

## TWO NEW SPECIES OF MYRTACEAE FROM THE SÁPARA TERRITORY IN THE ECUADORIAN AMAZON

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**Abstract.** Two new species of Myrtaceae, *Eugenia saparensis* and *Plinia oblongifolia*, from the remote Sápara territory in the Amazonian province of Pastaza in Ecuador are described and illustrated. A distribution map is provided, their morphological relationships to the putative closest species in these genera are discussed and a preliminary conservation status of Data Deficient (DD) is assigned for each species.

**Keywords:** Amazonia, Conservation, Ecuador, *Eugenia*, *Plinia*, Pastaza, Sápara, Taxonomy

**Resumen.** Dos nuevas especies de Myrtaceae, *Eugenia saparensis* y *Plinia oblongifolia*, del remoto territorio Sápara en la provincia amazónica de Pastaza en Ecuador son descritas e ilustradas. Se presenta un mapa de distribución, se discuten sus relaciones morfológicas con las especies más cercanas en cada género y el estado de conservación de Datos Insuficientes (DD) es asignado para cada especie.

**Palabras claves:** Amazonia, Conservación, Ecuador, *Eugenia*, *Plinia*, Pastaza, Sápara, Taxonomía

Myrtaceae (Myrtales) are a diverse tropical and subtropical family with numerous economically and ecologically important species. In Ecuador, it is represented by 15 genera and more than 130 species (Kawasaki et al. 2019); *Eugenia* is the largest genus in the country, with ca. 50 species and *Plinia* is represented by at least five species. Within the study of the Myrtaceae for the Flora of Ecuador, several new species of both genera were described (Kawasaki et al. 2019; Kawasaki and Pérez, 2012, 2016; Kawasaki and Holst, 2009a, 2009b; Holst and Kawasaki, 2006).

Two additional new species of *Eugenia* and *Plinia* are here described and illustrated; they were collected during a botanical expedition to the Sápara Nation in the Pastaza province, more specifically the Balsaura community, along the Pintuyacu river. These new species honor the Sápara nationality, which is under threat by the loss of their language and traditions. Indeed, this nationality used to have a much larger distribution across the Ecuadorian Amazon into neighboring Peru, covering 380000 ha, but has severely declined in population since the seventeenth century (Bilhaut, 2011). In recognition of the Sápara oral

and cultural traditions, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) declared in 2001 for them to be an “Intangible Cultural Heritage of Humanity” (Bilhaut, 2011). The Nacionalidad Sápara del Ecuador (NASE) recently published their “Model of Territorial Management and Governance” called “Rapaka Nakujinia” or “Forest for Living Well” (Nacionalidad Sápara del Ecuador [NASE], 2024), where they call for increased collaboration with universities and research organizations to conduct studies on the biodiversity (flora and fauna) of the Sápara territory. With the discovery of these two new species of Myrtaceae we encourage more conservation research and biodiversity related co-exploration of this fascinating territory and culture.

***Eugenia saparensis*** Á.J. Pérez, M.L. Kawas. & B. Holst, *sp. nov.* TYPE: ECUADOR. Pastaza: Cantón Pastaza, Parroquia Río Tigre, Comunidad Sápara de Balsaura, Río Pintuyacu, sendero Uksha Ñambi, 01°56'44"S, 76°18'25"W, 180–220 m, 22 September 2022 (fl), Á.J. Pérez, J.N. Zapata, R.H.J. Erkens & T.L.P. Couvreur 11882 (Holotype: QCA-251802; Isotypes: F, LOJA, QCNE). Fig. 1.

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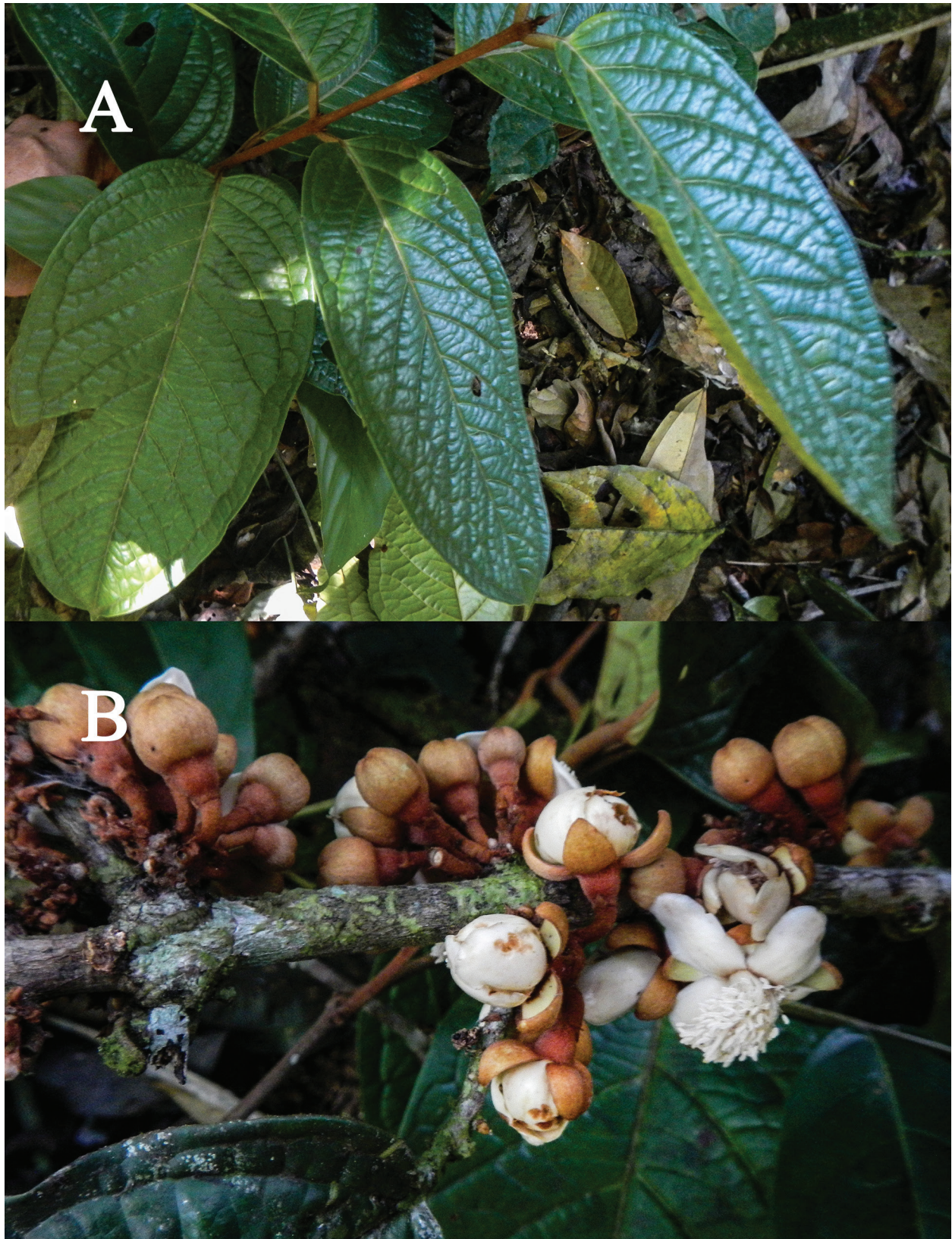


FIGURE 1. *Eugenia saparensis* Á.J. Pérez, M.L. Kavas. & B. Holst. **A**, Branchlet with leaves; **B**, Inflorescences. A, B from Pérez *et al.* 11882 (QCA). For measurements see description. Photographs by Á. J. Pérez.

This new species is similar to *Eugenia feijoi* O. Berg and *E. schunkei* McVaugh in the morphology of the inflorescences and flowers, but it is distinguished by the bullate leaves.

*Trees* ca. 25 m high, 25–40 cm dbh; trichomes reddish to yellowish-brown on branchlets, leaves and inflorescences. *Leaves* opposite; petioles 1–1.5 cm long, pubescent; leaf blades broadly elliptic to elliptic or ovate, 14–18 × 7–9.5 cm, coriaceous and bullate, drying greenish-brown to dark-brown on the upper surface, paler on the lower surface, puberulous to glabrous above, sparsely appressed-pubescent below, the trichomes especially evident near the veins; glands punctiform, indistinct above, dark and salient below; midvein narrowly convex above, convex below; lateral veins 8–12 pairs, strongly impressed above, convex below; marginal veins 2, the innermost 5–8 mm from margin; apex abruptly acuminate, the acumen 1–1.5 cm long; base obtuse. *Inflorescences* on leafless branchlets, of abbreviated racemes, the flowers appearing fasciculate, densely pubescent, the pedicels 5–10 mm long; bracteoles borne at the base of the ovary, ovate, 1–2 mm long. *Flowers* 4-merous; buds pyriform or obovoid, ca. 1 cm long; calyx lobes oblong to lanceolate, ca. 6–9 × 3–5 mm, obtuse, the margins connate for most of their length, cucullate at anthesis; petals white, ca. 1 cm long, obtuse, ciliate; disk ca. 4 mm diam, densely pubescent; stamens numerous, white, the filaments to 1 cm long, the anthers linear, grayish when dry, ca. 2 mm long; style ca. 1 cm long, the stigma punctiform; ovary 2-locular, with several ovules per locule. *Fruits* not known.

The new species *Eugenia saparensis*, *E. feijoi* O. Berg (a species from Colombia, Venezuela, French Guiana, Amazonian Brazil, Peru, Bolivia, and Ecuador), and *E. schunkei* McVaugh (known from Peru and Ecuador) share the following characteristics: the racemes are abbreviated, appearing fasciculate, with reddish to yellowish brown trichomes; the flowers have lanceolate or oblong, cucullate calyx lobes that are partially to nearly completely connate in bud, with grayish when dry, linear anthers; the midvein of leaves are narrowly convex on the upper surface. *Eugenia saparensis*, however, is distinguished by the elliptic leaves that are conspicuously bullate in the field, the secondary leaf venation appearing strongly sulcate on the upper surface in dried material (vs. lateral leaf venation plane to salient, leaves most narrowly elliptic or oblong-lanceolate in *E. feijoi* and *E. schunkei*).

Among the species of *Eugenia* in Ecuador, *Eugenia bullatifolia* M.L. Kawas. & Á.J. Pérez (known only from Orellana Province) also has bullate leaves, but the flowers are in irregular racemes, with yellowish white trichomes.

**Etymology:** The specific epithet honors the Sápara nationality that inhabits the Ecuadorian and Peruvian Amazon. In 2001, the Sápara's oral and cultural traditions were declared an "Intangible Cultural Heritage of Humanity" by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) (Bilhaut, 2011).

**Distribution and habitat:** The species is known thus far only from the type locality, a hilly terra firme forest around the Balsaura community, to the right side downstream the

Pintuyacu river, in the Pastaza Province (Fig. 2). According to the Ministerio del Ambiente del Ecuador (2013), this area lies in the Tigre-Pastaza lowland evergreen forest (BsTa03). Field observations indicate that *Eugenia saparensis* co-occurs with the following tree species: *Guatteria ucayalina* Huber (Annonaceae), *Iriartea deltoidea* Ruiz & Pav. and *Wettinia maynensis* Spruce (Arecaceae), *Magnolia equatorialis* A. Vázquez (Magnoliaceae), and *Roucheria* sp. (Linaceae). This locality is ca. 15 km from the Peruvian border, and the forest cover is continuous; for that reason, *E. saparensis* could be present in Peru.

**Phenology:** Collected with flowers in September and possibly fruiting in January.

**Preliminary IUCN conservation status:** This species is only known from the type locality and a single individual. The forest cover is well preserved and extends from the Corrientes and Pintuyacu river into Peru (Fig. 2). There is no evidence of any threats. Since there is a lack of data and its population size is unknown, we suggest that this species be assessed as Data Deficient (DD).

**Plinia oblongifolia** Á.J. Pérez, M.L. Kawas. & B. Holst, *sp. nov.* TYPE: ECUADOR. Pastaza: Cantón Pastaza, Parroquia Río Tigre, Comunidad Sápara de Balsaura, Río Pintuyacu, 10 min aguas abajo, sendero en tierra firme, lado izquierdo del río, 01°57'08"S, 76°16'28"W, 180–220 m, 24 September 2022 (fr), Á.J. Pérez, J.N. Zapata, R.H.J. Erkens & T.L.P. Couvreur 11888 (Holotype: QCA-251803; Isotypes: F, QCNE, VT). Fig. 3.

*Plinia oblongifolia* differs from *P. yasuniana* M.L. Kawas. & Á.J. Pérez in the habit (trees ca. 22 m high vs. shrubs 1–3 m high), in the narrow leaves, ca. 6–8 times longer than wide (vs. ca. 3.5–5 times longer than wide) and in the glabrescent (vs. puberulous) fruits.

*Trees* ca. 22 m high, 20–30 cm dbh, puberulous, the trichomes yellowish white, mostly on young branches. *Bark* grayish, smooth, peeling in plates of different sizes. *Leaves* opposite or verticillate; petioles to 7 mm long, terete, puberulous; leaf blades narrowly oblong or narrowly oblanceolate, coriaceous, 25–38 × 3–6 cm, the upper surface mostly glabrous except for a few trichomes especially on the veins, drying olive-green to greenish brown, the lower surface paler, pubescent, the trichomes densely on the veins; glands numerous, punctiform, indistinct above, salient below; midvein sulcate on upper surface, salient on lower surfaces; lateral veins 16–25 pairs, sulcate above, salient below; marginal vein 1, almost parallel to the margin, ca. 4 mm from it, similar to the lateral veins in prominence; apex abruptly acuminate; base subcordate to truncate. *Inflorescences* ramiflorous, of glomerules; bracts and bracteoles in several pairs, lanceolate, 3–7 mm long, puberulous. *Flower buds* not seen; calyx lobes irregularly shaped, with conspicuous glands, puberulous without, glabrous within; petals, stamens, and style not seen. *Fruits* immature, globose, 1.7–5 cm diam, green when immature, glabrescent, crowned by remnants of the calyx lobes; seed 1, the seed coat membranous; embryo eugenoid, the cotyledons fleshy, connate, the radicle indistinct.

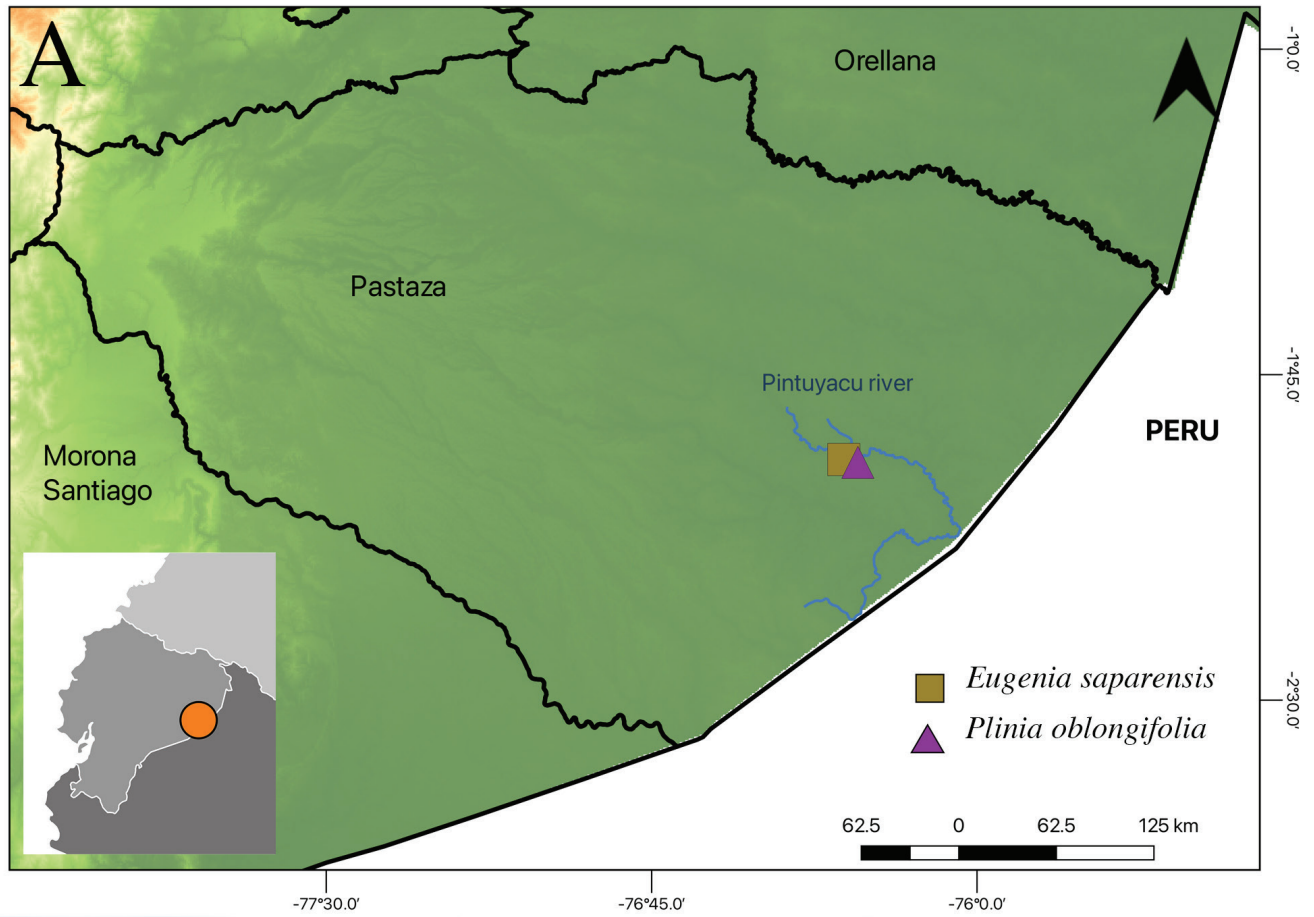


FIGURE 2. **A**, Location of *Eugenia saparensis* and *Plinia oblongifolia* in Pastaza province; **B**, Aerial view of the forest cover around the Balsaura Community. Photograph by T. L. P. Couvreur.

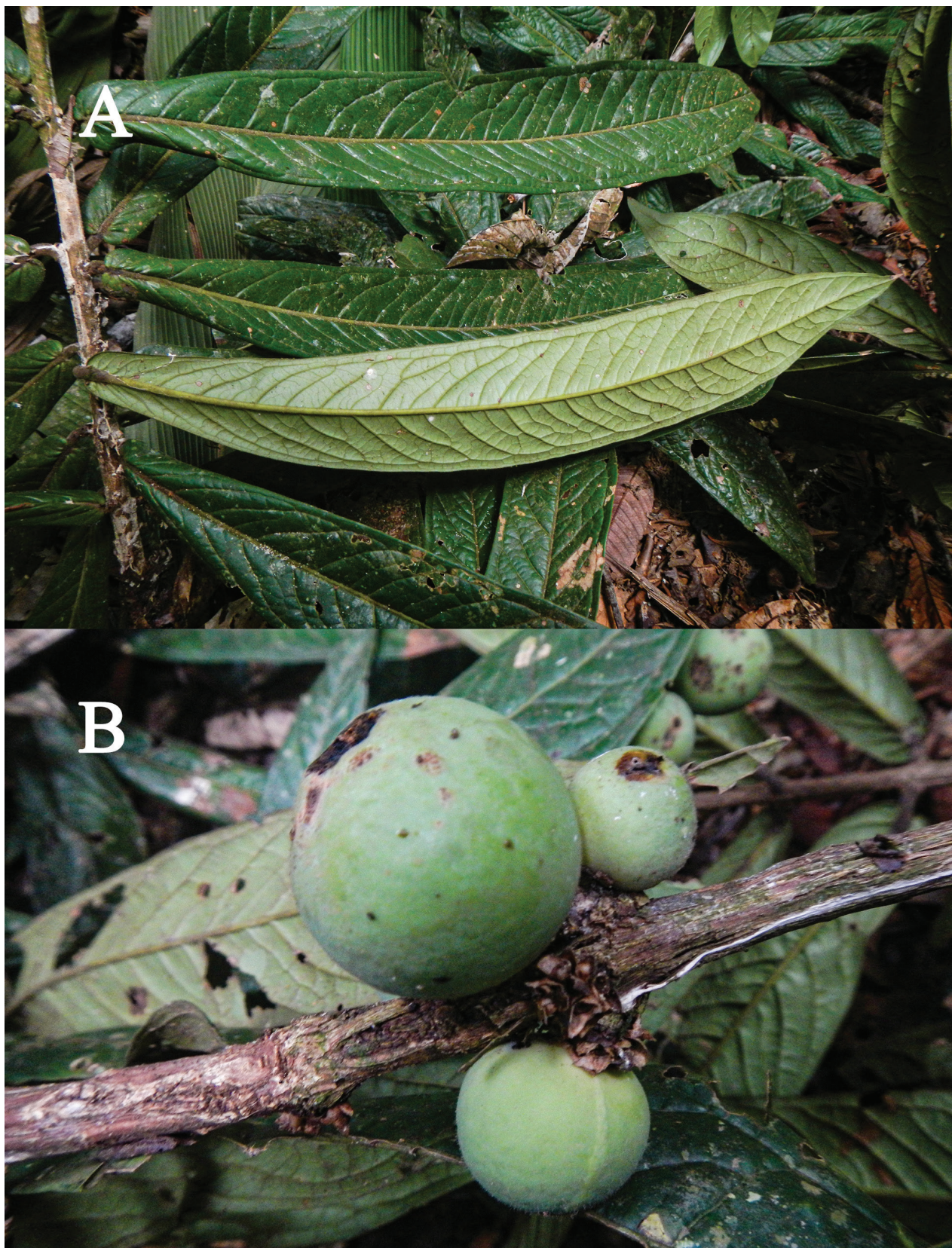


FIGURE 3. *Plinia oblongifolia* Á.J. Pérez, M.L. Kawas. & B. Holst. A, Leaves; B, Fruits. A, B from Pérez *et al.* 11888 (QCA). For measurements see description. Photographs by Á. J. Pérez.

*Plinia oblongifolia* is characterized by the combination of these features: trees with large, narrowly oblong or narrowly oblanceolate leaves, opposite or verticillate, 25–38 × 3–6 cm, ca. 6–8 times longer than wide, and glabrescent fruits. In leaf morphology, it resembles *Plinia yasuniana* M.L. Kawas. & Á.J. Pérez, a species known from Sucumbíos and Orellana Provinces in Ecuador, possibly also occurring in Peru; this species, however, is a shrub 1–3 m high (versus ca. 22 m), the leaves are narrowly elliptic or oblanceolate, 28–32 × 5.5–8.5 cm, ca. 3.5–5 times longer than wide, and the fruits are puberulous.

**Etymology:** The specific epithet denotes the commonly oblong leaf blades.

**Distribution and habitat:** The species is known thus far only from the type locality, a hilly terra firme forest around the Balsaura community, to the left side downstream the Pintuyacu river, in the Pastaza Province (Fig. 2). According to the Ministerio del Ambiente del Ecuador (2013), this area lies in the Tigre-Pastaza lowland evergreen forest

(BsTa03). Field observations indicate that *P. oblongifolia* co-occurs with the following tree species: *Iriartea deltoidea* Ruiz & Pav. and *Wettinia maynensis* Spruce (Arecaceae), *Magnolia equatorialis* A.Vázquez (Magnoliaceae), *Roucheria* sp. (Linaceae), and *Virola elongata* (Benth.) Warb. (Myristicaceae). This locality is ca. 15 km from the Peruvian border and the forest cover is continuous so *P. oblongifolia* might also occur in Peru.

**Phenology:** Collected with fruits in September and probably flowering during June to August.

**Preliminary IUCN conservation status:** As with *Eugenia saparensis*, this new species is only known from the type locality and a single individual. Its population size is unknown. There is no evidence of any threat, with a forest cover well preserved and expanding from the Corrientes and Pintuyacu river to Peru (Fig. 2); for these reasons, we suggest assigning it a preliminary conservation status of Data Deficient (DD).

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