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32. *Abrahamia thouvenotii* (Lecomte) Randrian. & Lowry, **comb. nova** (Fig. 30).

≡ *Protorhus thouvenotii* Lecomte, Madagascar Bois Analamazaotra: 73. 1922.

Lectotypus (designated here): **MADAGASCAR. Prov. Toamasina:** Rég. Alaotra-Mangoro, Moramanga, Forêt d'Analamazaotra, [18°56'S 48°26'E], 1000 m, s.d., fr., *Thouvenot 80* (P [P00580346]!; isolecto-: MO-6684138!, P [P00580347]!, TAN [TAN000076]!).

Description *Trees* 5-20 m tall, 5-54 cm DBH, bark with white milky latex; young twigs ferruginous pubescent. *Leaves* alternate; blades oblanceolate to obovate or elliptic to narrowly elliptic or narrowly oblong, 3-15 × 1.5-5 cm, coriaceous, apex emarginate, retuse, or shortly acuminate, sometimes truncate, margin entire, base acute to cuneate or obtuse, adaxial surface ferruginous pubescent when young, later glabrescent or pubescent only on the midvein, abaxial surface pubescent, venation craspedodromous, midvein prominent abaxially, secondary veins 10-20 pairs, arcuate, 2-10(-15) mm apart, prominent on both surfaces, tertiary veins raised on both surfaces; petiole 5-15 mm long, canaliculate on adaxial surface, pubescent, sometimes glabrescent. *Inflorescence* axillary or terminal, a panicle, 3-8 cm long, axes terete, tomentose. *Male* and *female flowers* 5-merous; pedicel 0-0.3 mm long, pubescent; calyx lobes deltate to ovate, 1.2-1.5 × 1-1.5 mm, imbricate, adaxial surface glabrous, abaxial surface pubescent, persistent on fruit; corolla lobes ovate, 2-3 × 1-1.2 mm, imbricate, adaxial surface pale yellow, glabrous, abaxial surface brown, pubescent; stamens 5. *Male flowers* with filaments 1 mm long, glabrous, white, anthers 0.6-0.8 mm long, ovoid, yellow, glabrous; disk 1-1.2 mm in diam., pubescent; ovary rudimentary. *Female flowers* with filaments c. 0.8-1 mm long, glabrous, white, anthers c. 0.5-0.6 mm long, subglobose or ovoid, sterile, yellow, glabrous; disk 1.5-2 mm in diam., pubescent; ovary widely to very widely ovoid, c. 1-1.2 × 1 mm, pubescent, placentation subapical; style very shortly trifid, apical, 0.3-0.4 mm long, covered with indument. *Fruits* 1.5-2.5 × 0.8-1.5 cm, ellipsoid, very often glabrate or glabrescent, rarely completely glabrous, with longitudinal striations.

Vernacular names “Ditimena”, “Menavahatra”, “Tandraviravy” (North East).

Distribution, ecology and phenology *Abrahamia thouvenotii* occurs mainly in eastern Madagascar and the Sambirano region (Map 10). It is found principally in mid-elevation rainforests at an elevation between 800 and 900 m, although a few subpopulations have been recorded at much higher elevations. Flowers have generally been collected from August to October, although some individuals may flower as early as July. Fruits have been recorded between November and January.

Conservation status With an EOO of 116,472 km², a minimum AOO of 180 km², and 46 recorded localities, with subpopulations in at least 10 protected areas (Anjanaharibe-Sud, Makira, Manongarivo, Mantadia, Marojejy, Masoala, Montagne d'Ambre, Analamazaotra, Ranomafana, and Zahamena), *A. thouvenotii* is assigned a preliminary conservation status of "Least Concern" [LC] using the IUCN Red List Categories and Criteria (IUCN, 2012).

Notes *Abrahamia thouvenotii* can be distinguished from other members of the genus by the presence of widely spaced secondary leaf venation and indument on the ovary and disk. Three collections from northern and northeastern Madagascar (*Miller 3625*, *Service Forestier 15067* and *Ursch 195*) differ from typical material by having flowers with a glabrous disk. Additional collections from this area, especially from female individuals, will be needed, however, to determine whether they may represent a distinct taxon. Until such time, we have chosen to include them in our circumscription of *A. thouvenotii*.

PERRIER DE LA BÂTHIE (1944) cited two collections in the protologue of *Protorhus thouvenotii*, one in bud (*Thouvenot 7*) and the other in fruit (*Thouvenot 80*). We have designated a sheet of *Thouvenot 80* as the lectotype because it is represented by two additional specimens, whereas there is only a single sheet of *Thouvenot 7*.

Protorhus lecomtei (\equiv *Abrahamia lecomtei*) was based on two collections that belong to different taxa, one of which (*Perrier de la Bâthie 5283*) we have placed in *A. thouvenotii*. As indicated above under *A. lecomtei*, we have designated a specimen of the other syntype gathering, *Perrier de la Bâthie 14301*, as the lectotype in order to retain a circumscription that includes the additional material assigned by PERRIER DE LA BÂTHIE (1944) to *Protorhus lecomtei*.

Additional material examined **MADAGASCAR. Prov. Antananarivo:** Anjozorobe, 2 km NNE d'Andranomay, 18°28'08"S 47°57'03"E, 1340-1400 m, 20.XII.1996, fr., *Birkinshaw et al.* 373 (G, K, MO, P, TAN). **Prov. Antsiranana:** Ambilobe, forêt de Kalabenono, 13°38'43"S 48°40'41"E, 971 m, 27.XI.2006, fr., *Callmander et al.* 643 (G, NY, MO, P, TAN); Marojejy PN, versant S de Beondroka, 14°25'S 49°50'E, 600 m, 14.XI.1989, bud, *Deroin & Badré* 96 (MO, P, TAN); Ambanja, Antsatrotro (Manongarivo), [14°05'S 48°23'E], 800 m, XI.1954, fr., *Service Forestier 11505* (P [3 sheets], TEF); Andapa, SW edge of Anjanaharibe-Sud Reserve, 14°48'15"S 49°26'45"E, 1000-1100 m, 6.VIII.1997, bud, *McPherson 17266* (G, K, MO, P, TAN); Marojejy PN, NW Manantenina, Campement n° 3, 14°26.2'S 49°44.5'E, 1200 m, 1.XI.1996, fl., *Messmer et al.* 305 (G, MO, P, TAN); Montagne d'Ambre, 12°32'S 49°10'E, 1050 m, 21.X.1988, fl., *Miller 3625* (MO [2 sheets], P, TAN); Ambilobe, Antanambao Belinta village, Kalabinono, 13°39'22"S 48°40'11"E, 1004 m, 3.XI.2007, fr., *Rakotovaio 3897* (G, MO, P, TAN); Marojejy PN, env. d'Andohan'Antsahamberokely et Marojejybe, 14°25'45"S 49°40'20"E, 1672 m, 7.III.1994, fr., *Rasoavimbahoaka 176* (MO, P, TAN); Andapa-Bealanana, Befingotra, 14°12'S 49°27'E, 1100 m, 13-18.IX.1996, fl., *Ravelonarivo et al.* 1029 (G, K, MO, P, TAN); Marojejy PN, between Campsite II and Campsite III, 14°25'09"-14°25'24"S 49°44'46"-49°45'29"E, 1280-1350 m, 23.XI.2003, fl., *Schmidt et al.* 4308 (G, K, MO, P, TAN); Antalaha, Ambodigavo-Maromandia, [14°51'S 50°07'E], 120 m, 11.IX.1955, bud, *Service Forestier 15067* (P [2 sheets], TEF); forêt



Fig. 30.
Abrahamia thouvenotii (Lecomte) Randrian. & Lowry.
Tip of a branch showing lower surface of leaves and fruits [Callmander et al. 643].

Photo: M. Callmander

d'Ambre, [12°36'S 49°09'E], 16.VI.1954, ster., *Service Forestier 160-R-152* (P); Diego Suarez, [12°16'S 49°17'E], 17.X.1927, bud, *Ursch 195* (P). **Prov. Fianarantsoa:** Ifanadiana, 7 km W of Ranomafana, 21°16'S 47°25'E, 1000 m, 19.X.1987, ster., *Daniels 95* (MO, P, UMO); Ranomafana PN, parcelle 3, Talatakely, Piste C, [21°15'S 47°27'E], 1645 m, 3-8.IX.1993, fl., *Kotozafy et al. 230* (G, K, MO, NY, P, TAN, WAG); Ranomafana PN, Vatoharanana, Parcelle 3, 21°16'S 47°26'E, 900-1100 m, ster., *Kotozafy et al. 544* (MO, P, TAN); Ranomafana PN, parcelle 3, 21°16'S 47°26'E, 980 m, 16-19.II.1994, ster., *Rakoto et al. 514* (MO, P, TAN); Ranomafana PN, Talatakely area, 21°16'S 47°25'E, 800-900 m, 8.X.1996, ster., *A. Randrianasolo 497* (MO, P, TAN); Ranomafana NP, parcelle 3, 21°15'30"S 47°25'E, 900-1100 m, 23.IX.1994, fl., *J. Randrianasolo et al. 154* (MO, P, TAN); *ibid. loco*, *J. Randrianasolo et al. 155* (MO, P, TAN); *ibid. loco*, *J. Randrianasolo et al. 157* (MO, P, TAN); Andrambovato, E de Fianarantsoa, [21°31'S 47°25'E], 878-1000 m, 24-25.I.1955, ster., *Service Forestier 11587* (P, TEF); *ibid. loco*, *Service Forestier 13260* (P); Ranomafana PN, Talatakely trail system, 21°15'30"S 47°25'00"E, 950-1150 m, 23.IX.1993, fl., *Solo & J. Randrianasolo 8* (MO, P, TAN); *ibid. loco*, 16.VIII.1993, fl., *Turk et al. 527* (G, K, MO, NY, P, TAN, WAG); Ranomafana PN, parcelle I, [21°14'S 14°27'E], 850 m, 29.IX.1994, fl., *Turk et al. 637* (MO, P, TAN). **Prov. Mahajanga:** Anjanaharibe-Sud RS, [14°42'S 49°27'E], 1100 m, 14.XII.1994, fr., *Ravelonarivo et al. 552* (MO, P, TAN). **Prov. Toamasina:** Vavatenina, Zahamena PN, 17°38'27"S 48°52'32"E, 700-1040 m, 4.X.2001, fl., *Andrianjafy et al. 194* (CNARP, MO, P, TAN); Masoala PN, Ambohitsitondroina, 15°25'37"S 45°57'24"E, 1158 m, 10.X.2003, bud, *Antilahimena et al. 2169* (G, MO, P, TAN); Commune Vinanibe, Makira forest, 15°27'40"S 49°17'46"E, 1153 m, 28.XI.2003, fl., *Antilahimena 2421* (G, K, MO, NY, P, TAN); Maroantsetra, Ambatofotsy, Andampy forest, 15°19'03"S 49°24'06"E, 800 m, 4.IX.2004, fr., *Antilahimena 2746* (G, MO, P, TAN); Ambatovy, Sahavarina forest, 18°51'37"S 48°20'25"E, 1020 m, 24.XI.2005, fr., *Antilahimena et al. 4230* (G, MO, P, TAN); Ambatovy, Ampangadiantrandraka Forest, 18°51'43"S 48°17'39"E, 1049 m, 9.XII.2006, fr., *Antilahimena & Edmond 5087* (G, MO, P, TAN); forêt d'Analamay, 18°49'37"S 48°19'11"E, 1153 m, 6.VI.2007, ster., *Bernard et al. 529* (MO, P, TAN); Mantadia PN, 700 m N from point PK 13, 18°48'09"S 48°25'39"E, 870-930 m, 23.VI.1996, y. fl., *Birkinshaw et al. 313* (MO, P, TAN); moyenne vallée du Mangoro, [18°53'S 48°07'E], 10.IX.1942, fl., *Decary 18516* (MO, P); Analamazaotra, [18°56'S 48°26'E], X.1925, bud, *Louvel 44* (P); *ibid. loco*, 1925, bud, *Louvel 112* (P); Mantadia PN, 10.I.2003, ster., *Pell et al. 633* (MO, NY, P, TAN); forêt d'Analamazaotra, [18°56'S 48°26'E], 800 m, s.d., fr., *Perrier de la Bâthie 5283* (P [4 sheets]); Ambatondrazaka, Commune Didy, Fokontany Antsevabe, 17°59'S 48°36'E, 1165 m, 28.IX.2005, fl., *Rakotonasolo 1066* (G, K, MO, P, TAN); Amparafaravola, E d'Ambodisaina, 17°16'49"S 48°49'18"E, 850 m, 11.XII.2001, fr., *Rakotondrafara et al. 102* (CNARP, MO, P, TAN); 1.5 km E du campement du PK 14, piste de Mantadia PN, 18°49'S 48°26'E, 940-1012 m, 21.IX.1996, fl., *Ralimanana et al. 10* (G, MO, P, TAN); Lakato, village Agnalatsara, 19°07'29"S 48°23'32"E, 815 m, 1.VI.2007, ster., *Ranaivojajona et al. 1724* (MO, P, TAN); Analamazaotra RS, [18°56'S 48°26'E], 950 m, 15.VII.1996, ster., *A. Randrianasolo 413* (MO, P, TAN); Analamazaotra RS, along the Indri trail, about 300 m from observation point, 18°56'12"S 48°25'10"E, 1000 m, 10.I.2003, ster.,

A. Randrianasolo 779 (MO, TEF); Analamazaotra forestry station, 18°56'S 48°26'E, 950 m, 19.X.1996, fl., *A. Randrianasolo* 506 (MO, P, TAN); *ibid. loco*, 18.VII.1996, ster., *A. Randrianasolo* 433 (MO, P, TAN); *ibid. loco*, 16.VII.1996, ster., *A. Randrianasolo* 414 (MO, P, TAN); Zahamena PN, forêt communautaire d'Antenina, 17°32'32"S 48°43'20"E, 1250 m, 6.XII.2002, fr., *Randrianjanaka et al.* 762 (CNARP, G, MO, NY, P, TAN, TEF); Ambodimangavolo, Ambatoharanana, Moango, 17°33'57"S 48°53'58"E, 740-1200 m, 25.X.2005, fl., *Ratovoson et al.* 336 (CNARP, G, MO, P, TAN, TEF); Ambohibary, Ambatovy, 18°52'28"S 48°19'19"E, 1036 m, 12.XII.2011, fr., *Ravelonarivo et al.* 3972 (G, K, MO, NY, P, TAN); entre Analamay et Ambatovy, 18°49'52"S 48°18'45"E, 1192 m, 22.XI.2005, fl., *Razafindraibe et al.* 104 (MO, P, TAN); Ambatovy, forêt de cuirasse de Vatovy, 18°51'21"S 48°18'29"E, 1104 m, 1.XII.2005, fr., *Razanatsoa et al.* 194 (MO, NY, P, TAN); Masoala Peninsula, SE of Ambanizana, 15°38'S 49°59'E, 150-170 m, 1.XI.1992, bud, *Schatz et al.* 3401 (G, MO, P, TAN); Sahamaloto, Périnet, [18°56'S 48°26'E], 1000 m, 11.X.1952, fl., *Service Forestier* 6052 (P [2 sheets], TEF); massif de l'Ambohitsitondroina de Mahalevona, NW de la presqu'île Masoala, [15°25'S 49°58'E], 900 m, 5. XII.1953, bud, *Service Forestier* 8714 (G, MO, P, TEF); Sahamaloto, Périnet, [19°03'S 48°12'E], 1054 m, 20.IV.1954, y. fr., *Service Forestier* 10359 (P, TEF); Amparafaravola, forêt d'Andranobe, W de Manohilahy, [17°46'S 47°58'E], 1000-1200 m, 31.VIII.1958, fl., *Service Forestier* 18772 (MO, P [2 sheets], TEF); vestiges de forêts près du village d'Ankarahara (PK 100-102 Antananarivo-Moramanga), Mangoro, [18°54'S 48°09'E], 800 m, 8.VIII.1961, bud, *Service Forestier* 20337 (MO, P [3 sheets], TEF); Analamazaotra, [18°56'S 48°26'E], 1000 m, 21.V.1962, ster., *Service Forestier* 21142 (MO, P); *ibid. loco*, 25.V.1962, ster., *Service Forestier* 21143 (MO, P); Andasitsimanga, Périnet, [18°53'30"S 48°22'30"E], 800-1000 m, 2.VIII.1962, bud, *Service Forestier* 21224 (MO, P); Périnet, [18°56'S 48°26'E], 1000 m, II.1966, ster., *Service Forestier* 25720 (P); *ibid. loco*, *Service Forestier* 25721 (P); *ibid. loco*, *Service Forestier* 25722 (P); *ibid. loco*, 29.VI.1966, ster., *Service Forestier* 25960 (P); *ibid. loco*, N. de la pisciculture, III.1966, ster., *Service Forestier* 25778 (P); Ankazomanitra, PK 45 route Moramanga-Anosibe, [18°56'20"S 48°13'40"E], 900 m, 9.XI.1968, y. fr., *Service Forestier* 26830 (P, TEF); forêt W d'Antanandava (PK 45 de la route Moramanga-Anosibe), [19°17'S 48°12'E], 900 m, XI.1968, fr., *Service Forestier* 28443 (P); Sahamaloto, Périnet, [19°03'S 48°12'E], 1054 m, 20.VII.1952, bud, *Service Forestier* 45B-R-172 (P, TEF); *ibid. loco*, 27.IX.1952, bud, *Service Forestier* 165B-R-172 (P, TEF); Ampatsakambe, 28.V.1950, ster., *Service Forestier* 189B-R-56 (P).



Fig. 31.
Abrahamia turkii Randrian. & Lowry.
A. Flowering branch; **B.** Ultimate inflorescence unit; **C.** Leaf (abaxial surface).

[Solo & J. Randrianasolo 35, P] Drawings: R.L. Andriamiarisoa