
An Overview of the Subspecies of *Paullinia obovata* (Sapindaceae–Paullinieae) in Peru

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ABSTRACT. An overview of the subspecies of *Paullinia obovata* in Peru is presented, recognizing five subspecies. One new subspecies, *P. obovata* subsp. *flava* Weckerle & Igersheim, is described. *Paullinia brentberlinei* is transferred to the rank of subspecies of *P. obovata*. Three varieties of *P. obovata*, i.e., var. *obovata*, var. *polymorpha*, var. *subrotunda*, are recognized at the subspecies level. All subspecies are illustrated, and their comparative morphological features are compared in a table.

RESUMEN. Se presenta una revisión de las subespecies de *Paullinia obovata* en Peru. Son reconocidas cinco subespecies. Se describe una nueva subespecie, *P. obovata* subsp. *flava* Weckerle & Igersheim. *Paullinia brentberlinei* es reducida a una subespecie de *P. obovata*. Tres variedades de *P. obovata* (var. *obovata*, var. *polymorpha*, var. *subrotunda*) son reconocidas como subespecies. Se provee una tabla resumen con los caracteres morfológicos para la comparación de los taxa, así como ilustraciones para cada uno de ellos.

Key words: *Paullinia*, Paullinieae, Peru, Sapindaceae.

The tribe Paullinieae (Sapindaceae) mainly occurs in tropical America; exceptions are a few species of *Cardiospermum* L. with a pantropical distribution and *Paullinia pinnata* L., which is also found in tropical Africa and Madagascar (Radlkofer, 1933). The tribe consists of lianas (plants growing in open areas may be non-climbing treelets) and vines with tendrils, a growth form not very common to the Sapindaceae and found in the Paullinieae sensu Radlkofer (1933) only. The genera of this tribe have very similar flowers, characterized by zygomorphy and four petals with basal appendages. The taxa are separated mainly by fruit and seed characters.

Paullinia L. is the second largest genus of the tribe Paullinieae with about 200 species. Most of them occur in the rain forests of Amazonia. About 70 species are found in Peru (Simpson, 1976; Gerreau, 1993), chiefly in the lowland rain forest and the rain forest of the eastern Andean slopes. The genus *Paullinia* is polymorphic with regard to vegetative features as well as fruit and seed morphology. Cross sections of the stems have a single stele or less commonly numerous steles, which means that a central stele can be surrounded by one, two, or three peripheral steles. The leaves are alternate and often 5-foliolate pinnate but may vary from 3-foliolate to biternate or multifoliolately ternate-pinnate, with margined or winged petioles and rachises. The 3-valved capsules are stipitate, subsessile to sessile, 3-locular, and uniovulate. *Paullinia* can be divided into three main species groups, differing conspicuously in macromorphological fruit characters. (1) The majority of taxa ($\pm 2/3$) are characterized by globose, subglobose, fusiform, obovate, or clavate fruits; (2) several species ($\pm 1/3$) have fruits with dorsal wing-like outgrowths; (3) five species have echinate fruits (Radlkofer, 1933). The mature capsules are often reddish, more rarely yellowish or greenish. The seeds are globose, ovate, ellipsoid, or compressed ellipsoid with a black or brown exotesta. They are partly or totally enclosed with a white aril (actually an arilloid sensu van der Pijl (1957)) of different texture.

Paullinia obovata (Ruiz & Pavón) Persoon is restricted to western Amazonia (Ecuador, Peru, Bolivia, and adjacent regions of Colombia and Brazil) with its main distribution in Peru (Simpson, 1976). The stem has a single stele, the leaves are 5-foliolate pinnate with unwinged or occasionally margined petioles and rachises, and the capsules are stipitate or subsessile, 2.5–9.0 cm long, with thick and fibrous valves. The usually three seeds are at least half enclosed by a sweet aril.

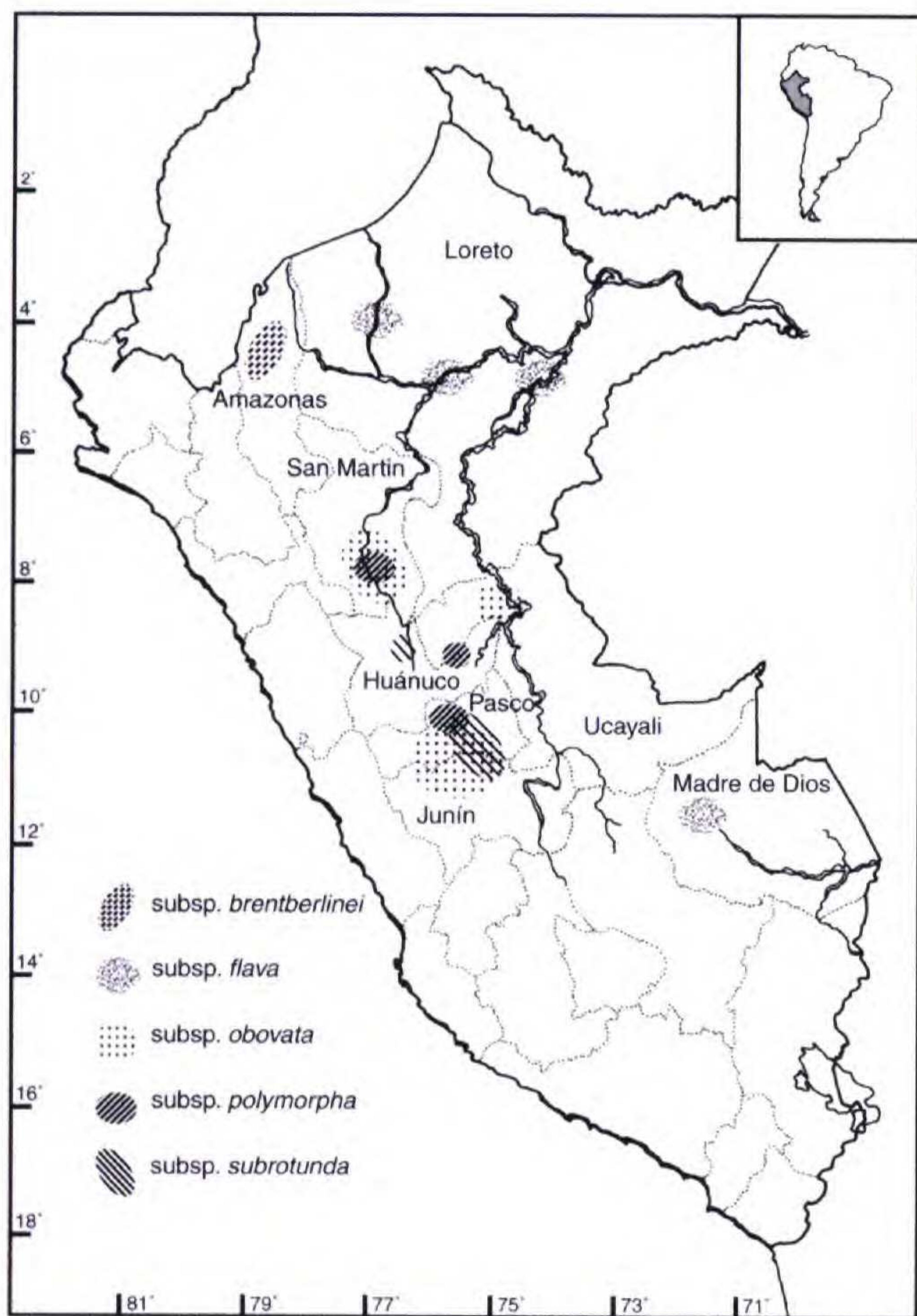


Figure 1. Geographic distribution of the subspecies of *Paullinia obovata* in Peru, based on specimen locations.

The new subspecies *Paullinia obovata* subsp. *flava* Weckerle & Igersheim was found in the lowlands of Peru in the vicinity of Jenaro Herrera, department Loreto. Examination of herbarium material (USM) showed that this subspecies also occurs further south in the department Madre de Dios (Fig. 1). It differs from the other subspecies mainly by its yellow instead of red fruits (Table 1, Fig. 3A, B) and its distribution restricted to the lowlands (100–400 m).

Paullinia brentberlinei Croat is known from the tropical lowlands (200–300 m) of northern Peru (Fig. 1). Examination of the type material as well as other collections reveals that this species differs from *P. obovata* subsp. *polymorpha* only by having larger fruits (8–9 cm in subsp. *brentberlinei* vs. 4–7 cm in subsp. *polymorpha*, cf. Table 1). Therefore, this species is transferred to *P. obovata*. It is probably best to accept it as a subspecies of *P. obovata*, as suggested by Beck (1991) in his Ph.D. thesis.

In his partial revision Simpson (1976) recognized in *P. obovata* three varieties: var. *obovata*, var. *polymorpha* D. R. Simpson, and var. *subrotunda* (Ruiz & Pavón) D. R. Simpson. They differ mainly in their size and shape of the fruits (Fig. 2A–C) and some vegetative characters (cf. Table 1). The varieties of *P. obovata* as delimited by Simpson (1976)

show a geographical correlation with the main morphological characters and are therefore treated as subspecies (Hamilton & Reichard, 1992). Subspecies *obovata* and subspecies *polymorpha*, both with fusiform and stipitate fruits, differ in fruit size (2.5–4.5 cm in subsp. *obovata* vs. 4–7 cm in subsp. *polymorpha*), serration type and indument of the leaflets (conspicuous, beginning below or above middle; mostly glabrous in subsp. *obovata* vs. inconspicuous, beginning above middle; pubescent beneath in subsp. *polymorpha*, cf. Table 1). Their distribution area is overlapping. Subspecies *obovata* has its main area of distribution between 700 and 1000 m, but may also be found in the lowlands ((200)–400 m), whereas subspecies *polymorpha* is mainly found in the lowlands but reaches elevations of up to 800 m. Subspecies *subrotunda* has obovate, (sub)sessile fruits and is restricted to middle elevations ((700)–1200–1800 m) of the central eastern Andean slopes. Subspecific rank for these taxa also provides more consistency of the infraspecific delimitation within *Paullinia*. Intermediate forms of subspecies of *P. obovata* are occasionally found (e.g., leaf characters pointing to subsp. *obovata* combined with fruit characters typically found in subsp. *polymorpha*).

***Paullinia obovata* (Ruiz & Pavón) Persoon, Syn.**

Pl. 1: 443. 1805. Basionym: *Semarillaria obovata* Ruiz & Pavón, Fl. Peruv. Prodr. 54. 1794; Fl. Peruv. IV: 156–157. 1954. TYPE: Peru. Pozuzo [not preserved or destroyed?]. LECTOTYPE (designated here): “*Semarillaria obovata*” [icon no. 338 in] Ruiz & Pavón, Fl. Peruv. IV: 189. 1954.

In the *Flora Peruviana, et Chilensis Prodrum* 54, Ruiz and Pavón (1794) mentioned the species name *Semarillaria obovata* for the first time. Only a short sentence is given, and neither specimens nor localities are cited. The same authors present in the *Fl. Peruv. IV* (1954), a broader description stating “[*Semarillaria obovata*] habitat in Peruviae Andium nemoribus Pozuzo,” but still without a citation of specimens. In his revision Simpson (1976) designated “Ruiz & Pavon s.n. from Pozuzo” as a “fictive type” of *P. obovata*. Photographs (negatives) of lectoparatypes are cited, i.e., F 53208 [53204] and F 23655 (ex G). These photographs show sterile specimens, which contain no original label or note from Ruiz and Pavón, and the corresponding specimen to F 23655 could not be found in Geneva (G). Therefore, these two specimens cannot be linked to the information provided in the protologue. Since Ruiz noted in his journal *Semarillaria*

Table 1. Comparative morphological features of the subspecies of *Paullinia obovata*.

<i>Paullinia obovata</i>		<i>subsp. obovata</i>	<i>subsp. flava</i>	<i>subsp. brentberlinei</i>	<i>subsp. polymorpha</i>	<i>subsp. subrotunda</i>
Young stem	indument	sparsely pubescent to mostly glabrous	sparsely pubescent to mostly glabrous	pubescent to sparsely pubescent	sparsely pubescent to mostly glabrous	sparsely pubescent
Leaves	petiole length (cm)	3–16 sometimes slightly margined	4–14	12.5–13.5	4.5–15	6–25.5
	rachis length (cm)	2–5.5 sometimes slightly margined	2–5	3–4	1.5–5.0	2–8
Leaflets	length × width (cm)	5–17.5 × 3–9	7.5–21.5 × 4–9.5	8.5–17 × 5.5–9	12.5–19 × 6.5–9.5	7.5–23 × 3.5–9
	petiolule length (cm)	0.2–1.7	0.3–0.8	0.5–1	0.8–1.2	0.5–1.5
	serration	conspicuous, beginning below or above middle	conspicuous, beginning below or above middle	inconspicuous, beginning above middle	inconspicuous, beginning above middle	inconspicuous, beginning above middle
	indument	mostly glabrous on both sides	mostly glabrous on both sides	mostly glabrous above, pubescent beneath	mostly glabrous above, pubescent to sparsely pubescent beneath	mostly glabrous above, pubescent to sparsely pubescent beneath
	2° nerves	7–10, some bifurcating near the margin	9–10, some bifurcating near the margin	7–9, rarely bifurcating near the margin	7–10, rarely bifurcating near the margin	9–10, rarely bifurcating near the margin
	hairtufts (domatia)	inconspicuous to conspicuous, only between 1° and 2° nerves	inconspicuous, only between 1° and 2° nerves	none	inconspicuous, only between 1° and 2° nerves	conspicuous, between 1° and 2° and 2° and 3° nerves
Infructescence	axis length (cm)	8.5–28	11–19	7.5–42	26–29.5	11.5–28.5
	indument	sparsely pubescent to mostly glabrous	sparsely pubescent	pubescent	pubescent	pubescent to sparsely pubescent
Capsules	length (incl. stipe) × width (cm)	2.5–4.5 × 1.5–2.5	3–4 × 2.5–3.5	8–9 × 3.5–5	4–7 × 2–3.5	3.5–4 × 2.5–3.5
	shape	fusiform to obovate and stipitate	fusiform to obovate and stipitate	fusiform and stipitate	fusiform and stipitate	obovate and subsessile
	color when mature	red	yellow with red dehiscence lines	red	red	red
Distribution	area (mainly Peru, cf. Fig. 1)	eastern Andean slopes and tropical lowland	tropical lowland	tropical lowland of northern Peru	eastern Andean slopes and tropical lowland	central eastern Andean slopes
	altitude	(200–)400–1000 m	100–400 m	200–300 m	400–800 m	(700–)1200–1800 m

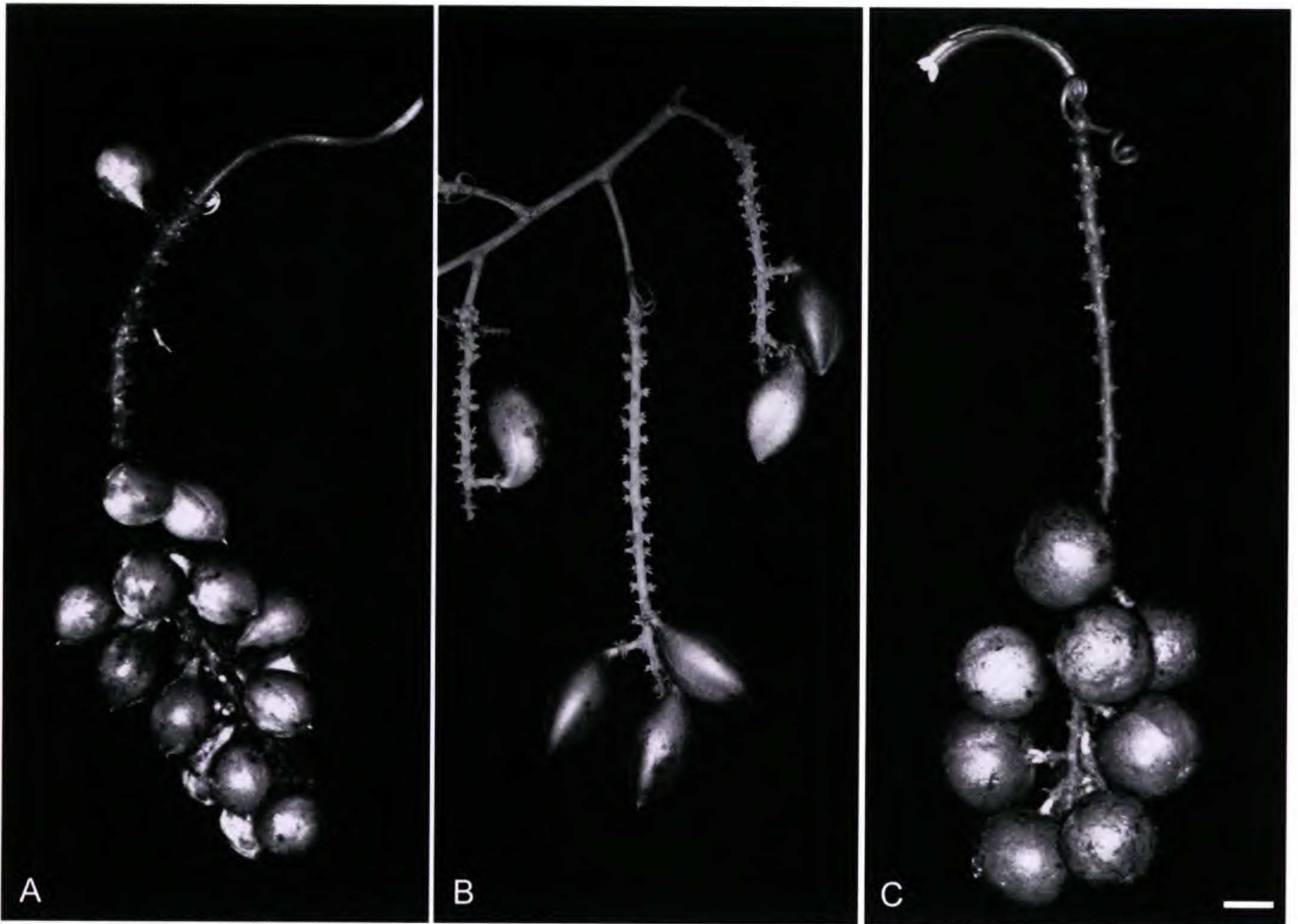


Figure 2. Typical fruit shapes in subspecies of *Paullinia obovata*. —A. *Paullinia obovata* subsp. *obovata*, Weckerle & Igersheim 000330-2/1 (MOL). —B. *Paullinia obovata* subsp. *polymorpha*, Weckerle & Igersheim 010202-1/2 (MOL). —C. *Paullinia obovata* subsp. *subrotunda*, Weckerle & Igersheim 000329-1/1 (MOL). Scale bar 2 cm.

obovata among those species he “succeeded in describing in Huánuco, of those that were worked on in Macora and that were burned in that fire” (as cited in Ruiz, [1777–1788] 1940: 203), it can be expected that the set of collections made by Ruiz and Pavón and used for their description and illustration prepared in Peru (Lack, 1979) was destroyed. There is no doubt about the good quality of the illustration that accompanies Ruiz and Pavón’s (1954) description of the species in *Fl. Peruv. IV*. It agrees unambiguously with the taxon as understood by us and shows clearly, besides leaf characters, the pertinent fruit characters. The illustration given by Ruiz and Pavón (1954) is therefore designated herewith as the lectotype of *Paullinia obovata* (Ruiz & Pavón) Persoon.

1. *Paullinia obovata* (Ruiz & Pavón) Persoon subsp. *obovata*

Distribution and habitat. *Paullinia obovata* subsp. *obovata* is a rather widespread taxon and occurs mainly in the forests of the eastern Andean slopes between 700 and 1000 m, but may also be found in the lowlands ((200)–400 m) of Junín, Pas-

co, San Martín, and Ucayali, along rivers, edges of secondary forests, and along roadsides (Fig. 1).

Phenology. Flowering specimens were collected during October and January and specimens with mature and immature fruits during January, March, April, May, July, and October.

Discussion. Vegetatively, *Paullinia obovata* subsp. *obovata* is very similar to *P. obovata* subsp. *flava*, and both taxa seem to be closely related. In both subspecies the serration of the margins of the leaflets begins below or above the middle, and the lower surface of the leaflets is mostly glabrous (Table 1). The two subspecies differ markedly in the color of the capsules at maturity (red in subsp. *obovata* vs. yellow in subsp. *flava*, cf. Fig. 3A, B and C–E), and in contrast to subspecies *flava*, which is restricted to the lowlands, subspecies *obovata* occurs mainly in the eastern Andean slopes (Fig. 1).

Specimens examined. PERU. No locality given: Pavón 644 (G), Pavón 1821 (G), Pavón s.n. (G). **San Martín:** Mariscal Cáceres, Tocache Nuevo, Fundo Miramar, “en bosque alto,” 28 Mar. 1970, Schunke 3879 (G, MO, MOL); “al borde del Río en bosque alto,” 1 July 1974, Schunke 7091 (G, MO, USM); Fundo Miramar, “en bosque alto,”

10 Oct. 1980, *Schunke 12338* (USM, Z), *Schunke 13388* (USM, Z). **Ucayali:** Coronell Portillo, Pucallpa, Río Pachitea, 30 Jan. 1988, *Ayala 6002* (MO); Leoncio Prado (Yarinacocha), 15 May 1984, *Vásquez 5004* (MO); Previsto, on the bank of stream, 10 Oct. 1962, *Woytkowski 7573* (MO). **Junín:** Puente Paucartambo, 30 Mar. 2000, *Weckerle & Igersheim 000330-2/1* (MOL); Perené, road between Perené and La Esperanza, 4 Apr. 2000, *Weckerle & Igersheim 000404-1/5* (MOL); riverside of Río Paucartambo, near Puente Colgante along road to Perené, 19 July 2000, *Weckerle & Igersheim 000719-1/2* (MOL); La Merced, road between Puente Colorado and Casa Blanca, 5 Apr. 2000, *Weckerle & Igersheim 000405-1/4* (MOL), 710 m, 3 July 2000, *Weckerle & Igersheim 000703-2/1* (MOL); road between Puente Colorado and La Alianza, 3 July 2000, *Weckerle & Igersheim 000703-1/2* (MOL); road along Quebrada Pescarola, 10 July 2000, *Weckerle & Igersheim 000710-1/6* (MOL); Puente Quimiri, riverside of Río Chanchamayo near confluence with Quebrada Sheila, 18 July 2000, *Weckerle & Igersheim 000718-2/1* (MOL); Villa Rica, road between Cedro Pampa and Purús, riverside of Quebrada Aqua Blanca, ca. 7 July 2000, *Weckerle & Igersheim 000707-2/1* (MOL); San Ramon, road between Puente Victoria and Lourdes, along Quebrada Oxabamba, 11 July 2000, *Weckerle & Igersheim 000711-1/2* (MOL); road between Puente Victoria and Lourdes, along Quebrada Oxabamba, 11 July 2000, *Weckerle & Igersheim 000711-1/6* (MOL); riverside between Puente Victoria and Puente Almandra, 15 Jan. 2001, *Weckerle & Igersheim 010115-1/2* (MOL).

2. *Paullinia obovata* subsp. *flava* Weckerle & Igersheim, subsp. nov. TYPE: Peru. Loreto: Maynas, Requena, ca. 7 km W of Jenaro Herrera, vicinity of Laguna Vainilla, inundated primary forest (Braga), 04°54'46"S, 73°44'20"W, ca. 110 m, 27 May 2000, *A. Vásquez, C. S. Weckerle & A. Igersheim 000527-1/4* (holotype, MOL; isotype, Z). Figure 3A, B.

Ab aliis subspeciebus capsulis flavis cum lineis dehiscenciae rubris differt.

Liana, stems sparsely pubescent to mostly glabrous, stem with a single stele, up to 8–9 cm diam. Leaves pinnately 5-foliolate, petiole and rachis wingless, petiole 4–14 cm, rachis 2–5 cm, stipules subulate, deciduous. Petiolule 0.3–0.8 cm, leaflets chartaceous, ovate, elliptic to obovate, 7.5–21.5 cm long (including the petiolule), 4–9.5 cm wide, the apex acuminate, the base acute, obtuse to rounded, margins with serration beginning above or below middle, never at base, mostly glabrous except for the hair tufts in the axils between primary and secondary nerves, some secondary nerves bifurcating near the margin. Infructescence 11–19 cm long, rachis rusty tomentose, bracts deciduous. Fruits stipitate or subsessile, fusiform to obovate, 3–4 cm long (including the 0.3–0.5 cm long stipe), 2.5–3.5 cm wide, yellow when mature with three red dehiscence lines, the valves fibrous, with fibers running

longitudinally, the three septa usually persistent; seeds dark brown or black, characteristically covered by a white aril.

Distribution and habitat. *Paullinia obovata* subsp. *flava* is restricted to lowland rain forests along river margins or seasonally inundated areas at elevations from 100 to 400 m (Fig. 1).

Phenology. The two specimens examined with buds were collected in October and November. The remaining specimens show young and mature fruits. They have been collected in January, March, May, and June, respectively.

Discussion. Herbarium material of *Paullinia obovata* subsp. *flava* is very similar to that of subspecies *obovata* (fruit size and shape, serration type and indument of leaflets) and therefore sometimes difficult to distinguish. The diagnostic feature for subspecies *flava*, the yellow color of the capsules with the three red dehiscence lines, cannot be seen directly on the dried herbarium specimen. However, after drying, the capsules of subspecies *flava* appear to be more orange-colored than the capsules of all other subspecies of *Paullinia obovata*, which are brown. Thus, notes on the labels concerning the color of mature fruits at their time of collection are important for identification.

Paratypes. PERU. **Loreto:** Maynas, Requena, along Quebrada Caño Iricahua near the confluence with Río Ucayali, 31 May 2000, *Vásquez, Weckerle & Igersheim 000531-1/6* (MOL); Reserva Nacional Pacaya Samiria, Sitaraco, 29 Mar. 1993, *del Carpio 1977* (USM); Campamento La Huaca, 9 June 1993, *del Carpio 2448* (USM); Alto Amazonas, Río Pastaza, "una hora arriba de la boca del Lago Rimachi," 25 Jan. 1979, *Diaz & Ruiz 914* (MO). **Madre de Dios:** Manu, vicinity of Cocha Cashu Station, 7 Mar. 1977, *Bell & Foster 6192* (USM); moist floodplain forest, lake edge, 2 Oct. 1991, *Burnham RJB691* (USM); Cocha Juarez, Río Manu, 3–5 May 1987, *Núñez, Lees & Wright 8027* (USM); vicinity of Cocha Cashu Station, lake margin, 3 Nov. 1976, *Terborgh 5185* (USM).

3. *Paullinia obovata* subsp. *brentberlinei* (Croat) Weckerle & H. T. Beck, stat. nov. Basionym: *Paullinia brentberlinei* Croat, *Phytologia* 38: 73–74. 1977. TYPE: Peru. Amazonas: Quebrada Huampami, 10 km from its mouth at the Río Cenepa, 700 ft. [ca. 200 m], 23 Nov. 1972, *B. Berlin 336* (holotype, MO; isotypes, USM, US not seen).

Distribution and habitat. *Paullinia obovata* subsp. *brentberlinei* is only known from the lowland forest of northern Peru (200–300 m). It occurs mainly in the department Amazonas along riversides and in inundated areas (Fig. 1).

Phenology. No flowering specimens were ex-

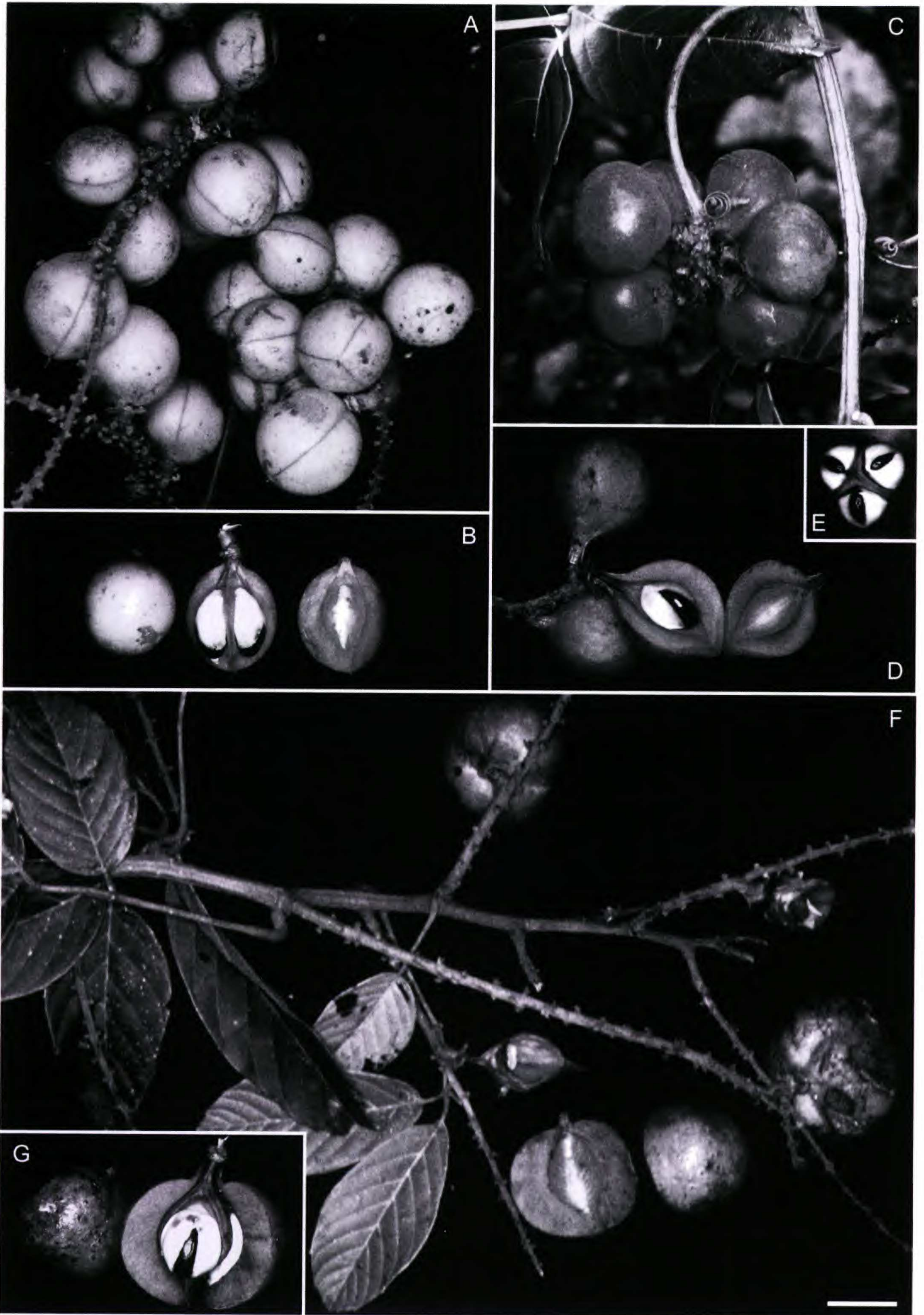


Figure 3. Mature fruits of subspecies of *Paullinia obovata*. A, B. *Paullinia obovata* subsp. *flava*. —A. Yellow fruits from the type collection plant. —B. Fruit revealing seeds with aril. C–E. *Paullinia obovata* subsp. *obovata*. —C. Red fruits. —D. Fruit revealing seeds with aril. —E. [Inset] Persistent septa with arillate seeds. F, G. *Paullinia obovata* subsp. *subrotunda*. —F. Red fruits. —G. [Inset] Fruit revealing seeds with aril. A, B are from Vásquez, Weckerle &

amined. Fruiting specimens were collected during November, January, March, and May.

Discussion. Examination of the type material of *Paullinia brentberlinei* as well as other collections reveals that this species only differs from *P. obovata* subsp. *polymorpha* by having larger fruits (8–9 cm in subsp. *brentberlinei* vs. 4–7 cm in subsp. *polymorpha*). The vegetative features are the same as in subspecies *polymorpha*, i.e., the inconspicuous serration of the leaflets begins above the middle and the leaflets are pubescent beneath with inconspicuous hair tufts (Table 1).

Specimens examined. PERU. **Amazonas:** Quebrada Huampami, Río Cenepa, 26 May 1973, *Kayap 818* (USM); Quebrada Huampami, monte al lado de Huampami, 20 Jan. 1973, *Kayap 189* (USM); Yamayakat, bosque de ribera, 13 Mar. 1996, *Jaramillo, Jaramillo & Chamit 1383* (USM); Bagua, Imaza-Chipe, bosque de ribera del Marañón, 28 May 1996, *Vásquez et al. 21026* (USM).

4. *Paullinia obovata* subsp. *polymorpha* (D. R. Simpson) Weckerle, stat. nov. Basionym: *Paullinia obovata* var. *polymorpha* D. R. Simpson, *Fieldiana* 36: 155. 1976. TYPE: Peru. San Martín: Mariscal Cáceres, Tocache Nuevo, “bosque alto,” Quebrada de Tananta, 17 Dec. 1970, *J. Schunke 4580* (holotype, F not seen; isotypes, G, MOL).

Distribution and habitat. *Paullinia obovata* subsp. *polymorpha* is found in the tropical lowland and the foothills of the Andes at 400–800 m (Fig. 1).

Phenology. Flowering specimens were collected during February and specimens with mature and immature fruits during December, February, and April.

Discussion. Simpson (1976) chose *Schunke 4580* as the type specimen for *P. obovata* subsp. *polymorpha*. However, this specimen does not represent the typical character set of subspecies *polymorpha*. The leaves point much more to subspecies *obovata* (serration conspicuous, beginning below middle) than to subspecies *polymorpha*, and the fruits of the specimen, which bear the most important characters for infraspecific delimitation, are immature. More representative material of subspecies *polymorpha* can be seen on *Schunke 4574*, for the vegetative, and *Smith 1234*, for the fruit characters.

Specimens examined. PERU. **San Martín:** Mariscal Cáceres, Tocache Nuevo, “bosque alto,” Quebrada de Tananta, 17 Dec. 1970, *Schunke 4574* (G). **Huánuco:** Pachitea, Comunidad Nativas Santa Marta, about 50 km by river from Puerto Inca, on bank of Sungaruyacu, 11 Apr. 1982, *Smith 1234* (AMAZ, MO, MOL, USM); Pozuzo, road between Pozuzo and Santa Rosa, 2 Feb. 2001, *Weckerle & Igersheim 010202-1/1* (MOL), *Weckerle & Igersheim 010202-1/2* (MOL).

5. *Paullinia obovata* subsp. *subrotunda* (Ruiz & Pavón) Weckerle, stat. nov. Basionym: *Semacillaria subrotunda* Ruiz & Pavón, *Fl. Peruv. Prodr.* 54. 1794. *Paullinia subrotunda* (Ruiz & Pavón) Persoon, *Syn. Pl.* 1: 443, no. 15. 1805. *Paullinia obovata* var. *subrotunda* (Ruiz & Pavón) D. R. Simpson, *Fieldiana* 36(12): 153–154. 1976. TYPE: Peru. No locality given: *H. Ruiz s.n.* [*J. Tafalla s.n.*] (lectotype, designated by Simpson (1976), MA not seen; isolectotype, US).

Distribution and habitat. It is only known from the central eastern Andean slopes of Peru, occurring between (700–)1200 and 1800 m in the departments of Junín, Pasco, and Huánuco, in secondary forests, along roads and riversides (Fig. 1).

Phenology. Flowering specimens were collected during December and January and specimens with mature and immature fruits during March and April.

Discussion. The type collection for *Paullinia obovata* subsp. *subrotunda* (*Ruiz s.n.* [*Tafalla s.n.*]) was probably collected by Tafalla and sent to Ruiz. Details supporting this were discussed by Simpson (1976: 154).

Paullinia obovata subsp. *subrotunda* differs from all other subspecies by its broader fruits, somewhat resembling walnuts when green, and by the broader seeds and thicker fruit walls. Unlike the lectotype, which bears no fruits, the icon 336 in *Fl. Peruv. IV* is a very good reference for this subspecies.

Specimens examined. PERU. **Pasco:** Oxapampa, Villa Rica–Yesú road, 28–29 Dec. 1983, *Smith, Brack & Meza 5427* (MO); Oxapampa, roadside between Pusapno and Oxapampa, 18 Mar. 2000, *Weckerle & Igersheim 000318-3/1* (MOL); Oxapampa, Pusapno, 15 Mar. 2000, *Weckerle & Igersheim 000315-2/1* (MOL), 14 Apr. 2000, *Weckerle & Igersheim 000414-1/4* (MOL), 28 Jan. 2001, *Weckerle & Igersheim 010128-1/1* (MOL); Pusapno, along Río Pusapno, 16 Mar. 2000, *Weckerle & Igersheim 000316-2/1* (MOL). **Junín:** Villa Rica, along road to Ocanal, edge of

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Igersheim 000527-1/4 (MOL, Z); C and E from *Weckerle & Igersheim 000405-1/4* (MOL); D from *Weckerle & Igersheim 000703-2/1* (MOL); F from *Weckerle & Igersheim 000315-2/1* (MOL); and G from *Weckerle & Igersheim 000318-3/1* (MOL). Scale bar 2 cm. Photographs by C. Weckerle & A. Igersheim.

“Laguna,” 29 Mar. 2000, *Weckerle & Igersheim 000329-1/1* (MOL), 7 July 2000, *Weckerle & Igersheim 000707-1/1* (MOL). **Huánuco:** Tingo Maria, 22 June 2000, *Weckerle & Igersheim 000622-1/2* (MOL).

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