

# *Fouquieria burragei*

A rare species from southern Baja

**O**n the CSSA's 2007 post-convention tour of Baja California, Jon Rebman of the San Diego Natural History Museum showed us a little-known species of *Fouquieria*. Known only from a few scattered localities along the gulf coast of the peninsula's southern tip *Fouquieria burragei* is the only member of its genus endemic to the Baja peninsula. Two other species, *F. diguetii* (Palo Adan) and *F. columnaris* (Boojum or Cirio), while nearly endemic to Baja California, also have small footholds along the coast of Sonora, Mexico, across the Gulf of California. All three species have the peculiarity of being polyploid (having more than two sets of the normal complement of chromosomes), whereas all remaining species in the genus are diploid<sup>1</sup>. A fourth species of *Fouquieria* is also found throughout much of Baja California, northern Mexico, and the southwestern United States, namely *F. splendens* (Ocotillo). *Fouquieria burragei* has by far the most limited distribution of these four species, apparently growing only in small isolated populations from around Mulegé to La Paz.

Vegetatively, *Fouquieria burragei* closely resembles *F. diguetii*, although the former sometimes seems to have wispiest terminal branches. In fact, wherever *F. burragei* occurs *F. diguetii* is almost invariably nearby. The primary differences between the two are in flower color, the extent to which its stamens are exerted, and chromosome number. In the northern populations of *F. burragei*, near Mulegé, the flower color is white, although sometimes with the outer side of the petals tinged pink in young inflorescences. In more southerly populations near La Paz its flower color is darker, often with the outer side of the petals pink and inner portions ranging from white to pink to rose. There is extraordinary variation in petal color (which also supposedly lightens as flowers mature), even for plants standing within a



**1** Just north of Mulege a young inflorescence of *F. burragei* arises *below* the older infructescence, which bears a single fruit. This behavior may explain these racemes having been described as partial panicles. **2** Inflorescence and infructescence of *F. burragei* at Pichilingue. **3** Again just north of Mulege, this plant has a white outer corolla, and the stamens are much more exerted than on *F. diguetii*. **4** *F. burragei* at Pichilingue with much-less-exserted stamens and three long styles on the maturing fruit. **5** *F. burragei* at Pichilingue with pink outer petals, white inner petals, and exerted stamens. **6** *F. burragei* at Pichilingue with a dark rose-pink inner and outer petal color. This is an extremely dark petal color for this species, which lacks any of the white floral throat character specified in Henrickson's monograph.





*Fouquieria burragei* at Pichilingue.

few meters of one another. And although it has been said that their throats are always white, I noted several exceptions. The large-scale geographic pattern in floral color, from Mulegé to La Paz, is probably genetic in origin insofar as the northern and southern populations seem to exist in similar edaphic (soil) conditions and that this pattern does not seem to have changed since first noted thirty-five years ago<sup>1</sup>.

By contrast, *F. diguetii* has uniformly scarlet flowers, which are striking to behold. And although *F. burragei* shows incredible variation in how



► *F. diguetii* at Bahía de Los Angeles.

▼ *F. diguetii* (left) and *F. burragei* (right) just north of Mulegé.



***Fouquieria burragei* and *F. diguetii* compared.**

	<i>Fouquieria burragei</i>	<i>Fouquieria diguetii</i>
<b>Range</b>	Eastern coast of Baja California Sur (from Mulege to La Paz)	Throughout almost all of Baja California (BC and BCS) and some of Sonora
<b>Occurrence</b>	Rare; spotty distribution	Common
<b>Petal color</b>	White, pink, or rose; color changes as flower matures	Scarlet; color remains unchanged as flower matures
<b>Stamens</b>	Exserted 1.2–2.4 times the corolla length	Exserted less than the length of the corolla
<b>Chromosomes</b>	2n = 72 (hexaploid)	2n = 48 (tetraploid)



*Acanthogilia gloriosa*, the most basal member of the Phlox order (which also contains *Fouquieria*), 5 km east of Santa Rosalillita where it grows with *F. diguetii*.

exserted its stamens are, its stamens always stick out more than those of *F. diguetii*. Such color in combination with a tubular flower shape is indicative of hummingbird pollination.

*Fouquieria burragei* is the only hexaploid member of the genus, while *F. diguetii* is tetraploid, along with *F. columnaris*. There have been very few chromosome counts done on this genus, but the limited data could lead one to believe that *F. burragei* arose as a hybrid between *F. diguetii* and a diploid member of the genus, possibly *F. splendens*—which is the only diploid species currently on the peninsula—or some now-extinct taxon. *F. splendens* does occasionally have white and pink flowers, albeit that is in subspecies *campanulata* and only in mainland Mexico.

One oddity that I noted on many of the specimens of *F. burragei*, both at the northern and southern limits of its range, is that flower stalks often appear at the base of previous year's infructescences. This might partly explain the observation that the species has partially paniculate (multiply-branched) inflorescences<sup>1</sup>, whereas all that I saw were strictly racemose (having an unbranched spike covered in stalked flowers).

Henrickson's timeless revision of this one-genus family (the Fouquieriaceae) lists a flowering time for *F. burragei* as July–January, always after rains. Roberts<sup>2</sup> indicates flowering from January–March. Confounding matters, I took the

photos here on June 5 and 11, 2007. Virtually every plant I saw was in flower or had an immature inflorescence.

*F. burragei* plants are occasionally offered for sale as small plants. They would probably be nice additions to large outdoor gardens in areas without freezing temperatures, such as southern California, southern Arizona, or any of the deserts of northern Mexico. It would probably make an interesting bonsai specimen as well.

Although the family Fouquieriaceae contains only the single genus *Fouquieria*, it is closely related to the Phlox family (Polemoniaceae)<sup>3</sup>. Baja California also contains the (putatively) most basal member of the Polemoniaceae, the woody shrub *Acanthogilia gloriosa*, which very much resembles *Fouquieria* in its floral and stem morphologies. Its stems even contain the same long-shoot/short-shoot dimorphism of *Fouquieria*. *Acanthogilia* contains only this single species, which like *F. burragei* is endemic to Baja California, albeit on the western (Pacific) rather than eastern (Gulf) side of the peninsula. 🍷

**REFERENCES**

- 1 Henrickson R. 1972. A taxonomic revision of Fouquieriaceae. *Aliso* 7: 439–537.
- 2 Roberts NC. 1989. *Baja California Plant Field Guide*. Natural History Publishing: La Jolla.
- 3 Anderberg AA, Rydin C, Kallersjö M. 2002. Phylogenetic relationships in the order Ericales s.l.: analyses of molecular data from five genes from the plastid and mitochondrial genomes. *American Journal of Botany* 89: 677–687.