NEW COMBINATIONS FOR SONORAN DESERT PLANTS

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ABSTRACT


In the course of studies of Sonoran Desert flora (e.g., Felger et al. 2016, 2017a, 2017b) and sky islands in southern Arizona (Verrier in prep.), we find three taxa needing nomenclatural updates. The new combinations are provided below.

CACTACEAE


Benson (1969) aligned this prickly pear with *Opuntia phaeacantha*. Pinkava (2003) relegated var. *laevis* to a synonym of *O. phaeacantha* but did not recognize varieties. However, plants from the type locality in the Santa Catalina Mountains are characteristic of *O. engelmannii*: the cladodes (pads) remain green all year, the flowers are relatively large, and the tepals are monochromatic yellow, becoming brownish-orange on the second day (Figures 1–3). In contrast, *O. phaeacantha* cladodes often become reddish-purple during winter and dry seasons, the flowers tend to be somewhat smaller, and the tepals are reddish basally, so that the flower is yellow with a reddish center. The fruits of var. *laevis* are relatively large, white-fleshed, and juicy, with a sweet flavor reminiscent of honeydew melon (other varieties of *O. engelmannii* are also fleshy but have reddish-purple fruit pulp and are also sweet but with a different flavor). The fruits of *O. phaeacantha* are smaller and the pulp is dull whitish, not very juicy, and not sweet. Like other forms of *O. engelmannii*, plants of var. *laevis* are relatively large and have an upright growth pattern, a stark difference from the low, sprawling form of
*O. phaeacantha*. Mature and older specimens of var. *laevis* become arborescent and can become massive, growing to 2.5 meters tall. Var. *laevis* occupies different habitats than those of *O. phaeacantha*, growing exclusively on cliffs, rock outcrops, and steep slopes. Var. *laevis* is a spineless or nearly spineless morphotype. Young plants are spiny for the first few years, and then begin to produce few-spined to essentially spineless cladodes.

**FABACEAE**

Julie Hawkins and associates considered *Cercidium* to be a synonym of *Parkinsonia* based on phylogenetic studies which show *Cercidium* species nested with *Parkinsonia* (Hawkins 1996; Hawkins et al. 1999; Hughes et al. 2003). We provide new combinations for two taxa that have not been transferred from *Cercidium* to *Parkinsonia*.

Nine taxa of *Parkinsonia* trees are found in the Sonoran Desert. A key for the eight naturally occurring taxa is provided below. In addition, a horticultural selection of a hybrid found in the Tucson region — *Parkinsonia* [*Cercidium*] cv. “Desert Museum” is grown in the Sonoran Desert region as a landscape tree. It involves hybridization of *P. aculeata*, *P. florida*, and *P. microphylla* (Dimmitt 1987). This hybrid is propagated by grafting onto *P. aculeata* rootstocks.

1. Leaves more than 10 cm long, pinnae usually strap-like (each pinna resembling an individual leaf) ................................................. **Parkinsonia aculeata**

1. Leaves less than 7 cm long; pinnae usually not strap-like.

2. Pinnae with (8) 16–45 pairs of leaflets ................................ **Parkinsonia ×carterae**

2. Pinnae with 2–8 pairs of leaflets.

3. Twigs spinescent at tip; axillary spines absent; petiole absent, the leaflets mostly 1–3.3 mm long ........................................................................................................... **Parkinsonia microphylla**

3. Twigs not spinescent at tip (sometimes moderately spinescent in *P. ×sonorae*); short axillary spines often present; leaves petioled, the leaflets mostly 2–10 mm long.

4. Leaves with 1 pair of pinnae, each pinna with 2–4 pairs of leaflets ....... **Parkinsonia florida**

5. Branchlets glabrous or glabrate; leaflets 4–8 mm long, (2) 3 pairs per pinna; inflorescences relatively open; racemes including rachis mostly 1–4.5 (7) cm long; pedicels 6–12 (20) mm long; with age the upper petal usually orange-dotted .................. **P. florida** subsp. *florida* 

5. Branchlets villous or pilose; leaflets 6–15 mm long, mostly 2 pairs per pinna; inflorescences relatively compact; racemes including rachis mostly 0.3–1 (2) cm long; pedicels 4–9 (12) mm long; upper petal not orange-dotted ...... **P. florida** subsp. *peninsulare*

4. Leaves with 1 or 2 pairs of pinnae, each pinna with 4–8 pairs of leaflets.

6. Spines 1 or 2 at each node, stout; petioles 4–21 mm long; leaflets 4–13 mm long; flowers including the banner bright yellow, the banner often with orange spots ................................................................. **Parkinsonia praecox**

6. Spines 1 per node and slender, or absent; petioles to 3 mm long; leaflets 2–6 mm long; flowers pale yellow, the banner white to pale yellow without orange spots ................................................................. **Parkinsonia ×sonorae**

This subspecies is distinguished from subsp. *florida* by its generally larger leaflets, denser and more persistent pubescence of larger hairs, differences in size of the inflorescences, and stoutness of pedicels (Carter 1974; Hawkins 1996). Subsp. *peninsulare* occurs in Baja California Sur (Carter 1974), the south end of Isla Tiburón (Felger et al. 2001; Felger & Wilder 2012), and in Sonora in Guaymas (“27°56′N, 110°49′W, 10 m elev, on the outskirts of the city,” 27 Jan 1992, Hughes 1562 et al., MO) and on the coastal plain southward from Guaymas.


This natural hybrid between *Parkinsonia microphylla* and *P. praecox* occurs where the ranges of the parent species overlap (Carter 1974). It is common in parts of western Sonora and relatively rare in Baja California Sur (Carter 1974; Felger et al. 2001; Rebman et al. 2016; Turner et al. 1995).

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**LITERATURE CITED**


Figure 1. Opuntia engelmannii subsp. laevis. Grosvenor Hills on Salero Ranch, Santa Cruz Co., Arizona, 2 May 2011. Photo by Sue Carnahan.
Figure 2. *Opuntia engelmannii* subsp. *laevis*. Grosvenor Hills on Salero Ranch, Santa Cruz Co., Arizona, 24 April 2011. Photo by Sue Carnahan.
Figure 3. *Opuntia engelmannii* subsp. *laevis*. An older flower, probably the second day; Diablo Canyon, Santa Catalina Mountains, Pima Co., Arizona, 11 May 2016. Photo by James Verrier.