genus of southwestern United States in the subfamily Rosoideae, is restricted to the opposite leaves.

The pollen of several potentially related species in the Saxifragaceae and Rosaceae was studied for a comparison with *Apacheria*. In no case was the similarity as close as that of *Crossosoma*.

I express my appreciation to and acknowledge the assistance of Dr. Allen Solomon, Department of Geosciences, University of Arizona, in comparing and describing the pollen of *Apacheria*, *Crossosoma*, and other genera.

A NEW SPECIES OF GALIUM (RUBIACEAE) FROM THE SIERRA MADRE ORIENTAL

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On 18 June 1948, F. G. Meyer and D. J. Rogers collected a very distinct and in several ways remarkable *Galium* in the Sierra Madre Oriental of Mexico. Although the general appearance of the plant immediately sets it apart from any other *Galium* that I have seen, its most remarkable character proves to be the long-campanulate or tubular corolla. Of several *Galium* taxa in southwestern United States and northern Mexico that have campanulate corollas, including most notably *G. hilendiae* ssp. *kingstonense* (Demp.) Demp. & Ehrend., *G. pringlei* Greenm., *G. correllii* Demb., *G. mexicanum* H.B.K., *G. pendulum* Greenm., and *G. carmenicola* Demp., the new species has the longest corollas (fig. 1 A). The next longest are those of *G. hilendiae* ssp. *kingstonense*, a member of a quite different species group, and *G. pringlei* (fig. 1 E), which occurs a little farther north in the same mountain range as the new taxon. Indeed the difference in size, shape, and posture, even between the two corollas illus-



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