

FRANGULA PARUENSIS, A NEW NAME FOR RHAMNUS LONGIPES STEYERMARK (RHAMNACEAE)

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Abstract. The new name *Frangula paruensis* (Rhamnaceae) is proposed to replace the illegitimate homonym *Rhamnus longipes* Steyermark (1988). Chorological, taxonomic, biogeographical, and habitat notes about this taxon also are provided.

Resumen. Se propone *Frangula paruensis* (Rhamnaceae) como un nuevo nombre para reemplazar el homónimo ilegítimo *Rhamnus longipes* Steyermark (1988). Se incluye información corológica, taxonómica, biogeográfica, y de hábitats acerca de la especie.

Keywords: *Frangula*, *Rhamnus*, Rhamnaceae, Parú Massif, Tepuis flora, Venezuela

Rhamnus L. and *Frangula* Miller (Rhamnaceae) have ca. 150 and ca. 50 species, respectively (Pool, 2013, 2015). These taxa are widely distributed around the world but are absent in Madagascar, Australia, and Polynesia (Medan and Schirarend, 2004). According to Grubov (1949), Kartesz and Gandhi (1994), Bolmgren and Oxelman (2004), and Pool (2013) the recognition of *Frangula* is well supported. On the basis of historical and recent molecular work the genus is characterized by several remarkable features. Pool (2013: 448, table 1) summarized 11 features to separate the two genera.

E. D. Merrill and Y. W. Chun (1935) validly published *Rhamnus longipes* for a taxon native to dense mountain forests (500–1700 m), Fan Yah (Ledong Xian in Tropicos) region, Hainan province, China (Fig. 1). Later, Young and Chew (1958) amended the original description of this taxon.

Julian A. Steyermark published a new species from the “Serranía Parú,” Caño Asisa, a Tepui region located in the Amazon state, Venezuela, with the same epithet (Steyermark, 1988). According to the International Code of Nomenclature (Art. 54.1a; Turland et al., 2018) *Rhamnus longipes* Steyerm. from Venezuela (Steyermark, 1988) is an illegitimate homonym. The replacement name *Frangula paruensis* Aymard is, therefore, proposed here.

Frangula paruensis Aymard, *nom. nov.*

Replaced synonym: *Rhamnus longipes* Steyerm., Ann. Missouri Bot. Gard. 75: 1066. 1988, *non Rhamnus longipes*, Merrill & Chun. Sunyatsenia 2(3–4): 272–273, f. 31. 1935. TYPE: VENEZUELA. Amazonas: departamento Atabapo, Serranía Parú, cumbre, SSE to edge of descent, to tributary of Caño Asisa, 2000 m, 4°25'N, 65°50'W, 10 February 1951 (fr), R. S. Cowan & J. J. Wurdack 31388 (Holotype: NY, not located).

Etymology: the specific epithet is named after the Serranía Parú, an almost unexplored tepui region (Fig. 2) in southern Venezuela, the only locality where this species is hitherto found.

Frangula paruensis is a shrub, ca. 2 m tall, with leaves ovate, or oblong-ovate, margin subrevolute, repand-crenulate, a slightly elevated tertiary venation on the lower surface, and mature fruiting peduncle and pedicels 1–1.5 cm long, and fruiting calyx lobes triangular-lanceolate (two main features to separate *Frangula* from *Rhamnus*).

This species is endemic to the open, rocky savannas on tepui slopes and summits at ca. 2000 m (Steyermark and Berry, 2004). This Venezuelan taxon was described as *Rhamnus longipes* by Steyermark (1988), without realizing that the same epithet had been proposed already for a Chinese species (Merrill and Chun, 1935). Other publications indicating a lack of awareness of this homonym issue are the treatment of the Rhamnaceae in the *Flora of the Venezuelan Guayana* (Steyermark and Berry, 2004), the family accounts in the Floras of the Guianas (Berry and Steyermark, 2007), Venezuela (Tortosa, 2008), and the recently published database of American plants (Ulloa-Ulloa et al., 2017).

Both the Chinese and the Venezuelan species are shrubs, with elongate inflorescences. However, *Frangula paruensis* is an endemic element from the “Serranía de Parú” or “Cerro Parú” (A’roko) and Asisa, located ca. 50 km west of the left bank of the Ventuari River (“Ventuario” in old literature and maps), in the headwaters of the Asisa River located in the central portion of Amazonas state. The strongly dissected internal plateaus are more or less flat and formed by sandstone of the Roraima Formation, as are the outer cliffs. The southwestern portion is called Cerro Asisa, but it forms part of the entire massif of Parú (Huber, 1995a). This tepui region reaches its highest altitude of approximately 2000 m at its southwestern point. According to a cluster analysis based on the floristic composition of 40 tepuis using relative Euclidean distance and Ward’s group linkage method, the “Cerro Parú” belongs to subgroups of western tepuis (Riina et al., in press). The Parú tepui complex so far had been visited by six scientific expeditions: W. H. Phelps, Jr., K.

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FIGURE 1. *Rhamnus longipes* Merrill & Chun (China). Based on *N. K. Chun & C. L. Tso 44241*. Isotype at A.



FIGURE 2. View of the Serranía de Parú. Photograph by A. Michelangeli A. Image courtesy of the Michelangeli family, originally published in Michelangeli A. (2005: 262).

D. Phelps, and C. B. Hitchcock (in 1949), J. J. Wurdack and R. S. Cowan (in 1951), J. Hoyos and G. Morillo (in 1973), O. Huber and J. Cerda (in 1979), P. Berry, O. Huber, and J. Rosales (1991), and A. Chaviel (in 1992). Results of these expeditions were published by Mayr and Phelps (1967), Hoyos (1973), Huber and Wurdack (1984), Huber (1995b), Aymard and Cuello (1995), and Aymard and Berry (1996).

Distribution and habitat: At the type locality, *Frangula paruensis* occurs in thickets along streams in sand shrublands (“arbustales”), in the drainage of Caño Asisa, the south-southeastern portion of Serranía de Parú (Amazonas state). The area is rich in numerous endemic species found in the sandstone of the Roraima formation (Berry et al., 1995; Huber, 1995c; Berry and Riina, 2005; Riina et al., in press), including those of the remarkable endemic genus *Phelpsiella* Maguire (*Phelpsiella ptericaulis* Maguire, Rapateaceae; Berry, 2004). Other plants found in the same area include *Pachira cowanii* (A. Robyns) W. S. Alverson (Malvaceae), *Myrcia induta* McVaugh (Myrtaceae), *Ilex paruensis* Steyerem. (Aquifoliaceae), *Rourea foreroi* Aymard & Berry (Connaraceae), *Orthaea paruensis* Maguire, Steyerem. & Luteyn, *Paepalanthus parvicephalus* (Mold.) Hensold var. *wurdackii* Hensold (Eriocaulaceae), *Phyllanthus ventuarii* Jabl. (Phyllanthaceae), *Plukenetia multiglandulosa* Jabl.

(Euphorbiaceae), *Irlbachia phelpsiana* Maguire (Gentianaceae), *Ocotea cowaniana* C. K. Allen, (Lauraceae), *Diacidia ferruginea* (Maguire & K. D. Phelps) W. R. Anderson, *D. stipularis* (Maguire & K. D. Phelps) W. R. Anderson (Malpighiaceae), *Ouratea asisae* Maguire & Steyerem. (Ochnaceae), *Roupala paruensis* Steyerem. (Proteaceae), *Saxofridericia grandis* Maguire (Rapateaceae), *Stegolepis hitchcockii* Maguire (Rapateaceae), *Sterigmatopetalum chrysophyllum* Aymard & Cuello (Rhizophoraceae), *Coccochondra laevis* (Steyerem.) Rauschert (Rubiaceae), *Pagamea diceras* Steyerem. (Rubiaceae), *Raveniopsis paruana* (R. S. Cowan) R. S. Cowan (Rutaceae), *Turnera paruana* Arbo (Passifloraceae), and lately *Caraipa pilosa* Grande & Cabral (Calophyllaceae; see Grande and Cabral, 2016.)

IUCN Red List category: Using IUCN Red List criteria (IUCN, 2017), *Frangula paruensis* is so far known only from by the type, collected in a remote and inaccessible region in the Venezuelan Guayana, and therefore it should not be considered “threatened” at this time. It was found in an area where there is no human pressure on its habitat; much of the area has not been explored botanically. The species could conceivably fall into the Near Threatened category, but I assign the species the status of Data Deficient (DD).

LITERATURE CITED

- AYMARD, G. AND P. BERRY. 1996. A new species of *Rourea* (Connaraceae) from the Venezuelan Guayana. *Brittonia* 48: 580–581.
- . AND N. CUELLO. 1995. Two new species of the genus *Sterigmataleum* (Rhizophoraceae) from the Venezuelan and Brazil Amazonian Region. *Novon* 5: 223–226.
- BOLMGREN, L. AND B. OXELMAN. 2004. Generic limits in *Rhamnus* L. s.l. (Rhamnaceae) inferred from nuclear and chloroplast DNA sequence phylogenies. *Taxon* 53: 383–390.
- GRUBOV, V. I. 1949. Moarparpu-recxañ oáoop pona *Rhamnus* L. s.l. *Trudy Bot. Inst. Akad. Nauk S.S.S.R.*, Ser. 1, Fl. Sist. Vyssh. Rast. 8: 1–423.
- BERRY, P. E. 2004. Rapateaceae. Pages 413–472 in P. E. BERRY, K. YATSKIEVYCH, AND B. K. HOLST, EDS., *Poaceae–Rubiaceae*. Vol. 8 of *Flora of the Venezuelan Guayana*. Missouri Botanical Garden Press, St. Louis.
- , O. HUBER AND B. K. HOLST. 1995. Floristic analysis and phytogeography. Pages 161–19 in P. E. BERRY, K. YATSKIEVYCH, AND B. K. HOLST, EDS., *Flora of the Venezuelan Guayana*. Vol. 1. Timber Press, Portland, Oregon.
- AND R. RIINA. 2005. Insight into the diversity of the Pantepui flora and the biogeographic complexity of the Guayana Shield. *Biol. Skr.* 55: 145–167.
- AND J. A. STEYERMARK. 2007. Rhamnaceae. Page 477 in V. FUNK, T. HOLLOWELL, P. E. BERRY, C. KELLOFF, AND S. N. ALEXANDER, EDS., Checklist of the Plants of the Guiana Shield (Venezuela: Amazonas, Bolívar, Delta Amacuro; Guyana, Surinam, French Guiana). *Smithsonian Contr. Bot.* 55.
- GRANDE-A., J. R. AND M. F. CABRAL. 2016. Manipulus Guttiferarum, I. *Caraipa pilosa* (Calophyllaceae), a new species from the Parí massif, Venezuelan Guayana. *Phytotaxa* 261(1): 82–86.
- HOYOS, J. 1973. Expedición a la Laguna Asisa (Territorio Amazonas, Venezuela). *Natura* 51: 20–23.
- HUBER, O. 1995a. Geographical and physical features. Pages 1–62 in P. E. BERRY, K. YATSKIEVYCH, AND B. K. HOLST, EDS., *Flora of the Venezuelan Guayana*. Vol. 1. Timber Press, Portland, Oregon.
- . 1995b. History of botanical exploration. Pages 63–95 in P. E. BERRY, K. YATSKIEVYCH, AND B. K. HOLST, EDS., *Flora of the Venezuelan Guayana* 1. Timber Press, Portland, Oregon.
- . 1995c. Vegetation. Pages 97–192 in P. E. BERRY, K. YATSKIEVYCH, AND B. K. HOLST, EDS., *Flora of the Venezuelan Guayana* 1. Timber Press, Portland, Oregon.
- AND J. J. WURDACK. 1984. History of botanical exploration in Territorio Federal Amazonas, Venezuela. *Smiths. Contr. Bot.* 56: 1–86.
- IUCN. 2017. Guidelines for using the IUCN Red List Categories and Criteria. Version 12. Prepared by the Standards and Petitions Subcommittee, 101 pp. Available from: <http://www.iucnredlist.org/documents/RedListGuidelines.pdf> (accessed March 2019).
- KARTESZ, J. T. AND K. N. GANDHI. 1994. Nomenclatural notes for the North American flora XIII. *Phytologia* 76: 441–457.
- MAYR, E. AND W. H. PHELPS, JR. 1967. The origin of the bird fauna of the South Venezuelan Highlands. *Bull. Amer. Mus. Nat. Hist.* 136(5): 269–328.
- MEDAN, D. AND C. SCHIRAREND. 2004. Rhamnaceae. Pages 320–338 in K. KUBITZKI, ED., *The Families and Genera of Vascular Plants* VI. Springer, Berlin.
- MERRILL, E. D. AND W. Y. CHUN. 1935. Additions to our knowledge of the Hainan Flora II. *Sunyatsenia* 2 (3–4): 272–274, Fig. 31.
- MICHELANGELI A., A. 2005. Explorando tepuyes. Pages 171–292 in A. MICHELANGELI A., ED., *Tepuy, Colosos de la Tierra*. Fundación Terramar, Caracas.
- POOL, M. 2013. New species, combinations, and lectotypifications in Neotropical and northern Mexican *Frangula* (Rhamnaceae). *Novon* 22: 447–467.
- . 2015. Rhamnaceae. Pages 1–116 in G. DAVIDSE, M. SOUSA SÁNCHEZ, S. KNAPP, AND F. CHIANG CABRERA, EDS., *Fl. Mesoamerica* 2(3). Missouri Botanical Garden, St. Louis.
- RIINA, R., P. E. BERRY, O. HUBER, AND F. A. MICHELANGELI. 2019. Pantepui plant diversity and biogeography. Pages 121–147 in V. RULL, T. VEGAS-VILARRÚBIA, O. HUBER, AND J. SEÑARIS, EDS., *Biodiversity of Pantepui: The Pristine “Lost World” of the Neotropical Guiana Highlands*. Academic Press, Cambridge.
- STEYERMARK, J. A. 1988. Flora of the Venezuelan Guayana V. *Ann. Missouri Bot. Gard.* 75(3): 1058–1086.
- AND P. E. BERRY. 2004. Rhamnaceae. Pages 473–484 in P. E. BERRY, K. YATSKIEVYCH, AND B. K. HOLST, EDS., *Flora of the Venezuelan Guayana* 8. Missouri Botanical Garden Press, St. Louis.
- TORTOSA, R. D. 2008. Rhamnaceae. Pages 570–572 in O. HOKCHE, P. E. BERRY, AND O. HUBER, EDS., *Nuevo Catálogo de la Flora Vascular de Venezuela*. Fundación Instituto Botánico de Venezuela Dr. T. Lasser, Caracas, Venezuela.
- TURLAND, N. J., J. H. WIERSEMA, F. R. BARRIE, W. GREUTER, D. L. HAWKSWORTH, P. S. HERENDEEN, S. KNAPP, W. H. KUSBER, D.-Z. LI, K. MARHOL, T. W. MAY, J. MCNEILL, A. M. MONRO, J. PRADO, M. J. PRICE, AND G. F. SMITH. 2018. *International Code of Nomenclature for algae, fungi and plants (Shenzhen code)*. Regum Veg. 159. Koeltz Scientific Books, Königstein.
- ULLOA-ULLOA, C., P. ACEVEDO-RODRÍGUEZ, S. G. BECK, M. J. BELGRANO, R. BERNAL, P. E. BERRY, L. BRAKO, M. CELIS, G. DAVIDSE, S. R. GRADSTEIN, O. HOKCHE, B. LEÓN, S. LEÓN-YÁNEZ, R. E. MAGILL, D. A. NEILL, M. H. NEE, P. H. RAVEN, H. STIMMEL, M. T. STRONG, J. L. VILLASEÑOR RÍOS, J. L. ZARUCCHI, F. O. ZULOAGA, AND P. M. JØRGENSEN. 2017. An integrated assessment of vascular plant species of the Americas. *Science* 358: 1614–1617.
- YOUNG, C. W. AND H. F. CHEW. 1958. Contributions to the flora of South China. *Acta Phytotax. Sin.* 7(1): 60–64.