Some Thoughts from the Director...

The Fascinating Family of Polygonaceae

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Often one’s adventures start at home. This spring, my neighbors and I have been commiserating about a particular weed that over the last five years has started to thrive in our front yards despite our best efforts to eradicate it. The plant was identified by Boyce Thompson Arboretum staff as Eriogonum deflexum or Skeleton weed, a member of the Buckwheat or Polygonaceae family.

Mark Dimmitt of the Arizona Sonora Desert Museum describes the genus Eriogonum on their website: “Species in this genus vary in growth form from herbaceous annuals and perennials to woody shrubs. Most of the approximately 100 species in the Sonoran Desert region can be readily recognized by their general appearance. The herbaceous species are called skeleton weeds. Their basal rosettes of leaves are rather inconspicuous, but their inflorescences are distinctive. One to several of them arise from the basal rosette and branch profusely, often trifurcately, from a few inches to 2 feet (60 cm) tall. The flowering stems are leafless or nearly so, and bear tiny flowers at each node. Then they dry out and persist as skeletons for a year or more. Each of the 20 or so desert species has distinct skeletal forms, several of which are very attractive and are used in dried arrangements.”

I then consulted the Flora of North America (FNA) for more detail. “As presently circumscribed, Eriogonum is one of the larger genera in the flora area, being exceeded in numbers of species only by Carex (ca. 480), Astragalus (ca. 350), and Penstemon (ca. 250). As a native North American genus, Eriogonum (ca. 250) is second only to Penstemon ….Some of the species tend to be weedy, and some of the annual species are aggressively so.” The FNA also states, “Species of Eriogonum have long been regarded as among the most difficult in North America to distinguish.” (page 222.)

Further reading gave me pause as to how aggressively I should be removing this plant from my yard. The FNA also states Eriogonum deflexum is an important source of small seed for birds. The desert metalmark butterfly (Apodemia mormo deserti) is found in association with E. deflexum (page 395).
After having discussed the “Desert Legume Program’s Search for the Wild Astragalus” in Desert Plants Volume 27 Number 2, I had apparently stumbled on another difficult and prolific genus. Having spent so much time with Eriogonum in my front yard, I thought it might make a nice article for Desert Plants but the article would have to wait. At the end of May, 2012, Matt Johnson of our Desert Legume Program and I had the opportunity to visit the People’s Republic of China. After traveling 17,400 air miles and over 1,250 miles by car, the most fascinating plant I saw was the genus Calligonum, another member of the Buckwheat or Polygonaceae family.

I was first introduced to the Fire Bush or Calligonum comosum when visiting the Gurbantunggut Desert, the largest fixed and semi-fixed desert in China. The Gurbantunggut Desert is characterized by a predominant coverage of lichen-dominated biological soil crusts (page 30) and the most noticeable plant is the Haloxylon Tree (page 30). It was only after visiting Turpan Eremophytes Botanical Garden, part of the Chinese Academy of Science (CAS) Xinjiang Institute of Ecology and Geography (page 32) that I realized how special the genus Calligonum is. The Chinese are conducting intriguing research on the conservation and use of Calligonum for the stability of desert ecosystems. I highly recommend an article from the 3rd Global Botanical Garden Conference by Tan Yong and Pan Borong (2012) for further study.

In thinking about Calligonum for Boyce Thompson Arboretum, I consulted the FNA for information regarding other non-native genera already in North America. There are four non-native genera of Polygonaceae: Emex, Fagopyrum, Muehlenbeckia, and Rheum in North America. The genus Fagopyrum, which contains two species, common and green buckwheat, has been cultivated in the People’s Republic of China back to 4600 BP and is widely cultivated in North America. The two species of Emex are on the United States federal noxious weeds list. The two species of Muehlenbeckia are cultivated as ornamentals. Finally, there is Rheum rhubarbarum or garden rhubarb. We frequently field questions at Boyce Thompson Arboretum about Rumex hymenosepalus or wild-rhubarb (page 31) which is a completely different genus and native to North America. As with many families, Polygonaceae ranges from noxious weeds to major crops, ornamental to vegetable garden candidates. This is a family worthy of further study.

Fire Bush (Calligonum comosum) growing in the Gurbantunggut Desert (M. Siegwarth)
Desert Plants

*Haloxylon* Tree in the Gurbantunggut Desert (M. Siegwarth)

Lichen dominated biological soil crusts in the Gurbantunggut Desert (M. Siegwarth)

*Calligonum* with drifts of ripe fruits at Turpan Eremophytes Botanical Garden (M. Siegwarth)
References
http://en.wikipedia.org/wiki/Calligonum
Dr. Zhang and Mark Siegwarth at entrance to Turpan Eremophytes Botanical Garden. (M. Johnson)