A new species and two new synonyms of *Diospyros* (Ebenaceae) from Mexico

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Abstract: In the course of a revision of the New World Ebenaceae for "Flora Neotropica" and some regional floras, specimens from ca. 100 herbaria have been studied. *Diospyros reinae*, a new species from Sonora (northwestern Mexico) is described here. The taxa *D. rosei* STANDL. and *D. sinaloensis* BLAKE are relegated into synonymy of *D. sphaerantha* STANDL. and *D. sonorae* STANDL., respectively.

Zusammenfassung: Im Rahmen einer Revision der neuweltlichen Ebenaceae für "Flora Neotropica" und einige Regionalfloren konnten Herbarbelege aus ca. 100 Herbarien studiert werden. *Diospyros reinae*, eine neue Art aus dem Bundesstaat Sonora im Nordwesten Mexikos wird hier eingehend beschrieben. Die Taxa *D. rosei* STANDL. und *D. sinaloensis* BLAKE werden in die Synonymie von *D. sphaerantha* STANDL. und *D. sonorae* STANDL. gestellt.

Keywords: *Diospyros reinae*, *D. rosei*, *D. sinaloensis*, *D. sonorae*, *D. sphaerantha*, Ebenaceae, Flora Neotropica.

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INTRODUCTION

In the Americas, the Ebenaceae are represented by the genera *Diospyros*, with about 100–130 species, and *Lissocarpa* with eight species. In the course of an ongoing revision of Ebenaceae (WALLNÖFER 2001a, 2001b, 2004a, 2004b, 2004c, 2007–2015, 2008a, 2008b, 2010a, 2010b, 2010c, 2012, 2015, WALLNÖFER & CHÁVEZ 2014, WALLNÖFER & MORI 2002, ESTRADA & WALLNÖFER 2007; see also DUANGJAI et al. 2006, 2009) for "Flora Neotropica" and other regional floras and checklists several new species have already been described (WALLNÖFER 1999, 2000, 2003, 2005).

Note: Coordinates given in brackets were determined during this revision; acronyms of herbaria are given according to THIERS (2015); abbreviations: fl = flowering, fr = fruiting, n.s. = not seen, 2× = 2 sheets.

Diospyros reinae B.WALLN., spec. nova

Typus: Mexico, Sonora, Sierra Huérfana (= Mazatán), Municipio de Ures, Tinaja la Piedra Gacha, Cañada el Yuguito, 2.1 km WNW of Rancho el Bachán, 10.1 km NNW of Mazatán, 1223 m, 29°6'17" N, 110°12'39" W, oak woodland/foothills thornscrub transition; in rocky granitic canyon bottom, (fl male), 28 Jul. 2014, **A.L. Reina-G., S. Jacobs & R.A. Villa 2014-284** (holotype: W, isotypes: ARIZ n.s., USON n.s., in total 5 duplicates), "shrub 2–4 m".

Shrub 2–4 m, most likely deciduous (semideciduous?); bark of the younger trunks gray, smooth, that of the older ones scaly; buds and young twigs densely covered with spreading or ± patent, slightly flexuose, light hairs which persist on older twigs; **leaves** alternate, with brochidodrome venation; petioles 1–1.5 (–2) mm long, 0.8–1 mm thick, canaliculate adaxially,

covered with the same dense indumentum as on the young twigs; leaf lamina obovate or elliptic, (1–) 1.5–3.5 (–5.2) cm long, (0.8–) 1–2.2 cm wide, 1.3–2.4 (–3.25) times longer than wide, widest above or in the middle, firmly chartaceous, with scattered, patent, stiff hairs on both sides, ± concolorous, slightly shiny adaxially when mature and dull abaxially when dry; leaf apex obtuse or rounded, sometimes retuse, rarely emarginate; base of the lamina abruptly cuneate; leaf margins entire or slightly revolute; flachnectaria 1–2 (–4) on abaxial leaf surface, but missing on many leaves; midvein on adaxial side ± flat or slightly sunken proximally, slightly raised distally, on abaxial side markedly prominent, medium densely covered with patent hairs on both sides; secondary veins ca. 6 per side, raised on both sides; tertiary and quaternary veins raised adaxially but less strongly abaxially; **inflorescences**: male cymes 1-flowered, placed in the axil of caducous bracts, up to five clustered on new, much reduced, leafless short-shoots or at the base of new, leafy long-shoots; stalk (peduncle and pedicel) up to 12 mm long, 0.8 mm thick, covered with the same dense indumentum as on the twigs; bracteoles ca. 1 mm long and 0.3 mm wide, densely hairy, soon caducous; male **flowers** 5 (–6)-merous, 8–9 mm long at anthesis (pedicels excluded and with lobes flexed downwards), pendant when alive; calyx 5 (–7) mm long and 5 (–10) mm wide, undivided in the proximal 1–1.5 mm, scattered to medium densely covered with spreading or ± patent hairs on the outside, only with very few hairs inside; calyx lobes 2–4 (–6.5) mm long, 1.5–2.5 (–3.5) mm wide, often irregular in size and shape on the same flower, widest usually at the base, but sometimes also in or above the middle, obtuse or acute, less frequently rounded, always with a light brown tuft of entangled hairs at the apex, with flat margins; corolla with greenish-yellow tube and orange-yellow lobes which are strongly flexed out- and downward and often somewhat split longitudinally at anthesis when alive, ca. 8 mm long; tube 7–8 mm long, widest below the middle and there ca. 4 mm in diameter, medium densely covered with straight to flexuose, appressed to spreading, short, light hairs on the outside, inside in the proximal half scattered to medium densely covered with tiny, ± patent hairs, glabrous distally; throat slightly constricted, ca. 2 mm wide; corolla lobes 3 mm long and wide, broadly rounded distally, ± densely covered with longer hairs abaxially, glabrous adaxially; stamens 20, usually in pairs, strongly differing in length: the inner 3, the outer up to 5 mm long; filaments 2–2.5 mm long, adnate to the corolla tube except for the distal ca. 0.5 mm, medium densely covered with patent, tiny hairs; anthers 2–2.8 mm long and 0.8 mm wide proximally, tapering distally, glabrous but markedly papillose; rudiment of the ovary consisting of an irregular, densely hairy lump of tissue lacking stylodia; **female flowers** and **fruits** not available.

Note: *Diospyros reinae* is closely related to *D. californica*. There is a gap of ca. 550 km (including the Gulf of California) between the distribution ranges of both species. As female flowers and fruits are unknown, further examination and comparison is necessary.

Distribution, habitat and phenology: This species is endemic to the Sierra Huérfana (= Sierra de Mazatán) which is located in the central part of the Sonoran federal state.

According to Tom Van Devender (Tucson, USA; information sent by email the 29th April 2015), the Sierra Huerfana is an isolated "sky island mountain range" immediately east of the Sonoran Desert. It is covered by isolated oak woodlands and at lower elevations by widespread foothills thornscrub. *D. reinae* grows there at 1223–1280 m elevation in areas with only ca. 350 mm rainfall per year. It was collected in flower at the end of April and the end of July.

Etymology: The translation of the Spanish name “reina” is queen. Tom Van Devender (Tucson, USA) who sent me the two duplicates, stated via email the 29th April 2015: "All of the people were on the July trip, but only Ana Lilia Reina-Guerrero (my wife), Sky Jacobs, and Robert A. Villa hiked down into the canyon that day. We knew it was there because we have seen it sterile several times in the past".

Paratypes: Mexico, Sonora, Sierra Huérfana (= Mazatán), Municipio de Ures, Cañada el Yuguito, 1.3 km WNW of Rancho El Bachán, 12.5 km NW of Mazatán, 1280 m, 29°6'1" N, 110°12'9" W, rocky granitic canyon bottom oak woodland; in arroyo bottom, (fl male), 29 Apr. 2014, **T.R. Van Devender et al. 2014-258** (ARIZ n.s., USON n.s., W), "solitary shrub 2.0 m".

The following specimens seem also to belong here: Sierra de Mazatán, Municipio de Ures, Rancho El Flauta, Cañada El Flauta, 1260 m, 29°6’ N, 110°12’50” W, open oak woodland; Catalina gneiss, 9 Oct. 2004, **A.L. Reina-G. et al. 2004-1313** (ARIZ n.s.), "uncommon shrub 2 m"; – same area: 1260 m, on gneiss; in canyon bottom; open oak woodland, 9 Apr. 2004, **L. Hahn & A. Flesch 4-100** (NMC n.s.), "shrub 1.5 m"; – for both see: http://swbiodiversity.org/seinet/collections.

In the course of the ongoing studies, it became evident that two taxa (*Diospyros sinaloensis* and *D. rosei*) from northwestern Mexico need to be relegated into synonymy.

Diospyros sonorae STANDL., Contr. U. S. Natl. Herb. 18 (3): 120 (1916).

Typus: Mexico, Sonora, Alamos, [27°2' N, 108°57' W], (fr), 27 Dec. 1898, **E.A. Goldman 276** (holotype: US, isotype: GH).

= *Diospyros sinaloensis* BLAKE, Contr. Gray Herb. 52: 77–78 (1917).

Typus: Mexico, Sinaloa, Altata, [24°38' N, 107°56' W], (fl male), 15 Jun. 1897, **J.N. Rose 1339** (holotype: US, isotypes: GH, NY], "shrub 10 ft. high; seven stems; trunk 6 in. in diameter".

Diospyros sphaerantha STANDL., Contr. U. S. Natl. Herb. 18 (3): 121 (1916).

Typus: Mexico, Sinaloa, foothills of the Sierra Madre near Colomas [correct is Colomos = Colonos near Plomosas, 23°4' N, 105°33' W], (fl female), 13–20 Jul. 1897, **J.N. Rose 3194** (holotype: US, isotypes: F, GH, K, NY).

= *Diospyros rosei* STANDL., Contr. U. S. Natl. Herb. 18 (3): 119–120 (1916).

Typus: Mexico, "Territorio de Tepic" [= Nayarit], at Acaponeta, [22°30' N, 105°22' W], (fr), 2–3 Jul. 1897, **J.N. Rose 1522** (holotype: US).

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