Botanical Journal of the Linnean Society, 2006, **152**, 465–512. With 3 figures

An annotated taxonomic conspectus of the genus *Coffea* (Rubiaceae)

AARON P. DAVIS FLS[1]*, RAFAEL GOVAERTS[1], DIANE M. BRIDSON FLS[1] and PIET STOFFELEN[2]

[1]*The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, UK*
[2]*National Botanic Garden, Domein van Bouchout, B-1860 Meise, Belgium*

Received November 2005; accepted for publication July 2006

An annotated taxonomic conspectus of the genus *Coffea* (coffee) is presented, with 103 species and seven infraspecific taxa enumerated. The taxonomic history of *Coffea* is summarized and details of the circumscription of Coffeeae, *Coffea*, and the subgeneric groups of *Coffea* are given. For each accepted name, the author, place of publication, type species, and synonyms are given. Useful illustrations and literature are cited, where available. The distribution of each accepted taxon is summarized as a text note and using the Taxonomic Database Working Group (TDWG) system; the vegetation type and altitude are given in an ecological summary. A list of potentially new taxa is included. Two lectotypes are designated. Conservation assessments are given based on the World Conservation Union (IUCN) Red List Categories. Of the 103 *Coffea* species, 72 (*c*. 70%) are threatened with extinction as a result of a combination of decline in quantity and quality of habitat. © 2006 The Linnean Society of London, *Botanical Journal of the Linnean Society*, 2006, **152**, 465–512.

ADDITIONAL KEYWORDS: Africa – caffeine – coffee – Coffeeae – conservation – IUCN Red List Categories – Madagascar – Mascarenes – Psilanthus – Rubiaceae – taxonomy.

INTRODUCTION

The genus *Coffea* L. contains the three species used in the production of the beverage coffee: *C. arabica* (arabica coffee), *C. canephora* (robusta coffee), and *C. liberica* (Liberian or Liberica coffee, or excelsa coffee). Of these three, *C. arabica* is by far the most important commercial species. Considerable scientific research has been focused on the above species, and on those with particular traits of interest to commercial coffee production, for example the naturally low-caffeine species, especially those from Madagascar (e.g. Charrier, 1978; Clifford, Williams & Bridson, 1989, Clifford *et al*., 1991), and the autogamous diploid species *C. heterocalyx* (Coulibaly *et al*., 2002, 2003a, b). In contrast with the commercial species and their variants, relatively little research has been undertaken on the non-commercial species, and this is also true for taxonomic work. No monographic synthesis, or similar type of treatment, has been published since the 1940s (Chevalier, 1947).

Nonetheless, taxonomic progress has been made in *Coffea*, particularly since the late 1980s. A number of regional revisions are now available, which between them cover Tropical Africa (Bridson, 1988a, 1994, 2003; Stoffelen, 1998) and the Mascarenes (Leroy, 1989). A regional treatment for the species occurring in Madagascar is nearly complete (A. P. Davis & F. Rakotonasolo, unpubl. data), following on from the work of Leroy (1961a, b, c, 1962, 1972a, b). In the last 10 years, many new species have been described, including those from western and central Tropical Africa (Stoffelen, Robbrecht & Smets, 1997a, b, 1999; Stoffelen *et al*., 1997c; Cheek, Csiba & Bridson, 2002; Sonké & Stoffelen, 2004; Sonké, Nguembou & Davis, 2006), East Africa (Davis & Mvungi, 2004), and Madagascar (Davis & Rakotonasolo, 2000, 2001a, b, 2003; Davis, 2001). These recent studies, and ongoing work by us, have made it possible to produce a realistic summary of *Coffea* species diversity throughout the range of the genus. We present this summary here, as a

*Corresponding author. E-mail: a.davis@rbgkew.org.uk

contemporary annotated taxonomic conspectus of the genus.

Tribal placement of *Coffea*

Coffea belongs to Rubiaceae subfamily Ixoroideae, tribe Coffeeae DC. The exact circumscription of Coffeeae has been subject to recent reappraisal. Robbrecht & Puff (1986) (see also Robbrecht, 1988a, 1994) restricted Coffeeae to two genera (*Coffea* and *Psilanthus* Hook.f) on the basis of two carpellate ovaries, each with a single ovule, axile placentation, a hard (horny/crustaceous) endocarp, seeds with a deep L- or T-shaped ventral groove (as seen in transverse section; endocarp and seed coat invaginated; Fig. 2E), a seed coat exotesta consisting of thin elongated parenchymatic cells (usually containing many more or less isolated fibres), and (2–)3–5-colporate (zonocolporate) pollen (pollen data after Stoffelen, 1998). In very simple terms, this narrow circumscription of the tribe can be characterized by the presence of 'coffee beans', i.e. seeds with a groove on the flat side of the seed. The groove extends within the seed to its centre, and is very obvious when a coffee bean is cut in transverse section (Fig. 2E, F). The 'husk' or 'parchment' (horny/crustaceous endocarp) of the pyrene also has a deep ventral groove, which follows the invagination of the outer layer of the seed (exotesta).

Robbrecht & Puff (1986) excluded a third genus from Coffeeae, *Nostolachma* T.Durand (= *Lachnastoma* Korth.), which was associated with this tribe by Leroy (1980b). *Nostolachma*, together with *Argocoffeopsis* Lebrun, *Calycosiphonia* Lebrun, *Cremaspora* Benth., *Diplospora* DC., *Sericanthe* Robbr., and *Tricalysia* A.Rich. ex DC., all genera from other tribes, was transferred to Gardenieae A.Rich. ex DC. subtribe Diplosporinae Miq. by Robbrecht & Puff (1986). *Petitiocodon* Robbr. and *Xantonneopsis* Pit. were added to this subtribe by Robbrecht (1988a), and *Discospermum* Dalzell by Ali & Robbrecht (1991). More recently, however, molecular studies (Andreasen & Bremer, 1996, 2000; Persson, 2000) have demonstrated that some genera of Gardenieae subtribe Diplosporinae are closely related to *Coffea* and *Psilanthus*. Andreasen & Bremer (2000) placed *Diplospora* and *Tricalysia* in Coffeeae, together with *Bertiera* Aubl., which was formerly a genus of uncertain taxonomic position (Robbrecht, 1988a), and then placed in Gardenieae subtribe Gardenieae (Robbrecht, Rohrhofer & Puff, 1994). On the basis of morphology alone, *Discospermum* and *Sericanthe*, also members of Gardenieae subtribe Diplosporinae, were added to Coffeeae by Andreasen & Bremer (2000). Andreasen & Bremer (2000) put *Cremaspora* in its own tribe, the Cremasporeae Bremek. ex S.P.Darwin. This enlarged and modified concept of Coffeeae was followed by Bridson & Verdcourt (2003: 387, 451), who also added *Argocoffeopsis*, *Belonophora* Hook.f., and *Calycosiphonia*, and placed Gardenieae subtribe Diplosporinae into the synonymy of Coffeeae. Bridson & Verdcourt (2003: 386) placed *Bertiera* in its own tribe, Bertiereae (K.Schum.) Bridson, on the basis of clear-cut morphological distinction from members of Coffeeae.

In a very recent study, Davis *et al*. (in press) have confirmed the enlargement of Coffeeae based on molecular and morphological data, and have shown that the tribe consists of 11 genera: *Argocoffeopsis*, *Belonophora*, *Calycosiphonia*, *Coffea*, *Diplospora*, *Discospermum*, *Nostolachma*, *Psilanthus*, *Tricalysia*, *Sericanthe*, and *Xantonnea* Pierre ex Pit. The exclusion of *Bertiera* from Coffeeae and its placement in tribe Bertiereae (after Bridson & Verdcourt, 2003: 386) was supported on the basis of morphological data. Davis *et al*. (in press) proposed that *Xantonneopsis* should be transferred to tribe Octotropideae, and *Petitiocodon* was tentatively placed in tribe Gardenieae.

An updated tribal description of Coffeeae is given by Davis *et al*. (in press), and is summarized here. Habit: trees, shrubs, woody climbers, or woody monocauls; inflorescences paired, axillary or axillary and then terminal (by continued meristematic activity of the inflorescence; Fig. 3A) on short shoots [mostly (or exclusively) inflorescences from the previous year], sessile (lacking a peduncle); calyculi (cupule-like structures formed by the contraction of shoot tissue and the reduction and fusion of leaves and stipules; Figs 1D, E, 2B, 3C) present, usually four-lobed, but sometimes two-lobed or lobes lacking; corolla tube narrow and straight (Fig. 2C, F), with lobes overlapping to the left (*Coffea*-like flowers), usually white but sometimes pink, reddish, or greenish; ovary two-locular, placentation axile; ovules usually one or two per locule or up to ten (rarely *c*. 20); style simple (lacking specialized features), glabrous, two-lobed (Figs 1G, 2C, 3B); fruit an indehiscent drupe, with few (one or two) to several seeds (rarely up to around ten); ventral (adaxial) surface of seed more or less entire (sometimes with a shallow hilar grove or shallow excavation), or with a distinct longitudinal ventral invagination ('coffee-bean' morphology; Fig. 2E, F; only *Coffea* and *Psilanthus*); pollen (2–)3–5-colporate (zonocolporate).

Early to mid-20th century circumscriptions of *Coffea*

A detailed survey of the taxonomic history of *Coffea* has been provided by Stoffelen (1998); to repeat or summarize his survey is beyond the remit of this contribution. In the context of our objectives, however, we provide here an overview of major contemporary works covering the circumscription of *Coffea*.

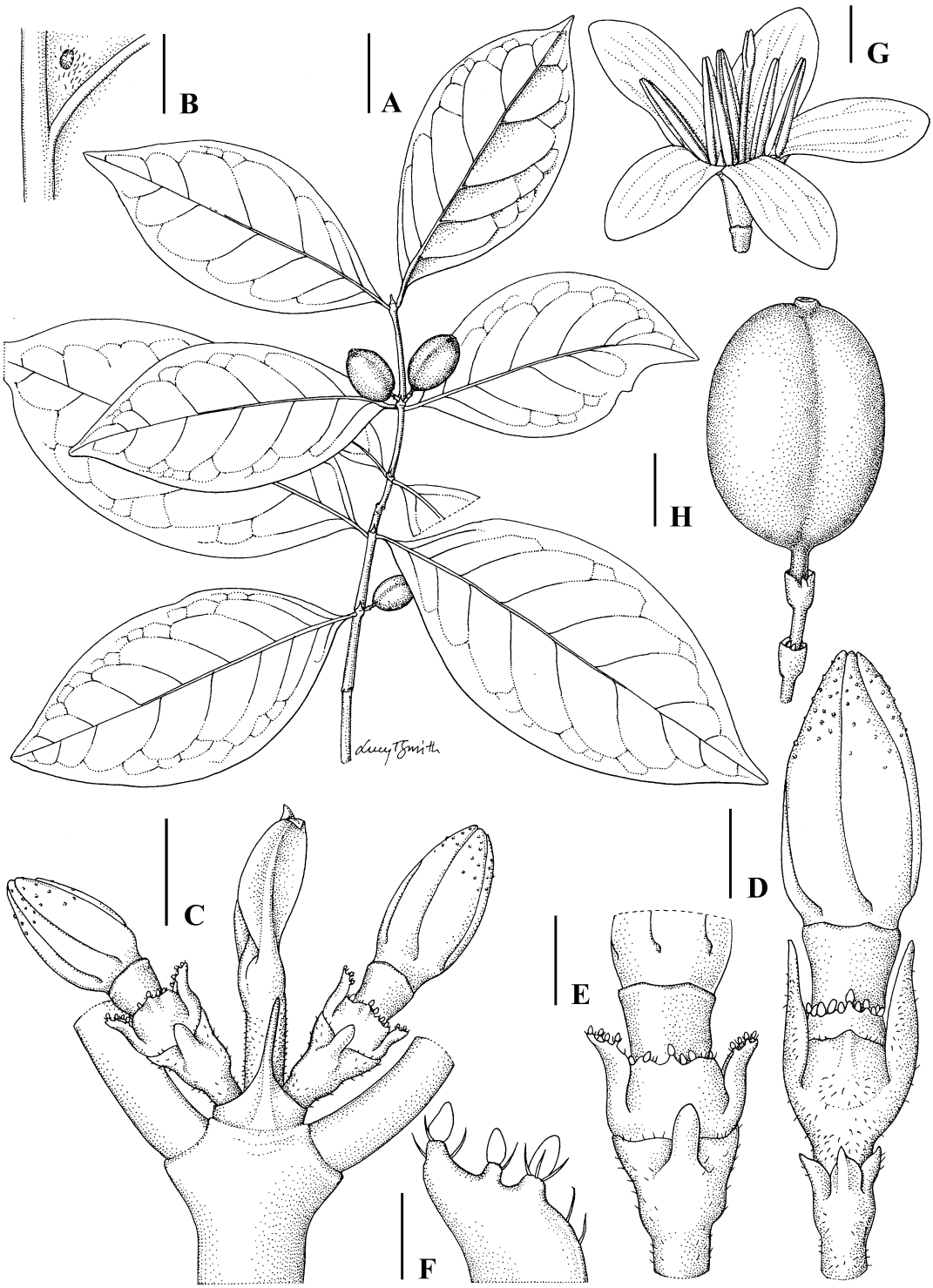

Figure 1. *Coffea kihansiensis* A.P.Davis & Mvungi (*Coffea* subgen. *Coffea*). A, Habit. Scale bar, 2 cm. B, Domatium. Scale bar, 1 mm. C, Inflorescences and inflorescence arrangement (also showing stipule and flower buds). Scale bar, 1 mm. D, Inflorescence (showing three calyculi [upper (third) calyculus ±truncate, lobes obscure], calyx, and flower (bud). Scale bar, 1 mm. E, Inflorescence [showing middle (second) and upper (third) calyculi (lobes prominent), and calyx]. Scale bar, 1 mm. F, Detail of foliar lobe from upper (third) calyculus, with colleters and hairs. Scale bar, 0.2 mm. G, Flower. Scale bar, 2 mm. H, Fruit (also showing middle and upper calyculi). Scale bar, 3 mm. A, B, *Lovett 5054*; C–F, *Mvungi 5*; G, *Lovett 5062*; H, *Mbago 1706*. Drawn by Lucy T. Smith.

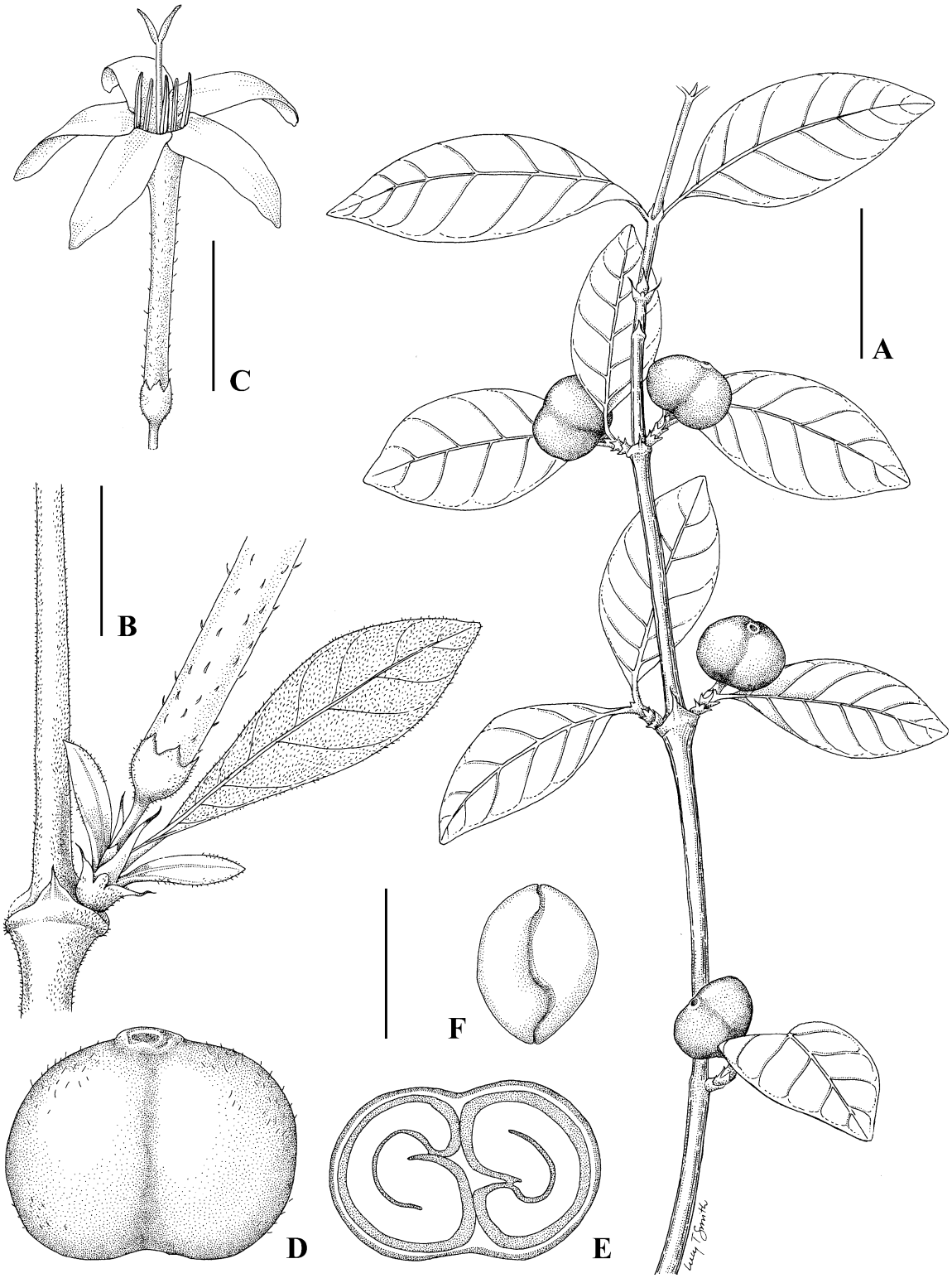

Figure 2. *Coffea grevei* Drake ex A.Chev. (*Coffea* subgen. *Baracoffea*). A, Fruiting shoot. Scale bar, 13 mm. B, Inflorescence [showing three calyculi (uppermost calyculus with enlarged leaf-like lobe] and base of flower. Scale bar, 5 mm. C, Flower (showing calyx, corolla, anthers, and style). Scale bar, 13 mm. D, Fruit. Scale bar, 5 mm. E, Fruit in transverse section (showing pyrenes, with seeds inside). Scale bar, 5 mm. F, Seed, abaxial (ventral) view (showing groove). Scale bar, 5 mm. A, *Capuron SF-2213 5*; B, C, *Jongkind & Andriantiana 3746*; D, E, F, *Capuron SF-2214 0*. Drawn by Lucy T. Smith.

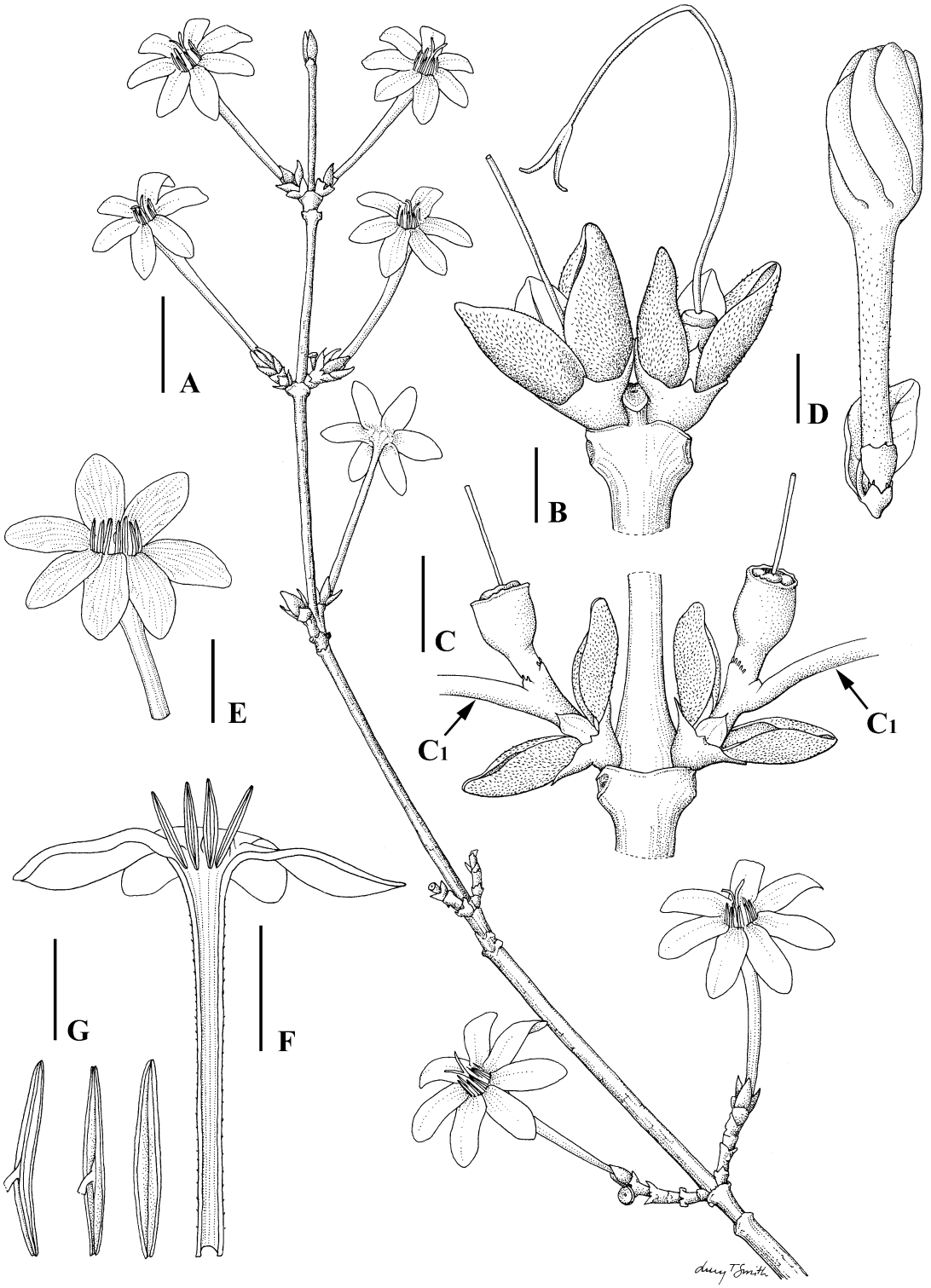

Figure 3. *Coffea ambongensis* J.-F.Leroy ex A.P.Davis & Rakotonas., ined. (*Coffea* subgen. *Baracoffea*). A, Flowering shoot. Scale bar, 2 cm. B, Inflorescence (immature, with corollas removed). Scale bar, 3 mm. C, Inflorescence (mature; corollas fallen). Scale bar, 5 mm. C1, Petiole-like base of foliar lobe. D, Flower bud, with upper calyculus. Scale bar, 5 mm. E, Corolla, upper part of tube (style removed). Scale bar, 1 cm. F, Corolla (longitudinal section, style removed). Scale bar, 1 cm. G, Stamens (left to right: side, side angle, abaxial). Scale bar, 5 mm. A–G, *Rakotonasolo RNF 240.* Drawn by Lucy T. Smith.

The most recent general monographic work for *Coffea* was produced by A. Chevalier, in three volumes of *Les Caféiers du Globe* (Chevalier, 1929, 1942, 1947). The concept of the genus held by Chevalier was much wider than that currently accepted today, and many species have now been transferred to other genera and even other tribes. Apart from the closely related *Psilanthus* (see below), transfers have been made to *Argocoffeopsis*, *Calycosiphonia*, and *Lachnastoma* (accepted name *Nostolachma*) (Coffeeae; Davis *et al*., in press), *Lemyrea* (A.Chev.) A.Chev. & Beille (Octotropideae Bedd.; see Robbrecht & Puff, 1986; Robbrecht, 1988a; Stone & Davis, 2004), and *Prismatomeris* Thwaites (Morindeae Miq.; see Johansson, 1987; Igersheim & Robbrecht, 1993; Bremer & Manen, 2000). Some of these transfers were made by Chevalier (1942, 1947) but, even in later works (Chevalier, 1947), more than one-third of species placed by him in *Coffea* now belong in other genera. Of the four *Coffea* sections recognized by Chevalier (1947: 118), only sect. *Mascarocoffea* A.Chev. and sect. *Eucoffea* K.Schum. correspond to our modern concept of *Coffea* (see below); sect. *Paracoffea* Miq. includes species that are today placed in *Psilanthus* and *Prismatomeris*, and sect. *Argocoffea* Pierre ex De Wild. includes *Argocoffeopsis* and *Psilanthus*. Summaries of Chevalier's (1929, 1942, 1947) classifications can be found in Bridson (1988b) and Stoffelen (1998). In the *Flora of West Tropical Africa*, Keay (1963) follows the traditional broad view of *Coffea*, as based on the work of Chevalier (1942, 1947), including species that are today placed in *Argocoffeopsis*, *Calycosiphonia*, and *Psilanthus*, although Keay (1963: 153) states: 'A thorough revision of *Coffea*, *Tricalysia* and related genera is much needed . . .'. Indeed, as systematic knowledge of Rubiaceae advanced, a broad concept of *Coffea* (e.g. Chevalier, 1947) was generally abandoned. Key works include those by Leroy (1967, 1980a, 1981) on the delimitation of *Coffea* and *Psilanthus*, and Robbrecht (1981) on *Argocoffeopsis* and *Calycosiphonia* [the segregation of these two genera as based on the studies of Lebrun (1941)].

Differences between *Coffea* and *Psilanthus*

Morphological data (Leroy, 1980a, b; Robbrecht & Puff, 1986; Bridson, 1987, 1988a, b; Davis, Bridson & Rakotonasolo, 2005) infer that *Coffea* and *Psilanthus* are very closely related. Indeed, they have been recognized as forming an independent tribe, Coffeeae (Robbrecht & Puff, 1986; see above). There is widespread consensus on the morphological distinction between *Coffea* and *Psilanthus* (e.g. Robbrecht & Puff, 1986; Bridson, 1987, 1988a, b; Davis, 2003), which is largely based on the works of Leroy (1980a, b) and mainly concerns differences in floral morphology. However, new insights into the characterization of some Madagascan species [mostly in *Coffea* subgen. *Baracoffea* (J.-F. Leroy) J.-F.Leroy, see below] have made the morphological delimitation of *Coffea* much more difficult (Davis *et al*., 2005). According to Davis *et al*. (2005), the differences between *Psilanthus* and *Coffea* can be restricted to floral morphology and pollen alone. *Coffea* has: (1) anther filaments usually longer than 1 mm; (2) anthers submedifixed and (3) emergent or partially emergent; (4) a long style (style lobes positioned near or above anthers); and (5) predominantly three-colporate pollen grains. *Psilanthus* has: (1) anther filaments usually 0–0.5 mm long (except for *P. melanocarpus*); (2) anthers supramedifixed (except *P. melanocarpus*) and (3) included or more or less included; (4) a very short style (style lobes positioned well below anthers); and (5) predominantly four- to five-colporate pollen grains. More detailed explanation of the above characters is given in Davis *et al*. (2005). The corolla tube of *Psilanthus* is usually distinctly long-tubular (always much longer than the corolla lobes), whereas, in *Coffea*, it is short-tubular (shorter to slightly longer than the corolla lobes). However, in *Coffea* subgen. *Baracoffea*, the corolla tubes are of a similar length to those in *Psilanthus*. Most *Psilanthus* species possess sterile appendages at the apex of the filaments (Bridson, 1982: fig. 13e), a character lacking in *Coffea.* These appendages are usually quite short (e.g. *c*. 1 mm long or less), and either pointed or obtuse at the apex. Of the species examined by Davis *et al*. (2005), *P. leroyi*, *P. melanocarpus*, and *P. travancorensis* (Wight & Arn.) J.-F.Leroy lack sterile anther appendages.

Coffea and *Psilanthus* have been the focus of several recent molecular studies using data from various sources, including random amplified polymorphic DNA (RAPD) (Lashermes *et al*., 1993), sequences from plastid DNA (Cros, 1994; Lashermes *et al*., 1996; Cros *et al*., 1998), and internal transcribed spacer (ITS) sequences of nuclear ribosomal DNA (Lashermes *et al*., 1997). At the species level, the studies of Lashermes *et al*. (1997) and Cros *et al*. (1998) provide the most useful data: they were able to separate *Coffea* species into geographical groupings and gain some insight into the relationships between *Coffea* and *Psilanthus*. Lashermes *et al*. (1997) found that one *Psilanthus* species (*P. travancorensis*) was nested within *Coffea*, and that there was limited sequence divergence between *Coffea* and *Psilanthus*, concluding that their ITS data did not support recognition of the two genera. On the basis of *trnL-trnF* sequence data, Cros *et al*. (1998) concurred with Lashermes *et al*. (1997) concerning this close relationship, although their tree topology shows an unresolved relationship between the two species of *Psilanthus* that they sampled (*P. mannii* and *P. ebracteolatus*) and *Coffea*. Cros *et al*.

(1998) and Lashermes *et al*. (1997) did not include representatives of closely related genera in their studies, for example as outgroups, but broader studies of Rubiaceae (Ixoroideae) by Andreasen, Baldwin & Bremer (1999), Andreasen & Bremer (2000: fig. 3), and Davis *et al*. (in press) also infer the paraphyly of *Coffea*. In addition, Couturon, Lashermes & Charrier (1998) have produced a fertile intergeneric hybrid via the crossing of *C. arabica* and *P. ebracteolatus* Hiern, and genetic correspondence is further revealed by recent cytological studies (Lombello & Pinto-Maglio, 2003, 2004). An extensive study on the relationships between *Coffea* and *Psilanthus*, based on sequence data from four plastid regions (*trnL-F* intron, *trnL-F* IGS, *rpl16* intron, and *accD-psa1* IGS) and ITS of nuclear rDNA (ITS 1/ITS 2), and morphology, has recently been undertaken (O. Maurin, A. P. Davis, M. Chester, E. F. Mvungi, M. F. Fay, unpubl. data). They found robust morphological and molecular support for *Coffea* plus *Psilanthus* and low sequence diversity between the two genera, as in other studies (see above), but failed to resolve the issue of paraphyly vs. monophyly for *Coffea*. Clearly then, further critical work is still needed to resolve the problem of generic delimitation, and specifically whether or not *Psilanthus* should be placed within *Coffea*. There are *c*. 18 species of *Psilanthus*; it occurs sporadically throughout the Palaeotropics and reaches northernmost Australia, but is absent from Madagascar and the Mascarenes. *Coffea* is restricted to Africa, Madagascar, and the Mascarenes.

THE GENUS *COFFEA*

In practical terms, *Coffea* species may be recognized by the following combination of characters: lifeform a tree or treelet (a single main trunk), with hard, dense wood, and usually horizontal or near-horizontal branching (plagiotropic branching); inflorescences paired, axillary (initially axillary in *Coffea* subgen. *Baracoffea*; see Davis *et al*., 2005); calyculi present and often conspicuous (see above; Figs 1C, E, 2B, 3C); calyces usually truncate to undulate (Fig. 3C) or weakly lobed (Figs 1D, 2B) and non-accrescent; flowers hermaphrodite; corollas white or rarely light pink; corolla lobes overlapping (contorted) to the left in bud (Figs 1D, 3D); anthers exserted (Fig. 1G) (semi-exserted in *Coffea* subgen. *Baracoffea*; Figs 2C, 3E); style long, exserted (Figs 1G, 2C, and 3A); fruit a berry containing two (rarely one) seeds (Fig. 2E); each seed with a deep groove (invagination) on the flat (ventral) side of the seed ('coffee bean' morphology; Fig. 2E).

In the absence of fruit (i.e. containing the very characteristic 'coffee beans'), *Coffea* resembles several other Rubiaceae genera and is sometimes confused with *Tricalysia*, *Calycosiphonia*, *Argocoffeopsis*, *Belonophora* (all Coffeeae; after Davis *et al*., in press), *Cremaspora* (Cremasporeae), and *Polysphaeria* Hook.f. (Octotropideae). A simple 'spot character' that may be used to distinguish *Coffea* from the other genera is the presence of a reduced (usually rim-like) calyx, which seldom exceeds the disc and is only very rarely obviously lobed (i.e. *C. kapakata*). The other genera listed above generally have well-developed calyces, with a tubular part usually topped by distinct lobes. However, there are some species of *Coffea* that have an undulate or slightly lobed calyx (e.g. see Figs 1D, 2B), and some species of *Argocoffeopsis* have a more or less rim-like calyx [e.g. *A. pulchella* (K.Schum.) Robbr]. A key to African genera confused with *Coffea* is given by Bridson & Verdcourt (2003: 451). *Psilanthus* is not usually confused with *Coffea* because the former has much longer corolla tubes, and most species (except *P. mannii*, *P. sapinii*, and *P. melanocarpus*) have inflorescences that are borne initially in the leaf axils (i.e. paired, axillary) and then become terminal on short shoots (as a result of continued meristematic activity of the inflorescence; for a full explanation, see Davis *et al*., 2005). These morphological characteristics are also found in *Coffea* subgen. *Baracoffea* but, because this subgenus is so rarely encountered (confined to western Madagascar) and has a short flowering season, discrimination between the two genera rarely presents a problem (Davis *et al*., 2005; see also 'Differences between *Coffea* and *Psilanthus*', above). *Coffea* is most commonly confused with *Tricalysia*, a genus that is frequently encountered in forests containing *Coffea* species. Up close the two genera can look very similar, as *Tricalysia* possesses obvious calyculi, has similarly shaped and coloured corollas, with emergent anthers and style, and may have fruits containing two pyrenes. In most cases, however, *Tricalysia* can be separated from *Coffea* by the presence of a long needle-like acumen at the apex of each stipule (triangular or with a short acumen in *Coffea*), and the seed of *Tricalysia* lacks the deep ventral groove found in *Coffea* (and *Psilanthus*). Furthermore, many *Tricalysia* species have a distinctly lobed calyx (see above), and fruit containing several seeds (always two or rarely one in *Coffea*). A succinct overview of *Tricalysia* morphology is given by Robbrecht (1988b).

INFRAGENERIC CLASSIFICATION OF *COFFEA*

The last classification of *Coffea*, as proposed by Chevalier (1947), has four sections, although it is now widely accepted that *Coffea* sect. *Paracoffea* and *Coffea* sect. *Argocoffea* mainly consist of species from other genera (Davis, 2003; see above). Chevalier (1947) placed the African species of *Coffea* in sect. *Eucoffea*, which he further divided into three subsections (subsect. *Eucoffea*,

subsect. *Malanocoffea*, and subsect. *Mozambicoffea*). The Madagascan and Mascarene species were placed in *Coffea* sect. *Mascarocoffea*, which was subdivided into eight series. Summaries of Chevalier's (1947) classification can be found in Charrier & Berthaud (1985: 17–18, tables 2.3, 2.5), Bridson (1988b: 64, table 2.1), Stoffelen, Robbrecht & Smets (1996: 243, table 2), and Stoffelen (1998: 22–23, table 1.8). Elements of Chevalier's classification have been used in recent systematic investigations of *Coffea* (e.g. Charrier, 1978; Lashermes *et al*., 1997; Cros *et al*., 1998), although it should be emphasized that the subgeneric groups proposed by Chevalier (1947) are based on weak morphological characterizations (see Chevalier, 1942: 21–23). Moreover, *Coffea* sect. *Eucoffea* K.Schum. is an illegitimate name and *Coffea* sect. *Mascarocoffea* is invalid, as are all the series and subsections of Chevalier's classification (Chevalier, 1947), because they lack Latin diagnoses (Greuter *et al*., 2000).

A classification of *Coffea* comprising three subgenera was proposed by Leroy (1980a), namely subgen. *Coffea*, subgen. *Baracoffea*, and subgen. *Psilanthopsis* (A.Chev.) J.-F.Leroy (Leroy, 1980a). *Coffea* subgen. *Psilanthopsis*, which is based on a single species [*Psilanthopsis kapakata* A.Chev. (= *C. kapakata* (A.Chev.) Bridson], has not been upheld (Bridson, 1994: 340). The current subgeneric classification comprises two subgenera (Bridson, 1994, 2003; Davis, 2003; Davis *et al*., 2005): *Coffea* subgen. *Coffea* and *Coffea* subgen. *Baracoffea* (see Table 1). Most species of *Coffea* belong to *Coffea* subgen. *Coffea*, including those used for producing the beverage coffee (see above). *Coffea* subgen. *Coffea* occurs throughout the natural range of the genus in Africa, Madagascar, and the Mascarenes. *Coffea* subgen. *Baracoffea* contains only three accepted species (although five remain undescribed; see 'Conspectus' below), and is restricted to the dry forests of western Madagascar. Leroy (1980a) placed *C. rhamnifolia*, a species from Africa (Somalia and Kenya), in *Coffea* subgen. *Baracoffea*, but this was contested by Bridson (2003), Davis (2003), and Davis *et al*. (2005). Molecular data provided by O. Maurin, A. P. Davis, M. Chester, E. F. Mvungi, M. F. Fay (unpubl. data) confirm that this species belongs in *Coffea* subgen. *Coffea*. Species of *Coffea* subgen. *Coffea* possess evergreen (rarely deciduous) leaves, calyculi with relatively small (at most subfoliaceous) foliar lobes (Fig. 1D, E), relatively short, glabrous corolla tubes (Fig. 1D), and axillary inflorescences (Fig. 1A, C), except for *C. rhamnifolia* (which are axillary and then terminal on short shoots; see Davis *et al*., 2005). Species of *Coffea* subgen. *Baracoffea* are deciduous (Fig. 3A), possess calyculi with greatly enlarged foliar lobes (Figs 2A, B, 3C, D) (in most species, only one

Table 1. Outline classification of *Coffea* and *Psilanthus* with synonyms (after Davis, 2003)

Coffea L. Sp. Pl.: 172 (1753)
Coffea subgen. *Coffea* L. *Type: C. arabica* L.
95 species. Africa, Madagascar, Mascarenes
Coffea subgen. *Psilanthopsis* (A.Chev.) J.-F.Leroy, Ass. Sci. Internat. Café, (ASIC) 9th Colloque: 475 (1980). *Psilanthopsis* A.Chev., J. Agric. Trop. Bot. Appl. 19: 404 (1939). *Type: Coffea kapakata* (A.Chev.) Bridson
Paolia Chiov., Result. Sc. Miss. Stenfan. -Paoli Somal. Ital. 1: 93 (1916). *Type: Paolia jasminoides* Chiov. (= *C. rhamnifolia* (Chiov.) Bridson)
Coffea subgen. *Baracoffea* (J.-F.Leroy) J.-F.Leroy, Ass. Sci. Internat. Café (ASIC) 9th Colloque: 475 (1980). *Coffea* sect. *Baracoffea* J.-F.Leroy in Comp. Rend. Acad. Sc. Paris 252: 2287 (1961). *Type: Coffea humbertii* J.-F.Leroy
Eight species (including five as yet unpublished (ined.)). West Madagascar
[*Paracoffea* subgen. *Insulanoparacoffea* J.-F.Leroy, J. Agric. Trop. Bot. Appl. 14: 276 (1967), *nom. nud.*]
Psilanthus Hook.f., Gen. Pl.: 115 (1873)
Psilanthus subgen. *Psilanthus* Hook.f. *Type: Psilanthus mannii* Hook.f.
Two species. Africa (central and western)
Psilanthus subgen. *Afrocoffea* (Moens) Bridson, Kew Bull. 42: 454 (1987). *Coffea* subgen. *Afrocoffea* Moens, Bull. Jard. Bot. Brux. 32: 131 (1962). *Type: Psilanthus lebrunianus* (Germain & Kesler) Bridson
c. 18 species. Africa, Asia, Australasia.
Coffea sect. *Paracoffea*. Miq., Fl. Ind. Batavae: 308 (1856). *Psilanthus* subgen. *Paracoffea* (Miq.) J.-F.Leroy, Ass. Sci. Internat. Café (ASIC) 9th Colloque: 475 (1980). *Type: Coffea horsfieldiana* Miq.
Paracoffea J.-F.Leroy, J. Agric. Trop. Bot. Appl. 14: 276 (1967).
[*Paracoffea* subgen. *Afroparacoffea* J.-F.Leroy, J. Agric. Trop. Bot. Appl. 14: 276 (1967), *nom. nud.*]
[*Paracoffea* subgen. *Melanoparacoffea* J.-F.Leroy, J. Agric. Trop. Bot. Appl. 14: 276 (1967), *nom. nud.*]

foliar lobe is present, which makes the infructescence appear leaf-opposed, e.g. see Fig. 2A), long, often hairy, corolla tubes (Figs 2B, C, 3F), and axillary inflorescences which become terminal on short shoots in their second year (Fig. 3A). A detailed morphological appraisal of the two subgenera is given by Davis *et al*. (2005). Despite these obvious morphological differences, molecular sequence data (O. Maurin, A. P. Davis, M. Chester, E. F. Mvungi, M. F. Fay, unpubl. data) infer that *Coffea* subgen. *Baracoffea* is nested within *Coffea* subgen. *Coffea*, making the latter subgenus paraphyletic; *Coffea* subgen. *Baracoffea* is a well-supported monophyletic group.

METHODS

Database

The checklist is based on a database query from the World Rubiaceae Database [R. Govaerts, unpubl. data; output as the *World Rubiaceae Checklist* (http://www.rbgkew.org.uk/wcsp/rubiaceae)] encompassing 24 fields and complying with the data standards proposed by the Organization for Plant Information (IOPI) (Burnett, 1994), in association with the Taxonomic Database Working Group (TDWG; Brummitt, 2001). The original data for the World Rubiaceae Database was taken from the Index Kewensis database, held at the Royal Botanic Gardens, Kew. Compilation of the database was undertaken using Foxbase, a Dbase-class database program for personal computers.

Conspectus structure

The conspectus is divided into two parts, based on the current subgeneric classification of *Coffea* into two subgenera (see Davis, 2003; Table 1); the names of accepted species and infraspecific taxa are listed alphabetically within each subgenus. For each accepted taxon, synonyms are listed chronologically if heterotypic, with any homotypic synonyms placed directly after the basionym. Basionyms of accepted names are given in the chronological list and marked with an asterisk. Generic and species synonyms for *Coffea* are listed by date order in the conspectus and alphabetically in the synonyms list (see 'Synonyms'). The place and date of publication of all names are given. The citation of authors follows Brummitt & Powell (1992); book abbreviations follow Stafleu & Cowan (1976–88) and Stafleu & Mennega (1992+); periodicals are abbreviated according to Bridson & Smith (1991). Most species hybrids (nothospecies) and other hybrids are not given in the conspectus as they are mostly man-made (e.g. cultivars). *C. arabica* is a notable exception, as it is a well-known allotetraploid ($2n = 4\times = 44$; see under *C. arabica*). It is possible that other naturally occurring species have a hybrid origin, but generally little is known about wild hybrids. Most cultivars and other commercial variants are not included in the conspectus.

The distribution of each taxon is given as a generalized statement in narrative form, and as a geographical code following the international TDWG system (Brummitt, 2001) to TDWG Level-3. Occurrences based on naturalization or introductions are not listed using the TDWG system, although they are given in narrative form.

Names

The enumeration of accepted species and infraspecific taxa is based on relevant, contemporary literature and, in particular, with reference to Bridson (1988a, 1994, 2003), Leroy (1989), and Stoffelen (1998). The accepted names for *Coffea* taxa occurring in Madagascar and the Comoros are based on work in progress (A. Davis & F. Rakotonasolo, unpubl. data). The subgeneric classification of *Coffea* follows that outlined by Davis (2003), which is based on Leroy (1980a, b) and Bridson (1987, 1988b, 1994). Type species and type specimens are listed for all accepted taxa. Proposed types are given for all unpublished names (either in press or in preparation). We have seen all type specimens, unless otherwise stated (*non vidi*, n.v.).

The synonymy includes validly published names, as well as those that are illegitimate and invalidly published (*nomen illegitimum*, nom. illegit.; *nomen invalidum*, nom. invalid.), names only, without any pretence of valid publication (*nomen provisorium*, nom. provis.; *nomen tantum*, nom. tant.), without Latin diagnoses (post-1935; see Greuter *et al*., 2000) (*nomen nudum*, nom. nud.), and those that were cited or published in synonymy or as a synonym (*pro synonymo*, pro syn.). Illegitimate and unpublished names are clearly marked after the place of publication, in roman, using the appropriate abbreviations as given above in parentheses. For unpublished and illegitimate names, we have included only those that have been taken up in the literature or that have persisted in other ways, for example on herbarium sheets and in plant catalogues. We have not included names in obscure or poorly known manuscripts. All names published in *Coffea* are listed in the synonyms list (see 'Synonyms'), with their current placement given, including those species now placed in other genera.

In some of the works by Bridson (1982, 1988a), potential or provisional new species were included in taxonomic treatments using letters of the alphabet (e.g. *C*. sp. A, *C*. sp. B, etc.). Most of these taxonomic entities have now been described as species (Bridson, 1988a, 1994; Davis & Mvungi, 2004), although some have not (see Appendix). These now redundant provisional species indicators have been listed in the

synonymy of the accepted names in the hope that they will be useful, particularly as they may still be in use on herbarium specimens and in living collections. Some of these provisional species remain undescribed, and we have listed these, together with other potential new species, in the Appendix. At the time of going to press, we do not have sufficient data to either describe these species or place them into synonymy. A similar treatment for provisional species was employed by Davis *et al*. (2005), using numbers (e.g. *C*. sp. 1, *C*. sp. 2, etc.); these species are now in the process of being published (see 'Conspectus' and 'Synonyms').

New species that are in the process of being published, either in press or in advanced manuscript stage, have been included in the main body of the checklist and are marked as unpublished (*ineditus*, ined.).

Other data

Information for illustrations, literature, distribution, ecology, and, in some cases, conservation assessments is taken from the literature (see 'References'). Further information for distribution and ecology and most of the data for conservation assessments were taken from two *Coffea* specimen databases: an African and Mascarene database (P. Stoffelen & A. Davis, unpubl. data) containing specimen data from *c*. 2300 herbarium specimens (specimens held at BM, BR, BRLU, COI, DSM, HBG, K, LISC, M, MO, P, UPS, WAG, YA, Z (abbreviations after Holmgren, Holmgren & Barnett, 1990); and a Rubiaceae of Madagascar database (A. Davis, D. Bridson & S. Dawson, unpubl. data) with *c*. 1100 *Coffea* specimen records from Madagascar and the Comoros (specimens held at G, K, MO, P, TAN, TEF, WAG). The literature, illustrations, ecology, conservation, and notes sections in this conspectus are independent of the *World Rubiaceae Checklist* database (R. Govaerts, unpubl. data).

Only illustrations that clearly represent the taxon in question have been included, i.e. those that are of sufficiently high quality and that we have been able to identify with absolute certainty. Taxa lacking either illustrations or literature have these entries missing for their treatments. Ecological data are restricted to general vegetation type and altitude.

The literature has been included on the basis of the quality and usefulness of the data found therein, and which mainly concerns taxonomy, systematics, distribution, and conservation. The works of Chevalier (1929, 1938, 1939, 1942, 1946, 1947) have been comprehensively cited in the conspectus, although caution is needed when using these works. The early works of Chevalier (e.g. Chevalier, 1929) are very different from his later ones (e.g. Chevalier, 1947), and vigilance is needed throughout when reviewing synonymy and the citation of herbarium specimens. In addition, the distribution range of some species is now known to be erroneous.

Conservation assessments were made by approximating the extent of occurrence (EOO), although, for Madagascar, the EOOs have been measured accurately using a Geographical Information System (GIS) (J. Moat, unpubl. data) and applying the criteria set in World Conservation Union (IUCN) Red List Categories (Version 3.1; IUCN, 2001). Taxa with previous IUCN ratings were reassessed and either updated or confirmed, as necessary. The literature citation for previous ratings is included after the conservation assessment, and the reference is given in full in the 'References' section. Only described species or species in press/preparation have been given conservation assessments.

DISCUSSION

In this work, we enumerate 103 species of *Coffea* and seven infraspecific taxa (excluding autonyms), although seven of these names are not yet formally published (marked with ined. in the conspectus). There are 41 species in Africa, 59 in Madagascar, and three in the Mascarenes; no naturally occurring *Coffea* species are found outside of these three areas. In the most recent monograph of *Coffea* by Chevalier (1947), 41 species were recognized, excluding those species now placed in other genera (see above). Our final species count is slightly higher than estimates made more than 20 years ago. For example, according to Bridson (1982), there are 25 species in Africa, with an additional 11 poorly known ones (i.e. 36 species in Africa), and Charrier (1978) lists 56 species for Madagascar and the Mascarenes (92 species in total).

The three main centres of species diversity are Madagascar (mainly in the evergreen, humid forests of eastern Madagascar), Cameroon (14 species), and Tanzania (16 species, mainly in the eastern Arc Mountains; see Davis & Mvungi, 2004). Madagascar has a great variety of forest types, including littoral, evergreen, gallery (riverine), mixed deciduous, dry, xerophytic (including some spiny forest elements), and elfin (high-altitude, mossy forest), and this may go some way to explaining the high species diversity of *Coffea* on this island. *Coffea* species in Africa inhabit a diversity of forest types, but generally most species occur in humid, evergreen forest.

There are no naturally occurring species shared between Africa, Madagascar, and the Mascarenes: each area has 100% endemicity for its *Coffea* species. There are some widespread species in Africa, such as *C. liberica* and *C. canephora*, but most *Coffea* species have a rather restricted distribution, and there are a large number of narrow endemics. Species with a

rheophytic habitat or those which occur in gallery/riverine forest, such as *C. congensis* and *C. perrieri*, tend to have larger distributions than closely related species (O. Maurin, A. P. Davis, M. Chester, E. F. Mvungi, M. F. Fay, unpubl. data) not associated with riverine vegetation. *Coffea congensis* is rather widespread throughout west-central Africa, and *C. perrieri* is the most widely distributed species in Madagascar. Based on the observation that most *Coffea* species have rather narrow distribution ranges, it seems likely that the natural distribution of *C. canephora* and *C. liberica* (both beverage species) would have far smaller ranges were it not for introduction and naturalization blurring the boundaries between indigenous and non-indigenous distributions.

The narrow distribution of species is cause for concern in regions in which the quality and quantity of habitat are in obvious decline. Of the 103 accepted species listed in this work, 72 (69.9%) are 'Threatened' with extinction [threat categories: Critically Endangered (CR), Endangered (EN), Vulnerable (VU); IUCN, 2001]. In the 'Threatened' categories, 14 species (13.6%) are CR, 35 species (33.9%) are EN, and 23 species (24.2%) are VU. In the other IUCN (2001) categories, 13 species (13.7%) are Near Threatened (NT), 14 species (14.7%) are Least Concern (LC), one species (1%) is Data Deficient (DD), and two (2.1%) are Not Evaluated (NE). So far, we know of no extinct *Coffea* species, although during field studies we have not been able to locate material of *C. fragilis* (A. Davis & F. Rakotonasolo, pers. observ.), and *C. heterocalyx* could be on the verge of extinction (A. Davis & O. Maurin, pers. observ.).

Our estimates of extinction threat are very worrying, particularly as there is no tangible, co-ordinated strategy for the *in situ* and *ex situ* conservation of *Coffea* genetic resources (see Dulloo *et al*., 1998). Many important *ex situ* field genebank collections holding wild species of *Coffea* are in decline and/or facing financial difficulties, for example in FOFIFA Coffee Research Station at Kianjavato, Madagascar (A. Davis, pers. observ.) and the ORSTOM/IDEFOR *Coffea* germplasm collection at Divo, Côte d'Ivoire (E. Dulloo, pers. comm.). Even though there are quite a number of field genebank collections for the commercially important species, *C. arabica*, *C. canephora*, and *C. liberica* (see Dulloo *et al*., 1998: 569), the amount of genetic diversity held within collections is limited and has inherent disadvantages when compared with *in situ* genetic reserves (Dulloo *et al*., 1998: 566). In addition, the genetic diversity of many *Coffea* cultivars, including wild-derived cultivars, is lower than that of wild-sourced plants (Anthony *et al*., 2002).

The problems facing *ex situ* conservation are compounded by the fact that *Coffea* species have recalcitrant or intermediate seed storage behaviour, although many species have not been studied in this respect (Dulloo *et al*., 1998). Other forms of *ex situ* storage, such as *in vitro* slow growth and cryopreservation, are possible (Dulloo *et al*., 1998), but much more research and resources are needed before these are adopted as alternative strategies to conventional seed storage. One of the disadvantages of *in vitro* slow growth and cryopreservation is that they are expensive, especially compared with seed banks.

In situ conservation of *Coffea* genetic resources seems to be almost non-existent; there are no genetic reserves set up specifically for the conservation of wild *Coffea* species (Dulloo *et al*., 1998), for example. Part of the problem, at least, seems to be that most managers and decision makers are unaware of the *Coffea* resources that occur in their region, both within and outside protected areas.

For *in situ* and *ex situ* conservation, the narrowly endemic *Coffea* species occurring in Madagascar, the Mascarenes, Tanzania, and in other parts of eastern Africa are of most concern, especially those that fall outside protected areas (e.g. reserves and national parks).

It is our intention that this conspectus will serve as a baseline resource for the *in situ* and *ex situ* conservation of *Coffea*. In Table 2, we have given a list of 'Threatened' species as placed within the IUCN Red List Categories system (IUCN, 2001). The CE and EN listings may serve as a first attempt at producing a list of conservation priority species for *Coffea*. In addition, regional *Coffea* checklists, e.g. country lists, can be produced using the *World Rubiaceae Checklist* (http://www.rbgkew.org.uk/wcsp/rubiaceae). The three beverage-producing species, and particularly *C. arabica*, may be of more immediate concern for conservation owing to the staggering commercial and social importance of cultivated coffee (e.g. Vega, Rosenquiest & Collins, 2003).

AN ANNOTATED TAXONOMIC CONSPECTUS OF THE GENUS *COFFEA*

COFFEA L., SP. PL.: 172 (1753). TYPE: *COFFEA ARABICA* L.

Cafe Adans., Fam. Pl. 2: 500 (1763).
Cafea Adans., Fam. Pl. 2: 145 (1763).
Hexepta Raf., Sylva Tellur.: 164 (1838).
Leiochilus Hook.f. in G.Bentham & J.D.Hooker, Gen. Pl. 2: 116 (1873).
Pleurocoffea Baill., Bull. Mens. Soc. Linn. Paris 1: 270 (1880).
Solenixora Baill., Bull. Mens. Soc. Linn. Paris 1: 242 (1880).
Buseria T.Durand, Index Gen. Phan.: 501 (1888).
Paolia Chiov., Result. Sci. Miss. Stefan.-Paoli Somal. Ital. 1: 93 (1916).

Table 2. *Coffea* species and their placement within the World Conservation Union (IUCN) Red List Categories system (IUCN, 2001)

Critically Endangered (CR)
- Africa
  - *Coffea anthonyi* Stoff. & F.Anthony, ined.
  - *Coffea charrieriana* Stoff. & F.Anthony, ined.
  - *Coffea fotsoana* Stoff. & Sonké
  - *Coffea heterocalyx* Stoff.
  - *Coffea kihansiensis* A.P.Davis & Mvungi
  - *Coffea kimbozensis* Bridson
  - *Coffea lulandoensis* Bridson
- Madagascar
  - *Coffea andrambovatensis* J.-F.Leroy
  - *Coffea boinensis* A.P.Davis & Rakotonas., ined.
  - *Coffea gallienii* Dubard
  - *Coffea littoralis* A.P.Davis & Rakotonas.
  - *Coffea montis-sacri* A.P.Davis
  - *Coffea pterocarpa* A.P.Davis & Rakotonas., ined.
  - *Coffea rakotonasoloi* A.P.Davis

Endangered (EN)
- Africa
  - *Coffea bakossii* Cheek & Bridson
  - *Coffea bridsoniae* A.P.Davis & Mvungi
  - *Coffea carrissoi* A.Chev.
  - *Coffea leonimontana* Stoff.
  - *Coffea mapiana* Sonké, Nguembou & A.P.Davis
  - *Coffea pocsii* Bridson
- Madagascar
  - *Coffea abbayesii* J.-F.Leroy
  - *Coffea alleizettii* Dubard
  - *Coffea ambanjensis* J.-F.Leroy
  - *Coffea ambongensis* J.-F.Leroy ex A.P.Davis & Rakotonas., ined.
  - *Coffea ankaranensis* J.-F.Leroy ex A.P.Davis & Rakotonas.
  - *Coffea augagneurii* Dubard
  - *Coffea betamponensis* Portères & J.-F.Leroy
  - *Coffea bonnieri* Dubard
  - *Coffea commersoniana* (Baill.) A.Chev.
  - *Coffea decaryana* J.-F.Leroy
  - *Coffea humbertii* J.-F.Leroy
  - *Coffea humblotiana* Baill.
  - *Coffea jumellei* J.-F.Leroy
  - *Coffea kianjavatensis* J.-F.Leroy
  - *Coffea labatii* A.P.Davis & Rakotonas., ined.
  - *Coffea liaudii* J.-F.Leroy ex A.P.Davis
  - *Coffea manombensis* A.P.Davis
  - *Coffea mcphersonii* A.P.Davis & Rakotonas.
  - *Coffea mogenetii* Dubard
  - *Coffea moratii* J.-F.Leroy ex A.P.Davis & Rakotonas.
  - *Coffea ratsimamangae* J.-F.Leroy ex A.P.Davis & Rakotonas.
  - *Coffea sahafaryensis* J.-F.Leroy
  - *Coffea sambavensis* J.-F.Leroy ex A.P.Davis & Rakotonas.
  - *Coffea tsirananae* J.-F.Leroy
  - *Coffea vatovavyensis* J.-F.Leroy
  - *Coffea vavateninensis* J.-F.Leroy
  - *Coffea vianneyi* J.-F.Leroy
  - *Coffea vohemarensis* A.P.Davis & Rakotonas.
- Mascarenes
  - *Coffea myrtifolia* (A.Rich. ex DC.) J.-F.Leroy

Vulnerable (VU)
- Africa
  - *Coffea arabica* L.
  - *Coffea costatifructa* Bridson
  - *Coffea dactylifera* Robbr. & Stoff.
  - *Coffea fadenii* Bridson
  - *Coffea kapakata* (A.Chev.) Bridson
  - *Coffea kivuensis* Lebrun
  - *Coffea ligustroides* S.Moore
  - *Coffea mongensis* Bridson
  - *Coffea montekupensis* Stoff.
  - *Coffea pseudozanguebariae* Bridson
  - *Coffea schliebenii* Bridson
  - *Coffea togoensis* A.Chev.
  - *Coffea zanguebariae* Lour.
- Madagascar
  - *Coffea bertrandii* A.Chev.
  - *Coffea coursiana* J.-F.Leroy
  - *Coffea farafanganensis* J.-F.Leroy
  - *Coffea heimii* J.-F.Leroy
  - *Coffea mangoroensis* Portères
  - *Coffea pervilleana* (Baill.) Drake
  - *Coffea sakarahae* J.-F.Leroy
  - *Coffea tetragona* Jum. & H.Perrier
- Mascarenes
  - *Coffea macrocarpa* A.Rich.
  - *Coffea mauritiana* Lam.

Near Threatened (NT)
- Africa
  - *Coffea humilis* A.Chev.
  - *Coffea magnistipula* Stoff. & Robbr.
  - *Coffea racemosa* Lour.
  - *Coffea rhamnifolia* (Chiov.) Bridson
  - *Coffea salvatrix* Swynn. & Philipson
  - *Coffea sessiliflora* Bridson
- Madagascar
  - *Coffea arenesiana* J.-F.Leroy
  - *Coffea boiviniana* (Baill.) Drake
  - *Coffea buxifolia* A.Chev.
  - *Coffea lancifolia* A.Chev.
  - *Coffea leroyi* A.P.Davis
  - *Coffea resinosa* (Hook.f.) Radlk.
  - *Coffea richardii* J.-F.Leroy

Least Concern (LC)
- Africa
  - *Coffea brevipes* Hiern
  - *Coffea canephora* Pierre ex A.Froehner
  - *Coffea congensis* A.Froehner
  - *Coffea eugenioides* S.Moore
  - *Coffea liberica* Bull. ex Hiern
  - *Coffea mayombensis* A.Chev.
  - *Coffea mufindiensis* Hutch. ex Bridson
  - *Coffea stenophylla* G.Don
- Madagascar
  - *Coffea dubardii* Jum.
  - *Coffea grevei* Drake ex A.Chev.
  - *Coffea homollei* J.-F.Leroy
  - *Coffea millotii* J.-F.Leroy
  - *Coffea perrieri* Drake ex Jum. & H.Perrier
  - *Coffea tricalysioides* J.-F.Leroy

Data Deficient (DD)
- Madagascar
  - *Coffea bissetiae* A.P.Davis & Rakotonas., ined.
  - *Coffea minutiflora* A.P.Davis & Rakotonas.

Not Evaluated (NE)
- Africa
  - *Coffea affinis* De Wild.
- Madagascar
  - *Coffea fragilis* J.-F.Leroy

Psilanthopsis A.Chev., Rev. Bot. Appl. Agric. Trop. 19: 403 (1939).
Nescidia A.Rich. ex DC., Prodr. 4: 477 (Sept. 1830).

Distribution: Tropical Africa, Madagascar (including the Comoros), and the Mascarenes. TDWG: 22; 23; 24; 25; 26; 27; 29.

Number of species: 103.

COFFEA SUBGEN. *COFFEA*

Coffea subgen. *Psilanthopsis* (A.Chev.) J.-F.Leroy, Ass. Sci. Internat. Café (ASIC) 9th Colloque: 475 (1980). *Psilanthopsis* A.Chev., J. Agric. Trop. Bot. Appl. 19: 404 (1939).

Distribution: Tropical Africa, Madagascar (including the Comoros), and the Mascarenes. TDWG: 22; 23; 24; 25; 26; 27; 29.

Number of species: 95.

Coffea abbayesii J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **8:** 18 (1961). *Type:* South-east Madagascar, *Abbeyes 3198 (holotype* P*).*

Illustration: Leroy (1961a, pl. 4).

Literature: Charrier (1978: 91).

Distribution: South-east Madagascar (Parc National d'Andohahela). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 320–500 m.

Conservation assessment: EN B1ab(iii).

Coffea affinis De Wild., *Agric. Prat. Pays Chauds* **4:** 113 (1904). *Type:* Sierra Leone (cultivated in Guinea), *Dybowski s.n. (holotype* P*).*
Coffea stenophylla var. *camaya* Portères, Ann. Agric. Afr. Occ. **1(2):** 252 (1937).

Illustrations: De Wildeman (1906b: pl. 61 [photo]).

Literature: Chevalier (1947: 210); Cramer (1957: 136); Keay (1963: 156); Stoffelen (1998: 121).

Distribution: West Tropical Africa (Guinea, Ivory Coast, Sierra Leone). TDWG: 22 GUI, IVO, SIE.

Ecology: Very poorly known: a species of humid, evergreen forest (see *C. stenophylla* and note below).

Conservation assessment: NE.

Notes: Morphological studies infer that *C. affinis* is intermediate between *C. liberica* and *C. stenophylla*, and it may well be hybrid between these species (Chevalier, 1947; Stoffelen, 1998; F. Anthony, pers. comm.). *C. affinis* is a poorly known species and is tentatively included here.

Coffea alleizettii Dubard, *Bull. Mus. Natl. Hist. Nat.* **13:** 280 (1907). *Type:* Central Madagascar, *Alleizette s.n. (holotype* P*).*

Illustration: Chevalier (1942: pl. 89).

Literature: Chevalier (1947: 150).

Distribution: Central Madagascar (Anjozorobé). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; *c.* 1200 m.

Conservation assessment: EN B1ab(iii).

Notes: C. alleizettii is only known from five specimens, and has not been collected since 1962 (*Leroy 101* & *102* (P)). Further field work is required to ascertain whether this species is extant.

Coffea ambanjensis J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **8:** 16 (1961). *Type:* North-west Madagascar, *collector anonymous, 7573-SF (holotype* P*; isotypes* BR, K, P, MO, TEF*).*

Distribution: North-west Madagascar (Sambirano Region). TDWG: 29 MDG.

Ecology: Seasonally dry, humid, evergreen forest (Sambirano vegetation); *c.* 350 m.

Conservation assessment: EN B1ab(iii).

Coffea ambongensis J.-F.Leroy ex A.P.Davis & Rakotonas., ined. – see *Coffea* subgen. *Baracoffea*

Coffea andrambovatensis J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **9:** 528 (1962). *Type:* East Madagascar, *collector anonymous, 6513-SF (holotype* P*; isotypes* K, TEF*).*

Distribution: East Madagascar (Andrambovato). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; *c.* 400 m.

Conservation assessment: CR B1ab(iii).

Coffea anthonyi Stoff. & F.Anthony, ined. *Proposed type specimen:* South Cameroon, *Anthony F. 20 (holotype* BR*).*

[*Coffea 'Dja Mékas'* nom. provis. Stoff., Coff. & Psil. Trop. Africa: 125 (1998); Stoff., Syst. Geogr. Pl. 69: 122 (1999); Stoff. & Sonké, Adansonia, sér. 3, 26: 157 (2004).]
[*Coffea 'sp. Moloundou'* et '*Moloundou*' nom. provis., F.Anthony, ORSTOM, sér. TDM 81: 46, 192–194 (1992); et auct. div.]

Literature: Lashermes *et al*. (1997: 948–954 [as *C.* Mouloundou]); Stoffelen (1998: 125 [as *C.* sp. 'Mouloundou']).

Distribution: West-central Tropical Africa (south Cameroon, north-west Congo). TDWG: 23 CMN (ZAI).

Ecology: Humid, evergreen forest; 350–650(–900) m.

Conservation assessment: CR B1ab(iii).

Notes: Coffea anthonyi ined. is self-compatible, which is very rare in *Coffea* and so far only reported in the allotetraploid *C. arabica* (Carvalho *et al*., 1991) and the diploid *C. heterocalyx* (Coulibaly *et al*., 2002).

Coffea ankaranensis J.-F.Leroy ex A.P.Davis & Rakotonas., *Adansonia, sér 3,* **23:** 339 (2001). *Type:* North Madagascar, *Capuron 23166-SF (holotype* P*; isotypes* BR, P, K, MO, TEF*).*

Illustration: Davis & Rakotonasolo (2001b: 341, fig. 1).

Distribution: North Madagascar. TDWG: 29 MDG.

Ecology: Seasonally dry forest, either deciduous or mixed deciduous–evergreen forest, including forest on tsingy (karst type) limestone; 200–600 m.

Conservation assessment: EN B1ab(i,ii,iii,iv,v). IUCN (2001), assessed by Davis & Rakotonasolo (2001b: 339).

Coffea arabica L., *Sp. Pl. 172* (1753). *Type:* origin unknown (cultivated in the Netherlands), *Hort. Cliff. s.n. (holotype* BM*)*
Coffea vulgaris Moench, Methodus: 504 (1794).
Coffea laurifolia Salisb., Prodr. Stirp. Chap. Allerton: 62 (1796).
Coffea corymbulosa Bertol., Fl. Guatimal. 10 (1840).
Coffea moka Heynh., Nom. Bot. Hort. 2: 153 (1846).
Coffea sundana Miq., Fl. Ned. Ind. 2: 306 (1857). *Coffea arabica* var. *sundana* (Miq.) A.Chev., Encycl. Biol. 28: 204 (1947), nom. inval.
Coffea arabica var. *laurina* Laness., Pl. Utiles Colon. Fr. 42 (1886).
Coffea arabica var. *polysperma* Burck, Ann. Jard. Bot. Buitenzorg 4: 52 (1890).
Coffea arabica var. *amarella* A.Froehner, Bot. Jahrb. Syst. 25: 263 (1898).
Coffea arabica var. *straminea* Miq. ex A.Froehner, Bot. Jahrb. Syst. 25: 263 (1898).
Coffea arabica var. *maragogype* A.Froehner, Bot. Jahrb. Syst. 25: 263 (1898).
Coffea arabica var. *angustifolia* Cramer, Teysmannia 18: 224 (1907).
Coffea arabica var. *rotundifolia* Ottol. ex Cramer, Teysmannia 18: 225 (1907).
Coffea arabica var. *murta* Lalière, Le Café l'Etat Saint-Paul: 40 (1909).
Coffea bourbonica Pharm. ex Wehmer, Pfl.-Stoffe: 734 (1911), nom. nud.
Coffea arabica var. *bullata* Cramer, Meded. Dept. Landb. Ned.-Indië 11: 210 (1913).
Coffea arabica var. *columnaris* Ottol. ex Cramer, Meded. Dept. Landb. Ned.-Indië 11: 262 (1913).
Coffea arabica var. *erecta* Ottol. ex Cramer, Meded. Dept. Landb. Ned.-Indië 11: 201 (1913).
Coffea arabica var. *mokka* Cramer, Meded. Dept. Landb. Ned.-Indië 11: 154 (1913).
Coffea arabica var. *monosperma* Ottol. & Cramer, Meded. Dept. Landb. Ned.-Indië 11: 186 (1913).
Coffea arabica var. *pendula* Cramer, Meded. Dept. Landb. Ned.-Indië 11: 251 (1913).
Coffea arabica var. *purpurascens* Cramer, Meded. Dept. Landb. Ned.-Indië 11: 201 (1913).
Coffea arabica var. *typica* Cramer, Meded. Dept. Landb. Ned.-Indië 11: 126 (1913), nom. inval.
Coffea arabica var. *variegata* Ottol. ex Cramer, Meded. Dept. Landb. Ned.-Indië 11: 209 (1913).
Coffea arabica var. *bourbon* Rodr. ex Choussy, El Café: page no. unknown (1928).
Coffea arabica var. *brevistipulata* Cif., Agric. Colon. 31: 521 (1937).
Coffea arabica var. *longistipulata* Cif., Agric. Colon. 31: 521 (1937).
Coffea arabica var. *pubescens* Cif., Agric. Colon. 31: 521 (1937).
Coffea arabica f. *abyssinica* A.Chev., Encycl. Biol. 22: 29 (1942), nom. nud.
Coffea arabica var. *culta* A.Chev., Encycl. Biol. 22: 30 (1942), nom. nud.
Coffea arabica var. *cultoides* A.Chev., Encycl. Biol. 22: 30 (1942), nom. nud.
Coffea arabica var. *latifolia* A.Chev., Encycl. Biol. 22: 30 (1942), nom. nud.
Coffea arabica var. *abyssinica* A.Chev., Encycl. Biol. 23: 198 (1947).
Coffea arabica var. *culta* A.Chev., Encycl. Biol. 23: 199 (1947).
Coffea arabica var. *cultoides* A.Chev., Encycl. Biol. 23: 199 (1947).

Coffea arabica var. *latifolia* A.Chev., Encycl. Biol. 23: 200 (1947).
Coffea arabica var. *myrtifolia* A.Chev., Encycl. Biol. 23: 203 (1947), nom. inval.

Illustration: Wrigley (1988: 70, fig. 2.1).

Literature: Chevalier (1929: 71); Krug, Mendes & Carvalho (1939: 16); Chevalier (1947: 196); Cramer (1957: 136); Bridson (1988a: 712); Wrigley (1988: 69); Bridson (2003: 453); Stoffelen (1998: 71).

Distribution: North-east Tropical Africa [south-west Ethiopia (west of the Great Rift Valley), south-east Sudan (Boma Plateau)]; east Tropical Africa [Kenya (Mt. Marsibit)]. Naturalized in Tropical Africa and other tropical areas (not listed here). TDWG: 24 ETH, SUD; 25 KEN.

Ecology: Humid, evergreen forest; (950–)1200–1950 m.

Conservation assessment: VU B1ab(iii).

Notes: Coffea arabica (arabica coffee) provides more than 95% of the world's coffee, and is one of the world's most important commodities (Vega *et al*., 2003). It is the only allotetraploid ($2n = 4\times = 44$) *Coffea* species and is the only other autogamous species apart from *C. heterocalyx* and *C. anthonyi* Stoff. & F.Anthony ined. (see above). Nevertheless, in cultivation, spontaneous interspecific hybrids have been reported (e.g. Lashermes *et al*., 2000), and this species can be crossed with most other diploid ($2n = 22$) species.

The genetic variability within cultivated *C. arabica* coffee is much lower than in the wild populations, as demonstrated by Anthony *et al*. (2002). All the cultivars of *C. arabica* are derived from earlier introductions in Yemen (Wellman, 1961; Anthony *et al*., 2002), which were already genetically less diverse. The genetic variability of the wild Ethiopian populations is still considerable, but this is threatened in some cases by the cultivation of high-yielding varieties close to the wild populations (e.g. on Mount Marsibit; R. Faden, pers. comm.). Considerable research effort is underway to determine the genetic diversity and precise extinction threat to wild coffee populations, particularly in Ethiopia (W. G. Taddesse, pers. comm.). We have given the extinction threat of *C. arabica* as VU (IUCN, 2001) based on an estimate of a population size (EOO) of less than 20 000 km^2, severely fragmented populations, and inferred continuing decline in the area, extent, and quality of habitat (see IUCN, 2001). In many tropical and subtropical regions, *C. arabica* has been introduced and has become naturalized. In some places, such as the Society Islands (French Polynesia) and north-east Queensland (Australia), *C. arabica* has become a troublesome invasive alien.

Numerous botanical varieties of *C. arabica* have been published, and we have attempted to include the better known synonyms, including many that are not validly published. The list of illegitimate and invalid varieties is not exhaustive, however, and there are some lesser known names that we have not included (e.g. in Krug *et al*., 1939).

Coffea arenesiana J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **8:** 14 (1961). *Type:* East Madagascar, *collector anonymous, 6513-SF (holotype* P*; isotypes* P, TEF*).*

Distribution: East Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 1000–1200 m.

Conservation assessment: NT.

Coffea augagneurii Dubard, *Agric. Prat. Pays Chauds* **6:** 519 (1906). *Type:* North Madagascar, *Mogenet 4 (holotype* P, n.v.*).*
Coffea diversifolia Jum., Ann. Mus. Colon. Marseille 1(4): 12 (1933).
Coffea bonnieri var. *diversifolia* (Jum.) A.Chev., Rev. Bot. Appl. Agric. Trop. 18: 834 (1938).

Illustrations: Chevalier (1942: pl. 86, 87 [as *Coffea bonnieri* var. *diversifolia*]); Leroy (1972b: 348, fig. 1).

Literature: Chevalier (1947: 155); Leroy (1972b: 348); Charrier (1978: 103).

Distribution: North Madagascar (almost exclusively confined to Montagne d'Ambre). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; (200–)500–800 m.

Conservation assessment: EN B1ab(iii).

Coffea bakossii Cheek & Bridson, *Kew Bull.* **57:** 676 (2002). *Type:* West Cameroon, *Etuge 4172 (holotype* K*; isotype* YA*).*

Illustration: Cheek *et al*. (2002: 678, fig. 1).

Distribution: West Cameroon (Mt. Kupe and Bakossi Mountains). TDWG: 23 CMN.

Ecology: Humid, evergreen rainforest; 700–900 m.

Conservation assessment: EN B2ab(iii). IUCN (2001), assessed by C. Hilton-Taylor & C. M. Pollock in 2004. (IUCN, 2004). VU B1ab(iii). IUCN (2001), assessed by

Cheek *et al*. (2002: 677). Note: we concur with the assessment by C. Hilton-Taylor & C. M. Pollock; this species is presently known from three low-altitude locations.

Notes: Coffea bakossii grows sympatrically with *C. montekupensis* and *C. liberica* and it is possible that it represents a spontaneous hybrid between these species.

Coffea bertrandii A.Chev., *Rev. Bot. Appl. Agric. Trop.* **17:** 824 (1937). *Type:* South Madagascar, *François s.n. (holotype* P*; isotype* P*).*

Illustrations: Chevalier (1942: pl. 80 & 81); Leroy (1962: pl. 5 [lower; photo]).

Literature: Chevalier (1947: 148); Leroy (1961c: 537); Charrier (1978: 88, pl. 5g [photo]).

Distribution: South Madagascar [Taolanaro (Fort Dauphin) region]. TDWG: 29 MDG.

Ecology: Transitional forest (transition between humid, evergreen forest and xerophytic, spiny forest), seasonally dry, containing evergreen and deciduous species; 100–300 m.

Conservation assessment: VU B1ab(iii).

Coffea betamponensis Portères & J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **9:** 201 (1962). *Type:* East Madagascar, *Portères & Foury 70 (holotype* P*).*

Distribution: East Madagascar (Réserve Naturelle Intégrale Betampona). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 200–400 m.

Conservation assessment: EN B1ab(iii).

Coffea bissetiae A.P.Davis & Rakotonas., ined. – see *Coffea* subgen. *Baracoffea*

Coffea boinensis A.P.Davis & Rakotonas., ined. – see *Coffea* subgen. *Baracoffea*

Coffea boiviniana (Baill.) Drake in Grandid., *Hist. Phys. Madagascar* **36***(6, Atlas 4):* pl. 415b (1897). *Type:* North Madagascar, *Boivin 2418 (holotype* P*).*
Capirona boiviniana Baill., Bull. Mens. Soc. Linn. Paris 1: 270 (1880), sphalm.
**Pleurocoffea boiviniana* Baill., Bull. Mens. Soc. Linn. Paris 1: 270 (1880).

Illustrations: Grandidier (1897: pl. 415b [as *Pleurocoffea boiviniana*]); Chevalier (1942: pl. 82).

Literature: Chevalier (1947: 152); Charrier (1978: 103).

Distribution: North Madagascar. TDWG: 29 MDG.

Ecology: Mixed deciduous–evergreen forest, or deciduous forest, and sometimes in mostly evergreen forest, all forest types seasonally dry, including deciduous forest on tsingy (karst-type) limestone and sometimes in littoral forest; 50–400 m.

Conservation assessment: NT.

ssp. **boiviniana**

Distribution: North Madagascar. TDWG: 29 MDG.

Conservation assessment: NT.

ssp. **drakei** J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **9:** 529 (1962). *Type:* North-west Madagascar, *Randrianiera 9707-RN (holotype* P*; isotype* TEF*).*

Distribution: North-west Madagascar. TDWG: 29 MDG.

Conservation assessment: VU B1ab(iii).

Coffea bonnieri Dubard, *Agric. Prat. Pays Chauds* **5:** 96 (1905). *Type:* North Madagascar, *Mogenet 3 (holotype* P*).*
Coffea bonnieri ssp. *androrangae* J.-F.Leroy, J. Agric. Trop. Bot. Appl. 9: 529 (1962).

Literature: Chevalier (1947: 156).

Illustrations: Dubard (1905: 96, fig. 2); Chevalier (1942: pl. 87).

Distribution: North Madagascar (Montagne d'Ambre and Mont Anjenabe). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 600–1100 m.

Conservation assessment: EN B1ab(iii).

Coffea brevipes Hiern, *Trans. Linn. Soc. London, Bot.* **1:** 172 (1876). *Type:* West Cameroon, *Mann 2158 (holotype* K; *isotypes* BM, P*).*
Coffea staudtii A.Froehner, Notizbl. Bot. Gart. Berlin-Dahlem 1: 236 (1897).

Coffea montana K.Schum. ex De Wild., Ann. Jard. Bot. Buitenzorg, Suppl. 3: 376 (1909).
Coffea brevidens De Wild., Ann. Jard. Bot. Buitenzorg, Suppl. 3: 367 (1909), orth. var.

Illustrations: Chevalier (1942: pl. 53); Stoffelen *et al*. (1997a: 73, fig. 1a, b, c [given as *Coffea leonimontana*]; Stoffelen (1998: 153, fig. 2.31a, b, c [given as *Coffea leonimontana*].

Literature: Lebrun (1941: 147); Chevalier (1947: 166); Keay (1963: 156); Stoffelen (1998: 74).

Distribution: West-central Tropical Africa (south Cameroon, Congo, Democratic Republic of Congo, Gabon). TDWG: 23 CMN, CON, GAB, ZAI.

Ecology: Humid, evergreen forest; (80–)200–1450 m.

Conservation assessment: LC.

Notes: A rather widespread species often confused with other *Coffea* species in west-central Tropical Africa. It can be easily recognized because the calyculi entirely conceal the hypanthium and calyx when this species is in flower; the calyculus is persistent and conceals the base of the mature fruit.

Coffea bridsoniae A.P.Davis & Mvungi, *Bot. J. Linn. Soc.* **146:** 238 (2004). *Type:* North-east Tanzania, *Davis, Hall & Ntemi 2904 (holotype* K; *isotypes* EA, BR, NHT, MO*).*
[*Coffea 'sp. B'* Bridson, Kew Bull. 36: 841 (1982); Bridson, Fl. Trop. East Africa, Rubiaceae part 2: 717 (1988).]

Illustrations: Bridson (1982: 837, fig. 5(a–e) [as *Coffea* sp. B]); Davis & Mvungi (2004: 239, fig. 1).

Distribution: North-east Tanzania (East Usumbara Mountains). TDWG: 25 TAN.

Ecology: Humid, evergreen forest; 250–450 m.

Conservation assessment: EN B1ab(i,ii,ii,iv,v). IUCN (2001), assessed by Davis & Mvungi (2004: 238).

Coffea buxifolia A.Chev., *Caféiers du Globe* **1:** 106 (1929). *Type:* Central Madagascar, *Perrier de la Bâthie 18494 (holotype* P*).*

Illustration: Chevalier (1942: pl. 83).

Literature: Chevalier (1929: 106); Chevalier (1947: 153); Charrier (1978: 103).

Distribution: Central Madagascar (Central Highlands). TDWG: 29 MDG.

Ecology: Humid, evergreen forest, including humid sclerophyllous forest; (1250–)1400–2000 m.

Conservation assessment: NT.

Coffea canephora Pierre ex A.Froehner, *Notizbl. Bot. Gart. Berlin-Dahlem* **1:** 237 (1897). *Type:* Gabon, *Klaine in Pierre 247 (holotype* P*).*
Coffea arabica var. *stuhlmannii* A.Froehner, Bot. Jahrb. Syst. 25: 263 (1898). *Coffea canephora* var. *stuhlmannii* (A.Froehner) A.Chev., Encycl. Biol. 22: t. 35 (1942).
Coffea laurentii De Wild. Compt. Rend. Congr. Intern. Bot. 1900: 234 (1900). *Coffea canephora* var. *laurentii* (De Wild.) A.Chev., Encycl. Biol. 22: pl. 29 (1942).
Coffea robusta L.Linden, Cat. Pl. Econ. 11 & 64 (1900). *Coffea canephora* subvar. *robusta* (L.Linden) A.Chev., Encycl. Biol. 28: 191 (1947).
Coffea canephora var. *hiernii* Pierre ex De Wild., Caféiers: 20 (1901).
Coffea canephora var. *hinaultii* Pierre ex De Wild., Caféiers: 21 (1901).
Coffea canephora var. *kouilouensis* De Wild., Caféiers: 21 (1901). *Coffea canephora* var. *nganda* Haarer, Modern Coffee Prod. 19, 20 (1962), nom. inval.
Coffea canephora var. *muniensis* Pierre ex De Wild., Caféiers: 23 (1901).
Coffea canephora var. *oligoneura* Pierre ex De Wild., Caféiers: 23 (1901).
Coffea canephora var. *trillesii* De Wild., Caféiers: 24 (1901).
Coffea canephora var. *wildemanii* Pierre ex De Wild., Caféiers: 25 (1901).
Coffea welwitschii Pierre ex De Wild., Caféiers: 19 (1901). *Coffea canephora* var. *welwitschii* (Pierre ex De Wild.) A. Chev., Rev. Bot. Appl. Agric. Trop. 19: 336 (1939). *Coffea canephora* var. *opaca* Pierre ex De Wild., Agric. Prat. Pays Chauds 4: 117 (1904).
Coffea maclaudii A.Chev., Compt. Rend. Hebd. Séances Acad. Sci. 140: 1474 (1905). C*offea canephora* var. *maclaudii* (A.Chev.) A.Chev., Encycl. Biol. 22: t. 34 (1942).
Coffea canephora f. *sankuruensis* De Wild., Miss. Ém. Laurent 1: 330 (1906). *Coffea canephora* var. *sankuruensis* (De Wild.) De Wild., Ann. Jard. Bot. Buitenzorg, suppl. 3(1): 369 (1910).
Coffea canephora var. *crassifolia* Lautent ex De Wild., Miss. Ém. Laurent 1: 333 (1906).
Coffea bukobensis A.Zimm., Pflanzer 4: 326 (1908).
Coffea ugandae Cramer, Meded. Dept. Landb. Ned.-Indië 11: 680 (1913). *Coffea canephora* var. *ugandae* (Cramer) A.Chev., Encycl. Biol. 22: t. 36 (1942).

Coffea quillon Wester, Philipp. Agric. Rev. 9: 121 (1916), nom. nud.
Coffea canephora var. *gossweileri* A.Chev., Rev. Bot. Appl. Agric. Trop. 19: 399 (1939).
Coffea canephora var. *oka* A.Chev., Encycl. Biol. 22: t. 33 (1942).

Illustrations: Lebrun (1941: pl. 11, 12, 13, 14); Chevalier (1942: 28, 29); Wrigley (1988: 72, fig. 2.2).

Literature: De Wildeman (1906a: 330); Chevalier (1929: 82); Lebrun (1941: 122); Cramer (1957: 113); Keay (1963: 154); Chevalier (1947: 186); Berthaud & Guillaumet (1978: 171–186); Bridson (1988a: 710); Wrigley (1988: 71); Bridson (2003: 454); Stoffelen (1998: 76).

Distribution: West Tropical Africa (Ghana, Guinea, Guinea Bissau?, Ivory Coast, Liberia, Nigeria); west-central Tropical Africa (Cabinda, Cameroon, Congo, Central African Republic, Democratic Republic of Congo, Gabon); north-east Tropical Africa (Sudan); east Tropical Africa (Tanzania, Uganda); south Tropical Africa (Angola). The exact limit of natural distribution is difficult to ascertain owing to introduction and naturalization. Naturalized in Tropical Africa and other tropical areas (not listed here). TDWG: 22 GHA, GNB?, GUI, IVO, LBR, NGA; 23 CAB, CAF, CMN, CON, GAB, ZAI; 24 SUD; 25 TAN, UGA; 26 ANG.

Ecology: Humid, evergreen forest, sometimes in seasonally dry humid forest, occasionally in gallery forest; (50–)250–1500 m.

Conservation assessment: LC.

Notes: Coffea canephora is widely cultivated for robusta coffee. It is grown mainly in lowland areas, and has become naturalized in Tropical Africa and other tropical and subtropical countries.

Coffea carrissoi A.Chev., *Rev. Bot. Appl. Agric. Trop.* **19:** 401 (1939). *Type:* Angola, *Carrisso & Mendonça 82 [in part] (holotype* COI*).*

Illustrations: Chevalier (1939: 400, pl. 6); Chevalier (1942: pl. 48).

Literature: Chevalier (1947: 211); Stoffelen (1998: 84).

Distribution: Angola. 26 ANG.

Ecology: Humid, evergreen forest; altitude unrecorded.

Conservation assessment: EN B1ab(iii).

Notes: Coffea carrissoi is a poorly known species, which is known to us on the basis of three herbarium specimens. It is close to, and perhaps doubtfully distinct from, *C. mayombensis*.

Coffea charrieriana Stoff. & F. Anthony, ined. *Proposed type specimen: Anthony s.n. (holotype* BR*).*
[*Coffea* '*sp. Bakossi*' et '*Bakossi*' nom. provis., F. Anthony, ORSTOM, sér. TDM 81: 46, 192 (1992); et auct. div.].

Literature: Stoffelen (1998: 125 [as *C*. sp. 'Bakossi']).

Distribution: Cameroon (Bakossi Mts.). TDWG: 23 CMN.

Ecology: Humid, evergreen forest; *c*. 300 m.

Conservation assessment: CR B1ab(iii).

Notes: Coffea charrieriana is the only naturally caffeine-free species of *Coffea* in West Africa (C. Campa *et al.* unpubl. data). The name C. '*bakossi*', previously and provisionally used for *C. charrieriana*, should not be confused with *C. bakossii* Cheek & Bridson. *C. charrieriana* and *C. bakossii* are two unrelated and morphologically distinct species.

Coffea commersoniana (Baill.) A.Chev., *Rev. Bot. Appl. Agric. Trop.* **18:** 835 (1938). *Type:* South-east Madagascar*, Commerson s.n. (holotype* P*).*
**Hypobathrum commersonianum* Baill., Adansonia 12: 204 (1879).

Illustration: Chevalier (1942: pl. 90).

Literature: Chevalier (1947: 151).

Distribution: South-east Madagascar [Taolanaro (Fort Dauphin) region]. TDWG: 29 MDG.

Ecology: Humid, evergreen littoral forest, including forest on stabilized sand dunes; 0–30(–150) m.

Conservation assessment: EN B1ab(iii).

Notes: Coffea commersoniana is restricted to the Taolanaro (Fort Dauphin) region and will become increasingly threatened with extinction if mining activities are undertaken in this region (e.g. see Rakotonasolo & Davis, 2004).

Coffea congensis A.Froehner, *Notizbl. Bot. Gart. Berlin-Dahlem* **1:** 235 (1897). *Type:* Democratic

Republic of Congo (including cultivated material), *Laurent s.n. [×3] (syntypes* ?B†, BR*).*
Coffea congensis var. *chalotii* Pierre ex De Wild., Caféiers: 17 (1901).
Coffea congensis var. *oubanghensis* Pierre ex De Wild., Caféiers: 16 (1901).
Coffea congensis var. *froehneri* Pierre ex De Wild., Caféiers: 15 (1901).
Coffea congensis var. *subsessilis* De Wild., Miss. Ém. Laurent 1: 337 (1906).
Coffea congensis var. *micrantha* Lebrun, Mém. Inst. Roy. Colon. Belge, Sect. Sci. Nat. 11(3): 111 (1941).

Illustrations: De Wildeman (1906b: pl. 71, 72 [as *Coffea congensis* var. *chalotii*]); Lebrun (1941: pl. 8, 9, 10); Chevalier (1942: pl. 40).

Literature: De Wildeman (1906a: 325); Chevalier (1929: 89); Lebrun (1941: 95); Chevalier (1947: 205); Cramer (1957: 136); Berthaud & Guillaumet (1978: 171–186); Berthaud (1986: 137, 150); Wrigley (1988: 74); Stoffelen *et al*. (1996: 246); Stoffelen (1998: 85).

Distribution: West-central Africa (Cameroon, Central African Republic, Congo, Democratic Republic of Congo, Gabon). TDWG: 23 CAF, CMN, CON, GAB, ZAI.

Ecology: Humid evergreen forest, either rheophytic (especially on sand banks) or in seasonally/temporarily flooded riparian forest; altitude unrecorded.

Conservation assessment: LC.

Notes: Coffea congensis is a variable species, rather similar in appearance to *C. arabica*. Within each natural population there is a considerable amount of phenotypic variation (Berthaud, 1986).

Coffea costatifructa Bridson, *Kew Bull.* **49:** 338 (1994). *Type:* East Tanzania, *Greenway 5366 (holotype* K; *isotype* EA*).*
[*Coffea 'sp. nov. aff. C. racemosa'* Lour. *sensu* Vollesen in Opera. Bot. 59: 68 (1980).]
[*Coffea 'sp. F'* Bridson, Kew Bull. 36: 841 (1982); Bridson, Fl. Trop. East Africa, Rubiaceae part 2: 718 (1988).]
[*Coffea 'sp. K'* Bridson, Kew Bull. 36: 852 (1982).]
[*Coffea 'sp. J'* Bridson, Fl. Trop. East Africa, *Rubiaceae* part 2: 722 (1988).]

Illustrations: Bridson (1982: 839, fig. 6g–l [as *C*. sp. F]); Bridson (1994: 337, fig. 3h–p).

Literature: Bridson (1988: 718 [as *C*. sp. F]).

Distribution: East Tanzania (Rufiji District, Kilwa District, Mafia Isl.). TDWG: 25 TAN.

Ecology: Mixed deciduous–evergreen forest, or deciduous forest, or in mostly evergreen forest, or in woody shrubland; all forest types seasonally dry, most forest types associated with *Brachystegia microphylla*; 10–700 m.

Conservation assessment: VU D2. IUCN (1994), assessed by World Conservation Monitoring Centre in 1998 (IUCN, 2004).

Coffea coursiana J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **8:** 8 (1961). *Type:* East Madagascar, *Cours 2578 (holotype* P*; isotypes* BR, G, K, MO, P*).*

Illustration: Leroy (1961a, pl. 5 [photo of holotype]).

Distribution: East Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest, including littoral forest; 0–30(–150) m.

Conservation assessment: VU B1ab(iii).

ssp. **coursiana**

Distribution: East Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest, particularly on ridges; 400–500(–1200) m.

Conservation assessment: VU B1ab(iii).

ssp. **littoralis** J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **9:** 529 (1962). *Type:* East Madagascar, *collector anonymous, 2452-SF (holotype* P*; isotype* TEF*).*

Distribution: East Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen littoral forest; 0–30 m.

Conservation assessment: NE.

Coffea dactylifera Robbr. & Stoff., *Syst. Geogr. Pl.* **69:** 121 (1999). *Type:* Democratic Republic of Congo, *Louis 3250 (holotype* BR*; isotypes* K, MO*).*

Illustration: Stoffelen *et al*. (1999: 120, fig. 1).

Literature: Stoffelen (1998: 90).

Distribution: Democratic Republic of Congo (Central Forest District: Bambesa and Yangambi). TDWG: 23 ZAI.

Ecology: Humid, evergreen forest; *c.* 450 m.

Conservation assessment: VU B1ab(iii).

Coffea decaryana J.-F.Leroy – see *Coffea* subgen. *Baracoffea.*

Coffea dubardii Jum., *Ann. Mus. Colon. Marseille, sér. 5,* **1(4):** 10 (1933). *Type:* North Madagascar, *sur les bords du Makys, Montagne d'Ambre, 800 m, xi.1932, Perrier de la Bâthie 18821 (lectotype* P!*, selected here by A. Davis).*

Illustrations: Chevalier (1942: pl. 94); Charrier (1978: 95, pl. 6h [photo]).

Literature: Chevalier (1947: 160); Charrier (1978: 97).

Distribution: North and north-west Madagascar. TDWG: 29 MDG.

Ecology: Seasonally dry, mixed deciduous–evergreen forest, or humid, evergreen forest, sometimes in gallery forest; (30–)100–1250 m.

Conservation assessment: LC.

Notes: From the syntypes cited by Jumelle (1933), including *Perrier de la Bâthie 18834*, *Perrier de la Bâthie 18821*, *Ursch 189*, and *Ursch* s.n., we have selected *Perrier de la Bâthie 18821* as the lectotype.

Coffea eugenioides S.Moore, *J. Bot.* **45:** 43 (1907). *Type:* East Uganda, *Bagshawe 1076 (holotype* BM*).*
Coffea arabica var. *intermedia* A.Froehner, Bot. Jahrb. Syst. 25: 264 (1898). *Coffea intermedia* (A.Froehner) A.Chev., Rev. Bot. Appl. Agric. Trop. 19: 397 (1939), pro syn.
Coffea nandiensis Dowson ex Bullock, Bull. Misc. Inform. Kew 1930: 401 (1930), pro syn.
Coffea becquetii A.Chev., Rev. Bot. Appl. Agric. Trop. 14: 354 (1934).
Coffea lamyi Lebrun [ms. in BR] fide A.Chev., Encycl. Biol. 48: 215 (1947), pro syn.

Illustrations: Chevalier (1942: pl. 71–73); Bridson (1982: 832, fig. 3a–f).

Literature: Lebrun (1941: 83); Chevalier (1947: 215); Cramer (1957: 138); Bridson (1982: 831); Bridson & Troupin, 1985: 154); Bridson (1988a: 713); Stoffelen *et al.* (1996: 246); Stoffelen (1998: 92).

Distribution: West-central Tropical Africa (Burundi, Rwanda, Democratic Republic of Congo); north-east Tropical Africa (Sudan); east Tropical Africa (Kenya, Tanzania, Uganda). TDWG: 23 BUR, RWA, ZAI; 24 SUD; 25 KEN, TAN, UGA.

Ecology: Humid, evergreen forest, including gallery forest, or seasonally dry, evergreen forest, and sometimes in savanna woodland and scrubland; (300–)1000–2000(–2200) m.

Conservation assessment: LC.

Notes: According to notes given on herbarium specimens, *C. eugenioides* is used locally as coffee and also to make spear shafts and sticks.

Coffea fadenii Bridson, *Kew Bull.* **36:** 827 (1982). *Type:* South-east Kenya, *Faden et al. 71/56 (holotype* K; *isotype* EA*).*

Illustrations: Bridson (1982: 828, fig. 1, excl. j); Bridson (1988a: 708, fig. 122).

Literature: Bridson (1988a: 709).

Distribution: Kenya (Teita Hills) and Tanzania (Pare Mountains). TDWG. 25 KEN, TAN.

Ecology: Humid, evergreen forest, including cloud forest; 1440–2070 m.

Conservation assessment: VU B1 + 2c, D2. IUCN (1994), assessed by World Conservation Monitoring Centre in 1998 (IUCN, 2004).

Notes: Coffea fadenii was originally considered to be endemic to the Teita Hills, but recent collections have located this species in the East Usumbara Mountains, Tanzania (Davis & Mvungi, 2004: 243, 244).

Coffea farafanganensis J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **8:** 15 (1961). *Type:* South-east Madagascar, *collector anonymous, 15386-SF (holotype* P*; isotypes* P, TEF*).*

Illustrations: Leroy (1961a, pl. 2); Charrier (1978: 94–95, pl. 6b, e, f [photo]).

Literature: Charrier (1978: 91).

Distribution: South-east Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest; *c*. 200 m.

Conservation assessment: VU B1ab(iii).

Coffea fotsoana Stoff. & Sonké, *Adansonia, sér. 3,* **26:** 155 (2004). *Type:* South-west Cameroon, *Sonké 2731 (holotype* BR*; isotypes* BRLU, K, P, YA*).*

Illustration: Sonké & Stoffelen (2004: 156, fig. 1).

Distribution: South-west Cameroon (Mbam Minkom). TDWG: 23 CMN.

Ecology: Humid, evergreen forest; *c*. 800 m.

Conservation assessment: CR B2ab(iii). IUCN (2001), assessed by Sonké & Stoffelen (2004: 158).

Coffea fragilis J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **8:** 19 (1961). *Type:* Madagascar, *Alleizette 1473 (holotype* P*).*

Distribution: Madagascar. TDWG: 29 MDG.

Ecology: Unknown, probably occurring in humid, evergreen forest.

Conservation assessment: NE.

Notes: This species is tentatively accepted as it is known only from a single specimen, that of the type collection. The location, other than Madagascar, and date of collection are unknown (Leroy, 1961a: 20).

Coffea gallienii Dubard, *Agric. Prat. Pays Chauds* **5:** 93 (1905). *Type:* North Madagascar, *Mogenet 2 (holotype* P*).*

Illustration: Dubard (1905: 94, fig. 1).

Literature: Chevalier (1947: 145).

Distribution: North Madagascar (Montagne d'Ambre). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; *c*. 800 m.

Conservation assessment: CR B1ab(iii).

Coffea grevei Drake ex A.Chev. – see *Coffea* subgen. *Baracoffea*

Coffea heimii J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **9:** 242 (1962). *Type:* North Madagascar, *Capuron 20980-SF (holotype* P*; isotypes* K, P, TEF*).*

Illustration: Charrier (1978: 101, fig. 11 [lower part]).

Literature: Charrier (1978: 97).

Distribution: North Madagascar. TDWG: 29 MDG.

Ecology: Seasonally dry, evergreen forest, including deciduous species; 150–200 m.

Conservation assessment: VU B1ab(iii).

Coffea heterocalyx Stoff., *Belgian J. Bot.* **129:** 72 (1997). *Type:* South-west Cameroon, *Foury 25 (holotype* P*; isotype* K*).*
Coffea brevipes var. *heterocalyx* A.Chev., Encycl. Biol. 22: 31 (1942) nom. nud.; Chev., Encycl. Biol. 23: 167 (1947), nom. nud.

Illustration: Chevalier (1942: pl. 54 [as *Coffea brevipes* var. *heterocalyx*]); Stoffelen *et al*., 1996: 75, fig. 3); Stoffelen (1998: 156, fig. 2.33).

Literature: Stoffelen *et al*. (1996: 72); Stoffelen (1998: 95, 154).

Distribution: South-west Cameroon (Yaoundé region). TDWG: 23 CMN.

Ecology: Humid, evergreen forest; 750–850 m.

Conservation assessment: CR B1ab(iii).

Notes: Apart from *C. arabica* and *C. anthonyi* ined., *C. heterocalyx* is the only fully autogamous *Coffea* species. Despite the geographical range and autogamous habit, there does not seem to be a very close relationship between these three species (O. Maurin, A. P. Davis, M. Chester, E. F. Mvungi, M. F. Fay, unpubl. data). *C. arabica* is an allotetraploid ($2n = 4\times = 44$) and *C. heterocalyx* is a diploid ($2n = 22$; Coulibaly *et al*., 2002, 2003a); the ploidy of *C. anthonyi* (ined.) is unknown. *C. heterocalyx* appears to be very rare in the wild and could be on the verge of extinction (A. P. Davis & O. Maurin, pers. observ.).

Coffea homollei J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **8:** 9 (1961). *Type:* East Madagascar, *Capuron 8596-SF (holotype* P*; isotypes* K, P, TEF*).*

Illustration: Leroy (1961a, pl. 6).

Literature: Charrier (1978: 76).

Distribution: East Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 400–500(–1200) m.

Conservation assessment: LC.

Coffea humbertii J.-F.Leroy – see *Coffea* subgen. *Baracoffea*.

Coffea humblotiana Baill., *Bull. Mens. Soc. Linn. Paris* **1:** 514 (1885). *Type:* Comoros (Grande Comore), *Humblot 412 (holotype* P*; isotypes* B, G, K, P, MO*).*
Coffea arabica var. *humblotiana* (Baill.) A.Froehner, Bot. Jahrb. Syst. 25: 264 (1898).
Coffea rachiformis Baill., Bull. Mens. Soc. Linn. Paris 1: 514 (1885). *Coffea arabica* var. *rachiformis* (Baill.) A.Froehner, Bot. Jahrb. Syst. 25: 264 (1898).

Illustrations: Chevalier (1942: pl. 75); Charrier (1978: 78, pl. 4d [photo]).

Literature: Chevalier (1929: 102); Chevalier (1947: 142); Charrier (1978: 79).

Distribution: Comoros [Njazidja (Grande Comore)]. TDWG: 29 COM.

Ecology: Humid, evergreen forest; 600–1000 m.

Conservation assessment: EN B1ab(iii).

Coffea humilis A.Chev., *Compt. Rend. Hebd. Séances Acad. Sci.* **145:** 349 (1907). *Type:* South-west Ivory Coast, *Chevalier 16406 (holotype* P*; isotype* K*).*

Illustrations: Chevalier (1942: pl. 55 & 56); Stoffelen (1998: 148, fig. 2.28).

Literature: Chevalier (1947: 165); Keay (1963: 156); Berthaud (1986: 131, 155, 205); Stoffelen (1998: 96).

Distribution: West Tropical Africa (south-west Ivory Coast, Liberia, ?Sierra Leone). TDWG: 22 IVO, LBR, ?SIE.

Ecology: Humid, evergreen forest; altitude unrecorded.

Conservation assessment: NT.

Notes: A distinct dwarf *Coffea* with obovate to subspatulate leaves and short petioles (*c*. 2 mm). This species only rarely sets viable fruit (Chevalier, 1947: 166), but is said to be partially autogamous (F. Anthony, pers. comm.).

Coffea jumellei J.-F.Leroy, *Adansonia, n.s.,* **12:** 352 (1972). *Type:* North Madagascar, *Perrier de la Bâthie 18846 – 'forme B' (holotype* P*).*

Illustrations: Leroy (1972b: 349, pl. 1 [figs 12–15], 351, pl. 2; 353, pl. 3).

Literature: Charrier (1978: 103).

Distribution: North Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest and seasonally dry, mixed deciduous–evergreen forest; 300–450 m.

Conservation assessment: EN B1ab(iii).

Coffea kapakata (A.Chev.) Bridson, *Kew Bull.* **49:** 340 (1994). *Type:* West Angola, *Gossweiler 9896 (holotype* COI*; isotypes* BR, BM*).*
**Psilanthopsis kapakata* A.Chev., Rev. Bot. Appl. Agric. Trop. 19: 404 (1939).

Illustration: Chevalier (1939: 405, pl. 7 [as *Psilanthopsis kapakata*]); Chevalier (1942: pl. 137 [as *Psilanthopsis kapakata*]).

Literature: Stoffelen (1998: 98).

Distribution: West Angola. TDWG: 26 ANG.

Ecology: Humid, evergreen forest; *c*. 600 m.

Conservation assessment: VU B1ab(iii).

Notes: Coffea kapakata was once thought to represent a distinct genus, *Psilanthopsis*, mainly on the basis of its distinct calyx lobes and beaked fruits with 10–12 distinct ribs/ridges. Molecular data (O. Maurin, unpubl. data) support its inclusion in *Coffea*, after Bridson (1994: 340).

Coffea kianjavatensis J.-F.Leroy, *Adansonia* **12:** 322 (1972). *Type:* East Madagascar, *Leroy 196-B (Kianjavato Coffee Research Centre acc. no. A. 213 [c]) (holotype* P*; isotype* K*).*

Illustrations: Charrier (1978: 78, pl. 4c [photo]); Leroy (1972a: 327: pl. 5).

Literature: Charrier (1978: 76).

Distribution: East Madagascar (Kianjavato). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 300–500 m.

Conservation assessment: EN B1ab(iii).

Coffea kihansiensis A.P.Davis & Mvungi, *Bot. J. Linn. Soc.* **146:** 241 (2004). *Type:* Central Tanzania, *Mvungi 4 (holotype* NHT*; isotypes* EA, K, MO*).*

Illustration: Davis & Mvungi (2004: 242, fig. 3).

Distribution: Central Tanzania (Kihansi River Gorge, Udzungwa Mountains). TDWG: 25 TAN.

Ecology: Humid, evergreen forest; 800–900 m.

Conservation assessment: CR B1ab(i,iii). IUCN (2001), assessed by Davis & Mvungi (2004: 241).

Coffea kimbozensis Bridson, *Kew Bull.* **49:** 331 (1994). *Type:* East Tanzania, *Bidgood, Mwasumbi & Vollesen 1246 (holotype* K*; isotypes* BR, DSM, EA, MO, NHT, WAG*).*
[*Coffea 'sp. A'* Bridson, Fl. Trop. East Africa, Rubiaceae part 2: 710 (1988).]

Illustration: Bridson (1994: 232, fig. 1).

Distribution: East Tanzania (Morogoro: Kimboza Forest Reserve). TDWG: 25 TAN.

Ecology: Humid, evergreen forest; 300–450 m.

Conservation assessment: CR B1ab(iii).

Coffea kivuensis Lebrun, *Rev. Zool. Bot. Africaines* **22:** 43 (1932). *Type:* East Democratic Republic of Congo, *Lebrun 5526 (holotype* BR*; isotypes* P, MO*).*
Coffea eugenioides var. *kivuensis* (Lebrun) A.Chev., Encycl. Biol. 28: 216 (1947).

Literature: Lebrun (1941: 90); Bridson (1982: 833); Stoffelen *et al*. (1996: 246); Stoffelen (1998: 100).
Distribution: East Democratic Republic of Congo (Lake Kivu area). TDWG: 23 ZAI.

Ecology: Humid, evergreen forest; 1900–2100 m.

Conservation assessment: VU B1ab(iii).

Coffea labatii A.P.Davis & Rakotonas., ined. – see *Coffea* subgen. *Baracoffea*

Coffea lancifolia A.Chev., *Rev. Bot. Appl. Agric. Trop.* **18:** 829 (1938). *Type:* East Madagascar, *Perrier de la Bâthie 3646 (holotype* P*; isotype* K, P*).*

Literature: Chevalier (1947: 140); Charrier (1978: 76).

Distribution: East Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 300–500 m.

Conservation assessment: NT.

var. **auriculata** J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **9:** 224 (1962). *Type:* East Madagascar, *collector anonymous, 14640-SF (holotype* P*; isotype* TEF*).*

Illustration: Charrier (1978: 78, pl. 4a [photo]).

Literature: Charrier (1978: 76).

Distribution: East Madagascar. TDWG: 29 MDG.

Conservation assessment: DD.

var. **lancifolia**

Illustrations: Chevalier (1938: pl. 13 [opposite p. 829]); Chevalier (1942: pl. 74); Charrier (1978: 78, pl. 4b [photo]).

Distribution: East Madagascar. TDWG: 29 MDG.

Conservation assessment: NT.

Coffea leonimontana Stoff., *Belgian J. Bot.* **129:** 72 (1997). *Type:* South-west Cameroon, *Leeuwenberg 8754 (holotype* WAG*; isotypes* K, BR*).*

Illustration: Stoffelen *et al*. (1997a: 73, fig. 1 [excl. a, b, c = *Coffea brevipes*]).

Literature: Stoffelen (1998: 102).

Distribution: South-west Cameroon (Douala region). TDWG: 23 CMN.

Ecology: Humid, evergreen forest; *c*. 900 m.

Conservation assessment: EN B1ab(iii).

Notes: The specimens *Faulkner 5* (K) and *Mbatchou 399* (K), which were included in the protologue of *C. leonimontana* (Stoffelen *et al*., 1997a), have since been identified as *C. brevipes* (O. Maurin, unpubl. data).

Coffea leroyi A.P.Davis, *Kew Bull.* **55:** 411 (2000). *Type:* East Madagascar, *anonymous collector, A. 315 (holotype* P*; isotypes* K, P*).*

Illustration: Davis & Rakotonasolo (2000: 415, fig. 3).

Distribution: East Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 900–1200 m.

Conservation assessment: NT.

Coffea liaudii J.-F.Leroy ex A.P.Davis, *Kew Bull.* **55:** 409 (2000). *Type:* East Madagascar, *Vinanney-Liaud A. 1013 (holotype* P*; isotype* K*).*

Illustration: Davis & Rakotonasolo (2000: 412, fig. 2).

Distribution: East Madagascar (central). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 900–1200 m.

Conservation assessment: EN B1ab(iii).

Coffea liberica Bull. ex Hiern, *Trans. Linn. Soc. London, Bot.* **1:** 171 (1876). *Type:* Sierra Leone (cultivated in Sierra Leone), *Danielle s.n. (lectotype* BM*).*

Literature: Chevalier (1929: 75); Lebrun (1941: 153); Cramer (1957: 105); Keay (1963: 154); Chevalier (1947: 170); Bridson (1985: 806); Bridson (1988a: 706); Stoffelen (1998: 103).

Distribution: West Tropical Africa (Benin, Ghana, Guinea, Ivory Coast, Liberia, Nigeria); north-east Tropical Africa (south Sudan); west-central Tropical Africa (Cabinda, Cameroon, Central African Republic, Congo, Democratic Republic of Congo, Gabon); north-east Tropical Africa (Uganda); ?south Tropical Africa (Angola). Naturalized in Tropical Africa and perhaps other tropical areas (not listed here). TDWG: 22 BEN, GHA, GUI, IVO, LBR, NGA; 23 CAB, CAF, CMN, CON, GAB, ZAI; 24 SUD; 25 UGA; ?26 ANG.

Ecology: Humid, evergreen forest, or seasonally dry, evergreen forest, sometimes in seasonally dry mixed evergreen–deciduous forest, also found in gallery forest; (80–)100–1300(–1800) m.

Conservation assessment: LC.

var. **liberica**
Coffea liberica Bull., Retail List Beaut. & Rare Pl. 97: 4 (1874), nom. tant.
Coffea klainii Pierre ex De Wild., Caféiers: 13 (1901).
Coffea liberica var. *pyriformis* Fauchère, J. Agric. Trop. 8: 317 (1908).
Coffea abeocuta Cramer ex De Wild., Ann. Jard. Bot. Buitenzorg, suppl. 3(1): 359 (1910), nom. tant., orth. var. of *Coffea abeokutae.*
Coffea abeokutae Cramer, Meded. Dept. Landb. Ned.-Indië 11(15): 425 (1913).
Coffea abeokutae var. *indeniensis* Siebert, Caf. Ivo. 35 (1932), nom. nud.
Coffea liberica var. *indeniensis* Siebert, Caf. Ivo. 35 (1932). *Coffea abeokutae* var. *indeniensis* (Siebert) A.Chev., Encycl. Biol. 22: t. 43 (1942).
Coffea liberica var. *ivorensis* Siebert, Caf. Ivo. 35 (1932).
Coffea liberica var. *liberiensis* Siebert, Caf. Ivo. 35 (1932).
Coffea liberica var. *liborensis* Siebert, Caf. Ivo. 35 (1932).
Coffea abeokutae var. *longicarpa* Portères, Ann. Agric. Afr. Occ. 1(2): 224 (1937), nom. nud.
Coffea abeokutae var. *sphaerocarpa* Portères, Ann. Agric. Afr. Occ. 1(2): 223 (1937), nom. nud.
Coffea abeokutae var. *indeniocarpa* Portères, Ann. Agric. Afriq. Occ. 1: 229 (1937), nom nud.
Coffea oyemensis A.Chev., Rev. Bot. Appl. Agric. Trop. 19: 403 (1939).
Coffea abeokutae var. *camerunensis* A.Chev., Encycl. Biol. 22: 31 (1942).
Coffea abeokutae var. *macrocarpa* A.Chev., Encycl. Biol. 22: 31 (1942).
Coffea abeokutae var. *microcarpa* A.Chev., Encycl. Biol. 22: 31 (1942).
Coffea liberica var. *aurantiaca* A.Chev., Encycl. Biol. 28: 173 (1947), nom. nud.
Coffea liberica var. *gossweileri* A.Chev., Rev. Bot. Appl. Agric. Trop. 19: 398 (1939).
Coffea liberica var. *grandifolia* A.Chev., Encycl. Biol. 28: 173 (1947).

Illustrations: Hiern (1876: opp. 176, pl. 24); De Wildeman (1906b: pl. 102 [as *Coffea klainii*], 104 (1907)); Keay (1963: 155, fig. 231); Lebrun (1941: pl. 15–19); Chevalier (1942: pl. 1); Wrigley (1988: 59, fig. 1.5a, f).

Literature: De Wildeman (1906a: 338); Bridson (1985: 806); Bridson (1988a: 706); Wrigley (1988: 73); Bridson (2003: 454).

Distribution: West Tropical Africa (Benin, Ghana, Guinea, Ivory Coast, Liberia, Nigeria); west-central Tropical Africa (Annobon, Cabinda, Cameroon, Central African Republic, Congo, Democratic Republic of Congo, Gabon); ?north-east Tropical Africa (Uganda); ?south Tropical Africa (Angola). Naturalized in Tropical Africa and perhaps other tropical areas (not listed here). TDWG: 22 BEN, GHA, GUI, IVO, LBR, NGA; 23 CAB, CAF, CMN, GGI-AN, CON, GAB, ?ZAI; 24 SUD; ?25 UGA; ?26 ANG.

Ecology: Humid, evergreen forest, or seasonally dry, evergreen forest, sometimes in seasonally dry mixed evergreen–deciduous forest, also found in gallery forest; (80–)100–1200(–1800) m.

Conservation assessment: LC.

Notes: Coffea liberica ('Liberica', 'Liberian' or 'excelsa' coffee) is widely cultivated, but provides less than 1% of the world's marketable coffee. According to Hiern (1876), it was already cultivated in Africa before the colonization by Europeans. It has become naturalized in Tropical Africa and other tropical regions around the world, but not to the same extent as *C. arabica* or *C. canephora*. Numerous species, subspecies, varieties, forms, and races have been described in the past, but many were placed into synonymy quite early on (e.g. by Lebrun, 1941). Lebrun (1941) recognized two varieties, *C. liberica* var. *liberica* and *C. liberica* var. *dewevrei*, which we have upheld here. Morphological (Bridson, 1988a, 1988b) and molecular (M. Noirot, pers. comm.; O. Maurin, unpubl. data) data support the recognition of these two varieties. We have endeavoured to place the correct synonyms with each of the accepted varieties, but further examination of type material may necessitate some changes to the synonymy. The vernacular names 'Liberica' and 'Liberian' coffee refer to *C. liberica* var. *liberica* and 'excelsa' to *C. liberica* var. *dewevrei*.

var. **dewevrei** (De Wild. & T.Durand) Lebrun, *Mém. Inst. Roy. Colon. Belge, Sect. Sci. Nat. Méd. (8vo)* **11(3):** 168 (1941). *Type:* Democratic Republic of Congo, *Dewèvre 1149 (holotype* BR*).*

[f.] dewevrei
**Coffea dewevrei* De Wild. & T.Durand, Bull. Soc. Roy. Bot. Belgique 38: 202 (1899).
Coffea arnoldiana De Wild. Compt. Rend. Congr. Intern. Bot. 1900: 236 (1900).
Coffea dybowskii Pierre ex De Wild., Caféiers: 14 (1901). *Coffea dewevrei* var. *dybowskii* (Pierre ex De Wild.) A.Chev., Encycl. Biol. 22: 29 (1942).
Coffea sylvatica A.Chev., Rev. Cultures Colon. 12: 258 (1903). *Coffea dewevrei* var. *sylvatica* (A.Chev.) A. Chev., Encycl. Biol. 22: 29 (1942).
Coffea excelsa A.Chev., Rev. Cultures Colon. 12: 258 (1903). *Coffea dewevrei* var. *excelsa* (A.Chev.) A.Chev., Encycl. Biol. 22: 29 (1942).
Coffea aruwimiensis De Wild., Miss. Ém. Laurent 1: 321 (1906). *Coffea dewevrei* var. *aruwimiensis* (De Wild.) A.Chev., Encycl. Biol. 22: pl. 10 (1942).
Coffea royauxii De Wild., Miss. Ém. Laurent 1: 326 (1906).
Coffea zenkeri Krause ex De Wild., Ann. Jard. Bot. Buitenzorg, suppl. 3(1): 382 (1910), nom. nud.
Coffea zenkeri De Wild. ex A.Chev., Explor. Bot. Afrique Occ. Franç. 334 (1920). *Coffea dewevrei* var. *zenkeri* (De Wild.) A.Chev., Encycl. Biol. 22: 29 (1942).
Coffea excelsoidea Portères ex A.Chev., Ann. Agric. Afrique Occ. 1: 81 (1937), nom. nud.
Coffea neoarnoldiana A.Chev., Compt. Rend. Hebd. Séances Acad. Sci. 207: 654 (1938), nom. nud.
Coffea dewevrei var. *ituriensis* A.Chev., Encycl. Biol. 22: 29 (1942) nom. nud.
Coffea dewevrei var. *neoarnaldiana* A.Chev., Encycl. Biol. 22: 29 (1942), nom. nud.
Coffea ituriensis A.Chev., Encycl. Biol. 28: 184 (1947).
Coffea dewevrei race *excelsoidea* (Portères) A.Chev., Encycl. Biol. 28: 185 (1947), nom. illegit.

Illustrations: De Wildeman (1906b: pl. 74 [as *Coffea arnoldiana*], pl. 75 [as *Coffea dewevrei*] (1907), pl. 78 [as *Coffea royauxii*]); Chevalier (1942: pl 2); Wrigley (1988: 59, fig. 1.5h, i).

Literature: Lebrun (1941: 169); Berthaud & Guillaumet (1978: 171–186); Bridson (1988a: 707); Wrigley (1988: 74).

Distribution: West-central Tropical Africa (Central African Republic, Democratic Republic of Congo); north-east Tropical Africa (Sudan). TDWG: 23 CAF, ZAI; 24 SUD.

Ecology: Humid, evergreen forest or seasonally dry, evergreen forest, 200–1300(–1500) m.

Conservation assessment: LC.

Notes: The above synonymy is based on Lebrun (1941) and our best deductions as to correct placement; we have not been able to examine the types for all of the synonyms. *C. liberica* var. *dewevrei* is often known as 'excelsa' coffee.

var. **dewevrei** (De Wild. & T.Durand) Lebrun f. bwambensis Bridson, *Kew Bull.* **37:** 314 (1982). *Type:* West Uganda, *Eggerling 3388 (holotype* K*; isotype* EA*).*

Literature: Bridson (1988a: 709).

Distribution: West Uganda. TDWG: 25 UGA.

Ecology: Humid, evergreen forest; 790–1220 m.

Conservation assessment: VU B1ab(iii).

Coffea ligustroides S.Moore, *J. Linn. Soc., Bot.* **40:** 94 (1911). *Type:* East Zimbabwe, *Swynnerton 67 (holotype* BM*; isotype* K*).*

Illustrations: Chevalier (1929: 96); Chevalier (1942: pl. 69); Bridson (1982: fig. 8m–s); Bridson (2003: 456, table 90c).

Literature: Chevalier (1947: 220); Bridson (1982: 845); Bridson (2003: 458).

Distribution: East Zimbabwe (Chirinda). TDWG: 26 ZIM.

Ecology: Humid, evergreen forest; 1000–1200 m.

Conservation assessment: VU D2. IUCN (1994), assessed by Mapaura & Timberlake, 2002: 168).

Coffea littoralis A.P.Davis & Rakotonas., *Adansonia, sér 3,* **23:** 138 (2001). *Type:* North-east Madagascar, *Capuron 27302-SF (holotype* P*; isotypes* K, P, TEF*).*

Illustration: Davis & Rakotonasolo (2001a: 140, fig. 1).

Distribution: North-east Madagascar [Iherana (Vohemar)]. TDWG: 29 MDG.

Ecology: Humid, evergreen littoral forest, including forest on stabilized sand dunes; 20–250 m.

Conservation assessment: CR B2a–e. IUCN (1994), assessed by Davis & Rakotonasolo (2001a: 139). Modified here: CR B1ab(i,ii,iii).

Coffea lulandoensis Bridson, *Kew Bull.* **49:** 333 (1994). *Type:* Central Tanzania, *Congdon 299 (holotype* K*; isotypes* BR, NHT, P*).*
[*Coffea 'sp. C'* Bridson, Kew Bull. 36: 838 (1982); Bridson in Fl. Trop East Africa, *Rubiaceae* part 2: 717 (1988).]

Illustration: Bridson (1994: 334: fig. 2).

Distribution: Central Tanzania (Mufindi: Lulanda Forest Reserve). TDWG: 25 TAN.

Ecology: Humid, evergreen forest; 1450–1600(–2000) m.

Conservation assessment: CR B1ab(iii).

Coffea macrocarpa A.Rich., *Mém. Soc. Hist. Nat. Paris* **5:** 168 (1834). *Type:* Mauritius, *Richard s.n. (holotype* P*).*
Coffea grandifolia Bojer ex Baker, Fl. Mauritius: 152 (1877), pro syn.
Coffea bojeriana J.-F.Leroy, J. Agric. Trop. Bot. Appl. 8: 27 (1961).
Coffea bernardiniana J.-F.Leroy, J. Agric. Trop. Bot. Appl. 9: 531 (1962).

Illustrations: Chevalier (1942: pl. 15 & 90); Leroy (1989: 97, pl. 29).

Literature: Chevalier (1929: 101); Leroy (1989: 96); Dulloo *et al*. (1999: 275).

Distribution: Mauritius. TDWG: 29 MAU.

Ecology: Humid, evergreen forest, including drier open-canopy evergreen forest, and low/dwarf canopy evergreen forest; 280–700 m.

Conservation assessment: VU C2a. IUCN (1994), assessed by Dulloo *et al*. (1999: 277).

Notes: Coffea macrocarpa is a polymorphic species that may need taxonomic division after further research. The populations represented by the taxon name *C. bernardiana* may need to be reinstated, either as a species or as a subspecies of *C. macrocarpa*, for example.

Coffea magnistipula Stoff. & Robbr., *Taxon* **46:** 39 (1997). *Type:* West Gabon, *Breteler, Lemmens & Nzabi 8155 (holotype* WAG*; isotypes* BR, K*).*

Illustrations: Stoffelen *et al*. (1997b: 38, figs 1–5); Stoffelen (1998: 145, fig. 2.25; 147, fig. 2.27).

Literature: Stoffelen (1998: 113, 144).

Distribution: South-west Cameroon, west Gabon. TDWG: 23 CMN, GAB.

Ecology: Humid, evergreen forest; 400–800 m.

Conservation assessment: NT.

Coffea mangoroensis Portères, *J. Agric. Trop. Bot. Appl.* **9:** 204 (1962). *Type:* East Madagascar, *Portéres A. 53 (holotype* P*).*

Distribution: East Madagascar (mostly in the Moramanga region). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 850–1100 m.

Conservation assessment: VU B1ab(iii).

Coffea manombensis A.P.Davis, *Kew Bull.* **55:** 406 (2000). *Type:* South-east Madagascar, *Davis & Rakotonasolo 2141 (holotype* K*; isotypes* MO, P, TAN, TEF*).*

Illustration: Davis & Rakotonasolo (2000: 408, fig. 1).

Distribution: South-east Madagascar (Réserve Speciale de Manombo). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 100–120 m.

Conservation assessment: EN ab(iii).

Coffea mapiana Sonké, Nguembou & A.P. Davis, *Bot. J. Linn. Soc.* **151:** 426. *Type:* South Cameroon, *Sonké & Nguembou 3827 (holotype:* K*; isotypes:* BR, BRLU, MO, WAG, YA*).*

Distribution: South Cameroon. TDWG: 23 CMN.

Ecology: Humid, evergreen forest; 100–500 m.

Conservation assessment: EN B1ab(iii) + B2ab(iii).

Coffea mauritiana Lam., *Encycl.* **1:** 550 (1785). *Type:* Reunion, *Commerson 974 (holotype* P*; isotype* P*).*
Coffea arabica β [var.] *mauritiana* (Lam.) Willd., Sp. Pl. 1(2): 974 (1797).
Coffea sylvestris Willd. ex Schult. in J.J.Roemer & J.A.Schultes, Syst. Veg. 5: 201 (1819).
Geniostoma reticulatum Cordem., Fl. Réunion 464: (1895).
Coffea mauritiana var. *lanceolata* A.Chev., Rev. Bot. Appl. Agric. Trop. 18: 830 (1938).
Coffea nossikumbaensis A.Chev., Rev. Bot. Appl. Agric. Trop. 18: 830 (1938).
Coffea campaniensis J.-F.Leroy, J. Agric. Trop. Bot. Appl. 9: 530 (1962).

Illustrations: Grandidier (1897: pl. 415a); Chevalier (1942: pl. 14 & 76 [as *Coffea nossikoumbensis*]); Leroy (1989: 95, pl. 28 [figs 4–8]).

Literature: Chevalier (1929: 98); Charrier (1978: 79); Leroy (1989: 94); Dulloo *et al*. (1999: 272).

Distribution: Mauritius, Reunion. TDWG: 29 MAU, REU.

Ecology: Humid, evergreen forest, including dwarf evergreen forest, and 'high-altitude' cloud forest; 270–1500 m.

Conservation assessment: VU C2a. IUCN (1994), inferred from Dulloo *et al*. (1999: 274).

Coffea mayombensis A.Chev., *Rev. Bot. Appl. Agric. Trop.* **19:** 402 (1939). *Type:* Angola *(Cabinda) Gossweiler 8211 (holotype* COI*; isotypes* K, COI*).*
Coffea brevipes var. *longifolia* A.Froehner, Bot. Jahrb. Syst. 25: 260 (1898).

Illustration: Chevalier (1942: pl. 51 [part 1 only] & 52).

Literature: Chevalier (1947: 213); Stoffelen (1998: 114).

Distribution: West Tropical Africa (Nigeria); west-central Tropical Africa (Cabinda, west Cameroon, Gabon, west Congo, west Democratic Republic of Congo); south Tropical Africa (north-west Angola). TDWG: 22 NGA; 23 CAB, CMN, GAB, CON, ZAI; 26 ANG.

Ecology: Humid, evergreen forest; 210–900 m.

Conservation assessment: LC.

Coffea mcphersonii A.P.Davis & Rakotonas., *Adansonia, sér 3,* **23:** 141 (2001). *Type:* North-east Madagascar, *McPherson 14734 (holotype* MO*; isotypes* K, P, TAN*).*

Illustration: Davis & Rakotonasolo (2001a: 142, fig. 2).

Distribution: North-east Madagascar [Iherana (Vohemar)]. TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 50–450 m.

Conservation assessment: CR B2a–e, IUCN (1994), assessed by Davis & Rakotonasolo (2001a: 141). Updated here: EN B1ab(i,ii,iii).

Coffea millotii J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **8:** 13 (1961). *Type:* East Madagascar, *collector anonymous, 15366-SF (holotype* P*; isotypes* K, P, TEF*).*
Coffea ambodirianaensis Portères, J. Agric. Trop. Bot. Appl. 9: 202 (1962).
Coffea dolichophylla J.-F.Leroy, J. Agric. Trop. Bot. Appl. 9: 526 (1962).

Illustrations: Leroy (1961a, pl. 3 [photo of holotype]); Leroy (1962: pl. 4 [lower photo]); Charrier (1978: 94–95, pl. 6a, g [photo]).

Literature: Charrier (1978: 91).

Distribution: East Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest; (5–)50–500(–800) m.

Conservation assessment: LC.

Coffea minutiflora A.P.Davis & Rakotonas., *Bot. J. Linn. Soc.* **142:** 113 (2003). *Type:* South-east Madagascar, *Capuron 23553-SF (holotype* P*; isotypes* BR, K, MO, P, TAN, TEF*).*

Illustration: Davis & Rakotonasolo (2003: 114, fig. 2).

Distribution: South-east Madagascar (Ivohibe-Faranfangana). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 80–100 m.

Conservation assessment: DD. IUCN (2001), assessed by Davis & Rakotonasolo (2003: 115).

Coffea mogenetii Dubard, *Agric. Prat. Pays Chauds* **5:** 99 (1905). *Type:* North Madagascar, *Mogenet 1 (holotype* P, n.v.*).*

Illustrations: Dubard (1905: 100, fig. 3); Chevalier (1942: pl. 93).

Literature: Chevalier (1947: 159); Charrier (1978: 97).

Distribution: North Madagascar (Montagne d'Ambre). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 800–1200(–1700) m.

Conservation assessment: EN B1ab(iii).

Coffea mongensis Bridson, *Kew Bull.* **36:** 829 (1982). *Type:* East Tanzania, *Peter 18367 (holotype* K*; isotype* B*).*

Illustrations: Chevalier (1942: pl. 68 [as *C. zanguebariae*]); Bridson (1982: 830, fig. 2).

Literature: Bridson (1988a: 709).

Distribution: East Tanzania. TDWG: 25 TAN.

Ecology: Humid, evergreen forest; (400–)1100–2000 m.

Conservation assessment: VU B1 + 2b. IUCN (1994), assessed by J. Lovett & G. P. Clarke in 1998 (IUCN, 2004).

Coffea montekupensis Stoff., *Kew Bull.* **52:** 990 (1997). *Type:* South-west Cameroon, *Cheek 7777 (holotype* K*; isotypes* B, BR, CANB, ETH, MO, NY, P, SCA, WAG, YA*).*

Illustrations: Stoffelen *et al*. (1997c: 992, fig. 1); Stoffelen (1998: 160, fig. 2.34).

Literature: Stoffelen (1998: 117, 158).

Distribution: South-west Cameroon (Mt. Kupe & Bakossi Mts.). TDWG: 23 CMN.

Ecology: Humid, evergreen forest; 900–1150 m.

Conservation assessment: VU B1ab(iii).

Coffea montis-sacri A.P.Davis, *Kew Bull.* **56:** 485 (2001). *Type:* East Madagascar, *Davis & Rakotonasolo 2308 (Kianjavato Coffee Research Centre acc. no. A. 321) (holotypes* TAN*; isotypes* K, MO, P, TEF*).*

Illustration: Davis (2001: 487, fig. 3).

Distribution: East Madagascar (Mount Vatovavy). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 400–500 m.

Conservation assessment: CR B2a–e. IUCN (1994), assessed by Davis (2001: 486). Modified here: CR B1ab(i,ii,iii).

Coffea moratii J.-F.Leroy ex A.P.Davis & Rakotonas., *Bot. J. Linn. Soc.* **142:** 115 (2003). *Type:* West Madagascar, *Davis & Rakotonasolo 2326 (holotype* K*; isotypes* P, MO, TAN, TEF*).*

Illustration: Davis & Rakotonasolo (2003: 116, fig. 3).

Distribution: West Madagascar (Réserve Tsingy de Bemaraha). TDWG: 29 MDG.

Ecology: Seasonally dry, mixed deciduous–evergreen forest on tsingy (karst-type) limestone; *c*. 140 m.

Conservation assessment: EN B1a(i,ii,iii,iv,v); B2ab(i,ii,iii,iv,v). IUCN (2001), assessed by Davis & Rakotonasolo (2003: 117).

Coffea mufindiensis Hutch. ex Bridson, *Kew Bull.* **36:** 842 (1982). *Type:* Central Tanzania, *Entom. Lab. Morogoro s.n. (holotype* K*).*
Coffea nufindiensis [*sic*] Hutch. ex A.Chev., Encycl. Biol. 28: 217 (1947), nom. nud.

Literature: Bridson (1986: 309); Bridson (1988a: 720).

Distribution: East Tropical Africa (Tanzania); south Tropical Africa (Malawi, Mozambique, Zambia, Zimbabwe). TDWG: 25 TAN; 26 MLW, MOZ, ZAM, ZIM.

Ecology: Humid, evergreen forest; 950–2300 m.

Conservation assessment: LC.

ssp. **australis** Bridson, *Kew Bull.* **36:** 844 (1982). *Type:* South Malawi, *Brummitt 15132 (holotype* K*; isotypes* MAL, SRGH, WAG*).*

Literature: Bridson (1986: 311); Bridson (2003: 458).

Distribution: South Tropical Africa (south Malawi, west Mozambique, east Zimbabwe). TDWG: 26 MLW, MOZ, ZIM.

Ecology: Humid, evergreen forest; 950–1900 m.

Conservation assessment: VU D2. IUCN (1994), assessed by Mapaura & Timberlake (2002: 168).

ssp. **lundaziensis** Bridson, *Kew Bull.* **36:** 844 (1982). *Type:* North Zambia, *Fanshawe 11538 (holotype* K*).*

Literature: Bridson (1986: 309); Bridson (2003: 457).

Distribution: South Tropical Africa (north Malawi, north Zambia). TDWG: 26 MLW, ZAM.

Ecology: Humid, evergreen forest; 1700–2300 m.

Conservation assessment: VU D1, D2. IUCN (1994), assessed by Msekandiana & Mlangeni (2002: 38) and Bingham & Smith 2002: 143).

ssp. **mufindiensis**

Illustrations: Bridson (1982: 843, fig. 7); Bridson (1988a: 719, fig. 124).

Literature: Bridson (1986: 309); Bridson (1988a: 720).

Distribution: Tanzania. TDWG: 25 TAN.

Ecology: Humid, evergreen forest; 1200–2150 m.

Conservation assessment: LC.

ssp. **pawekiana** (Bridson) Bridson, *Kew Bull.* **41:** 309 (1986). *Type:* North Malawi, *Pawek 11398 (holotype* K*; isotypes* MAL, MO, SRGH, UC*).*
**Coffea pawekiana* Bridson, Kew Bull. 36: 844 (1982).

Illustrations: Bridson (1982: 846, fig. 8g–l [as *Coffea pawekiana*]); Bridson (2003: 456, table 90b).

Literature: Bridson (2003: 458).

Distribution: North Malawi. TDWG: 26 MLW.

Ecology: Humid, evergreen forest; 1050–2000 m.

Conservation assessment: VU B1ab(iii).

Coffea myrtifolia (A.Rich. ex DC.) J.-F.Leroy, *Bull. Mus. Natl. Hist. Nat., B, Adansonia* **6:** 373 (1984). *Type:* Mauritius, *Commerson s.n. (holotype* P*).*
**Nescidia myrtifolia* A.Rich. ex DC., Prodr. 4: 477 (September 1830). *Hypobathrum myrtifolium* (A.Rich. ex DC.) Baill., Adansonia 12: 204 (1878).
Coffea vaughanii J.-F.Leroy, J. Agric. Trop. Bot. Appl. 9: 525 (1962).
Coffea vaughanii var. *defuncta* J.-F.Leroy, J. Agric. Trop. Bot. Appl. 9: 525 (1962).

Illustration: Leroy (1989: 95, pl. 28 [figs 1–3]).

Literature: Leroy (1989: 98); Dulloo *et al*. (1999: 277).

Distribution: Mauritius. TDWG: 29 MAU.

Ecology: Subhumid, evergreen forest, including drier low-canopy evergreen forest; 115–300 m.

Conservation assessment: EN B1 + 2c, D. IUCN (2001), assessed by Dulloo *et al*. (1999: 279) (IUCN, 2004).

Coffea perrieri Drake ex Jum. & H.Perrier, *Ann. Mus. Colon. Marseille, sér. 2,* **8:** 464 (1910). *Type:* West Madagascar, bords du Besaforta, affluent de droite du Menavava, viii.1899, *Perrier de la Bâthie 465 bis [e] (lectotype* P!*, selected here by A. Davis).*

Illustrations: Chevalier (1942, pl. 77 [as *C. gallieni*]); Charrier (1978: 87–89, pl. 5a, f, i [photo]).

Literature: Chevalier (1929: 103).

Distribution: Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest, mostly in evergreen gallery forest within (running through) seasonally dry vegetation; 50–1200 m.

Conservation assessment: LC.

Notes: A single collection number was cited by Jumelle & Perrier de la Bâthie (1910) for *C. perrieri*: *Perrier de la Bâthie 465*. This collection number encompassed several specimens: different localities are cited in the protologue and there are ten specimens of *Perrier de la Bâthie 465* at the Paris herbarium (P). These specimens were collected over several years from 1898 to 1904, probably by collectors sent out by J.M.H.A. Perrier de la Bâthie. We have selected a single sheet as the lectotype, and marked this sheet accordingly. Some of the collecting numbers of specimens *Perrier de la Bâthie 465* have been annotated (by Perrier de la Bâthie) with *bis* and *ter*, to separate collections. To further separate each collection (e.g. those with different dates), we have prefixed with a letter in lower case, from 'a' to 'h'. The

lectotype has been annotated with an 'e': *Perrier de la Bâthie 465 bis [e]*.

Coffea pervilleana (Baill.) Drake in Grandid., *Hist. Phys. Madagascar* **36***(6, atlas 4):* pl. 415 (1897). *Type:* North-east Madagascar (Nosi Bé Isl.), *Pervillé 458 (holotype* P*).*
**Solenixora pervilleana* Baill., Bull. Mens. Soc. Linn. Paris 1: 243 (1880).
Coffea brachyphylla Radlk., Bremen Abh. 8: 390 (1883).
Coffea antsingyensis J.-F.Leroy, J. Agric. Trop. Bot. Appl. 8: 18 (1961).

Illustrations: Grandidier (1897: pl. 415); Chevalier (1942: pl. 83 & 85); Chevalier (1942: pl. 84 & 85).

Literature: Chevalier (1947: 154); Charrier (1978: 103).

Distribution: North Madagascar (incl. Nosi Bé Isl.). 29 MDG.

Ecology: Humid, evergreen forest; 25–750 m.

Conservation assessment: VU B1ab(iii).

Coffea pocsii Bridson, *Kew Bull.* **49:** 336 (1994). *Type:* East Tanzania, *Pócs & Mwanjabe 6559c (holotype* DSM*).*
[*Coffea 'sp. E'* Bridson, Kew Bull. 36: 840 (1982); Bridson in Fl. Trop East Africa, *Rubiaceae* part 2: 718 (1988).]

Illustrations: Bridson (1982: 839, fig. 6a–f [as *C.* sp. E]); Bridson (1994: 337, fig. 3a–g).

Distribution: East Tanzania (Morogoro: Kitulanghalo forest reserve; Bagamoyo: Zaraninge forest reserve). TDWG: 25 TAN.

Ecology: Seasonally dry, evergreen forest; 270–600 m.

Conservation assessment: VU B1 + 2C, D2. IUCN (2001), assessed by World Conservation Monitoring Centre in 1998 (IUCN, 2004). Updated here: EN B1ab(iii); known only from two localities.

Coffea pseudozanguebariae Bridson, *Kew Bull.* **36:** 835 (1982). *Type:* North-east Tanzania, *Faulkner 1077 (holotype* K*).*

Illustrations: Chevalier (1942: pl. 66 [as *Coffea zanguebariae*]); Bridson (1982: 834, fig. 4a–g); Bridson (1988a: 715, fig. 123a–g).

Literature: Bridson (1982: 833); Bridson (1988a: 714); Bridson (2003: 459).

Distribution: East Tropical Africa (south-east Kenya, north-east Tanzania (incl. Zanzibar). TDWG: 25 KEN, TAN.

Ecology: Seasonally dry, evergreen forest, or seasonally dry, mixed evergreen–deciduous forest, often in littoral forest or shrubland; 0–650(–800) m.

Conservation assessment: VU B1 + 2b). IUCN (1994), assessed by J. Lovett & G. P. Clarke in 1998 (IUCN, 2004).

Coffea pterocarpa A.P.Davis & Rakotonas., ined. – see *Coffea* subgen. *Baracoffea*

Coffea racemosa Lour., *Fl. Cochinch. 145 (1790). Type:* East Mozambique, *White 6 (neotype* K*).*

[*Coffea ramosa* Lour. Schult. in Roem. & Schult., Syst. Veg. 5: 198 (1819), sphalm.]
Coffea mozambicana DC., Prodr. 4: 500 (1830).
Coffea swynnertonii S.Moore, J. Linn. Soc., Bot. 40: 95 (1911).
Coffea racemosa var. *myrtoidea* A. Chev., Encycl. Biol. 22: 32 (1942), nom. nud.

Illustrations: Chevalier (1942: pl. 61, 63); Bridson (1982: 850, fig. 10a–g); Bridson (2003: 460, table 91b).

Literature: Chevalier (1947: 219); Bridson (1982: 849); Bridson (2003: 462).

Distribution: Southern Tropical Africa (Mozambique, Zimbabwe); southern Africa (KwaZulu-Natal); western Indian Ocean (Mozambique Channel Is.). TDWG: 26 MOZ, ZIM; 27 NAT; 29 MCI.

Ecology: Seasonally dry, mixed deciduous–evergreen forest, or in seasonally dry, evergreen forest, mostly in littoral forest (including forest on stabilized sand dunes), sometimes in shrubland, often found in association with *Brachystegia microphylla*; 0–600 m.

Conservation assessment: NT.

Coffea rakotonasoloi A.P.Davis, *Kew Bull.* **56:** 481 (2001). *Type:* East Madagascar, *Davis & Rakotonasolo 2265 (holotype* TAN*; isotypes* BR, K, MO, P, TEF*).*

Illustration: Davis (2001: 483, fig. 2).

Distribution: East Madagascar (Réserve Spéciale d'Ambatovaky). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 450–500 m.

Conservation assessment: CR B2a–e. IUCN (1994), assessed by Davis (2001: 482).

Coffea ratsimamangae J.-F.Leroy ex A.P.Davis & Rakotonas., *Adansonia, sér 3,* **23:** 143 (2001). *Type:* North Madagascar, *Capuron 23171-SF (holotype* P*; isotypes* K, TEF*).*

Illustration: Davis & Rakotonasolo (2001a: 144, fig. 3).

Distribution: North Madagascar. TDWG: 29 MDG.

Ecology: Seasonally dry, evergreen forest, including deciduous species; 0–150 m.

Conservation assessment: EN B2a–e. IUCN (1994), assessed by Davis & Rakotonasolo (2001b: 145).

Coffea resinosa (Hook.f.) Radlk., *Abh. Naturwiss. Vereins Bremen* **8:** 392 *[in adnot.]* (1883). *Type:* East Madagascar, *Gerrard s.n. (holotype* K*).*
**Leiochilus resinosus* Hook.f. in G.Bentham & J.D.Hooker, Gen. Pl. 2: 116 (1873). *Buseria resinosa* (Hook.f.) T.Durand ex K.Schum. in H.G.A.Engler & K.A.E.Prantl, Nat. Pflanzenfam. 4(4): 108 (1891).

Illustrations: Chevalier (1942: pl. 78 & 79); Charrier (1978: 87–88, pl. 5b, f, h [photo]).

Literature: Chevalier (1947: 146); Davis (2001: 481).

Distribution: East Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen littoral forest, and sometimes low scrubby littoral forest; 0–50 m.

Conservation assessment: NT.

Coffea rhamnifolia (Chiov.) Bridson, *Kew Bull.* **38:** 320 (1983). *Type:* South-east Somalia, *Paoli 1163 (holotype* FT*).*
**Plectronia rhamnifolia* Chiov., Result. Sci. Miss. Stefan.-Paoli Somal. Ital. 1: 95 (1916). *Paolia jasminoides* Chiov., Result. Sci. Miss. Stef. Paoli, Coll. Bot. 1: 93 (1916). *Coffea paolia* Bridson, Kew Bull. 34: 376 (1979).
C*anthium rhamnifolium* (Chiov.) Chiov., Fl. Somala 2: 243 (1932), pro syn.

Illustrations: Tennant (1968: 436, pl. 2 [photo, as *Paolia jasminoides*, with some inaccurate details]; 437, pl. 2); Bridson (1982: 853, fig. 11 [as *C. paolia*]).

Literature: Leroy (1982: 414 [as *C. paolia*]); Tennant (1968: 436, 437); Bridson (1988a: 722); Chiovenda (1932: 243 [as *Plectronia rhamnifolia*] (1932).

Distribution: North-east Tropical Africa (south-east Somalia); east Tropical Africa (north-east Kenya). TDWG: 24 SOM; 25 KEN.

Ecology: Dry shrubland, often *Acacia* or *Acacia–Commiphora* shrubland, including areas of vegetation on stabilized dunes; 20–250(–550) m.

Conservation assessment: NT.

Coffea richardii J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **8:** 17 (1961). *Type:* East Madagascar, *Capuron 9161-SF (holotype* P*; isotype* TEF*).*

Illustrations: Leroy (1961a, pl. 1 [photo of holotype]); Leroy (1962: pl. 3 [lower photo]); Charrier (1978: 94, pl. 6c, d [photo]).

Literature: Charrier (1978: 91).

Distribution: East Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest, including littoral forest; 0–500 m.

Conservation assessment: NT.

Coffea sahafaryensis J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **9:** 528 (1962). *Type:* North-east Madagascar, *Capuron 20115-SF (holotype* P*; isotype* K*).*

Distribution: North-east Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest, and sometimes in gallery forest; *c.* 200 m.

Conservation assessment: EN B1ab(iii).

Coffea sakarahae J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **9:** 525 (1962). *Type:* South Madagascar, *Humbert 19742 (holotype* P*).*

Illustration: Charrier (1978: 108–109, pl. 8c–e [photo]).

Literature: Charrier (1978: 103).

Distribution: South (central) Madagascar. TDWG: 29 MDG.

Ecology: Transitional forest (transition between humid, evergreen forest and deciduous forest), season-

ally dry, containing evergreen and deciduous species; 500–1300 m.

Conservation assessment: VU B1ab(iii).

Coffea salvatrix Swynn. & Phillipson, *J. Bot.* **74:** 314 (1936). *Type:* Central Mozambique (cultivated in Zimbabwe), *Swynnerton s.n. (holotype* BM*).*

Illustrations: Swynnerton & Philipson (1936: 315, fig. 1); Chevalier (1942: pl. 70); Bridson (1982: 832, fig. 3g–m); Bridson (2003: 456, table 90a).

Literature: Chevalier (1947: 221); Bridson (1982: 833); Bridson (1988a: 714); Bridson (2003: 457).

Distribution: East Tropical Africa (south-west Tanzania) [doubtful record]; south Tropical Africa (Malawi, Mozambique, Zimbabwe). TDWG: ?25 TAN; 26 MLW, MOZ, ZIM.

Ecology: Humid, evergreen forest, or seasonally dry, mixed evergreen–deciduous forest; (400–)850–1650 (–1850) m.

Conservation assessment: NT.

Coffea sambavensis J.-F.Leroy ex A.P.Davis & Rakotonas., *Adansonia, sér 3,* **23:** 340 (2001). *Type:* North-east Madagascar, *Capuron 27706-SF (holotype* P*; isotypes* K, TEF*).*

Illustration: Davis & Rakotonasolo (2001b: 343, fig. 3).

Literature: Charrier (1978: 91 [as *Coffea* sp. A.950 & A.955]).

Distribution: North-east Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest, including littoral forest; 0–200 m.

Conservation assessment: EN B1ab (i,ii,ii,iv,v). IUCN (2001), assessed by Davis & Rakotonasolo (2001b: 344).

Coffea schliebenii Bridson, *Kew Bull.* **49:** 335 (1994). *Type:* South-east Tanzania, *Schlieben 5716 (holotype* K*; isotypes* B, BR, LISC*).*
[*Coffea 'sp. D'* Bridson, Kew Bull. 36: 838 (1982); Bridson in Fl. Trop East Africa, *Rubiaceae* part 2: 717 (1988).]

Illustration: Bridson (1982: 837, fig. 5j–n [as *C.* sp. D]).

Literature: Bridson (1994: 335).

Distribution: South-east Tanzania (Lindi). TDWG: 25 TAN.

Ecology: Mixed deciduous–evergreen forest, or in mostly evergreen forest, sometimes in woody shrubland, all forest types seasonally dry, some forest types associated with *Brachystegia microphylla*; 240–700 m.

Conservation assessment: VU B1ab(iii).

Coffea sessiliflora Bridson, *Kew Bull.* **41:** 307 (1986). *Type:* South-east Kenya, *Verdcourt 2402 (holotype* K*; isotype* EA*).*
[*Coffea 'sp. A'* Bridson, Kew Bull. 36: 836 (1982).]

Literature: Bridson (1988a: 716).

Distribution: East Tropical Africa (south-east Kenya, Tanzania). TDWG: 25 KEN, TAN.

Ecology: Humid, evergreen forest, including coastal forest/thicket and riverine forest; 10–500 m.

Conservation assessment: NT.

ssp. **mwasumbii** Bridson, *Kew Bull.* **41:** 308 (1986). *Type:* North-east Tanzania, *Mwasumbi 12493 (holotype* K*; isotype* DSM*).*

Literature: Bridson (1988a: 717).

Distribution: North-east Tanzania (Dar es Salaam-Kisarawe region). TDWG: 25 TAN.

Ecology: Humid, evergreen forest, including coastal forest; 130–250 m.

Conservation assessment: EN b1ab(iii).

ssp. **sessiliflora**

Illustration: Bridson (1988a: 715, fig. 123h–l).

Literature: Bridson (1988a: 716).

Distribution: South-east Kenya. TDWG: 25 KEN.

Ecology: Humid, evergreen forest, including coastal forest/thicket and riverine forest; 10–500 m.

Conservation assessment: NT.

Coffea stenophylla G.Don, *Gen. Syst.* **3:** 581 (1834). *Type:* South Sierra Leone, *Afzelius s.n. (holotype* UPS*).*
Coffea courtii (ms. in P), fide A.Chev., Encycl. Biol. 28: 210 (1947), pro. syn.

Illustrations: De Wildeman (1906b: pl. 63); Cramer (1913: pl. opp. p. 608); Cheney (1925: 33, pl. 12).

Literature: De Wildeman (1906a: 340); Chevalier (1929: 92); Chevalier (1947: 210); Cramer (1957: 135); Keay (1963: 156); Berthaud (1986: 136, 151, 181); Bridson (1988a: 703); Stoffelen *et al*. (1996: 246); Wrigley (1988: 75); Stoffelen (1998: 119); Bridson (2003: 454).

Distribution: West Tropical Africa (Guinea, Ivory Coast, Sierra Leone). TDWG: 22 GUI, IVO, SIE.

Ecology: Humid, evergreen forest, generally restricted to drier areas, such as exposed slopes and ridges; *c*. 200 m.

Conservation assessment: LC.

Notes: Coffea stenophylla is often confused with some narrow-leaved variants of *C. arabica*, such as those previously referred to as var. *angustifolia sensu* auct. (non *C. arabica* var. *angustifolia* Cramer) and var. *monosperma* Ottol. & Cramer. (Stoffelen *et al*., 1996). True *C. stenophylla* has violet–black fruit with a somewhat accrescent disc, and the flowers are six- to eight-merous; *C. arabica* has a red fruit, a non-accrescent disc, and usually five-merous flowers. Interspecific gene exchange between *C. stenophylla*, *C. liberica*, and *C. canephora* has been recorded (e.g. Berthaud, 1986). *C. stenophylla* can be found growing in the same area as *C. liberica* and *C. canephora*, although it grows on the drier tops of the hills, whereas the other two species are found in valleys and lower, i.e. wetter, parts of the same hills (Berthaud, 1986). Berthaud (1986) and Charrier & Berthaud (1985: 31, table 2.7) suggest that it may be possible to recognize two groups within *C. stenophylla*, one for the western part of Ivory Coast and another for the eastern part. The latter could be the related species *C. togoensis*, as suggested by Stoffelen (1998: 121). Further research is required.

The figure of *C. stenophylla* in Hooker (1896) and the copies based on it in Anonymous (1896: 190), De Wildeman (1906b: pl. 62), Cheney (1925: 31, t.11), and Chevalier (1929: 94, fig. 17) show a terminal solitary inflorescence in addition to the axillary ones. This would appear to have been based on an anomalous specimen of a different species and, in the opinion of Bridson (1988a: 703), the plate represents *C. togoensis*. The illustrations in De Wildeman (1906b: pl. 63), Cramer (1913: pl. opp. 608), and Cheney (1925: 33, pl.12) seem to be more accurate.

Coffea tetragona Jum. & H.Perrier, *Ann. Inst. Bot.-Géol. Colon. Marseille, sér 2,* **8:** 466 (1910). *Type:* North-west Madagascar, *Perrier de la Bâthie s.n. (holotype* ?MARS*; isotypes* P, K*).*

Illustration: Chevalier (1942: pl. 92).

Literature: Chevalier (1947: 161); Charrier (1978: 97).

Distribution: North-west Madagascar. TDWG: 29 MDG.

Ecology: Seasonally dry humid, evergreen forest (Sambirano vegetation); altitude unrecorded.

Conservation assessment: VU B1ab(iii).

Coffea togoensis A.Chev., *Rev. Bot. Appl. Agric. Trop.* **19:** 402 (1939). *Type:* South Togo, *Warnecke 415 (holotype* B†*; isotype* K*).*

Illustration: Chevalier (1942: pl. 49, 50).

Literature: Chevalier (1947: 169); Keay (1963: 156); Stoffelen (1998: 122).

Distribution: West Tropical Africa (south Ghana, south Togo). TDWG: 22 GHA, TOG.

Ecology: Humid, evergreen forest, including drier coastal forest; *c*. 135 m.

Conservation assessment: VU A1c. IUCN (1994), assessed by W. Hawthorne in 1998 (IUCN, 2004).

Notes: See notes for *C. stenophylla*.

Coffea tricalysioides J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **8:** 10 (1961). *Type:* North Madagascar, *Homolle 78 [a] (holotype* P*; isotype* K*).*
Coffea tsaratanensis J.-F.Leroy, J. Agric. Trop. Bot. Appl. 8: 9 (1961).

Illustration: Leroy (1961a, pl. 7 [*C. tsaratanensis*, photo of holotype]).

Distribution: North Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest, mostly in high-altitude cloud forest; 1300–2500 m.

Conservation assessment: LC.

Coffea tsirananae J.-F.Leroy, *Adansonia, n.s.,* **12:** 319 (1972). *Type:* North Madagascar, *Capuron 22925-SF (holotype* P*; isotypes* K, P, TEF*).*

Illustration: Leroy (1972a: 320, pl. 1).

Literature: Charrier (1978: 103).

Distribution: North Madagascar. TDWG: 29 MDG.

Ecology: Seasonally dry, deciduous forest, which may contain xerophytic species (drier) or evergreen species (more humid); 100–300 m.

Conservation assessment: EN B1ab(iii).

Coffea vatovavyensis J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **9:** 527 (1962). *Type:* East Madagascar, *Leroy 40 (Vivanney-Liaud A. 205) (holotype* P*; isotype* K*).*

Literature: Charrier (1978: 103).

Distribution: East Madagascar (Vatovavy). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; *c*. 400 m.

Conservation assessment: EN B1ab(iii).

Coffea vavateninensis J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **9:** 229 (1962). *Type:* East Madagascar, *Rakotondranisa 11359-RN (holotype* P*; isotypes* K, P*).*

Distribution: East Madagascar (Vavatenina). TDWG: 29 MDG.

Ecology: Humid, evergreen forest; altitude unrecorded but probably *c*. 500 m.

Conservation assessment: EN B1ab(iii).

Coffea vianneyi J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **9:** 222 (1962). *Type:* South-east Madagascar, *collector anonymous, 3713-SF (holotype* P*).*

Illustration: Charrier (1978: 87–88, pl. 5c, d, e [photo]).

Literature: Charrier (1978: 90).

Distribution: South-east Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest; 400–600 m.

Conservation assessment: EN B1ab(iii).

Coffea vohemarensis A.P.Davis & Rakotonas., *Bot. J. Linn. Soc.* **142:** 111 (2003). *Type:* North-east Madagascar, *Rakotonasolo RNF 267 (holotype* TAN*; isotypes* K, TEF*).*

Distribution: North-east Madagascar. TDWG: 29 MDG.

Ecology: Humid, evergreen forest, including littoral forest; 10–200 m.

Conservation assessment: EN B1ab(i,ii,iii,iv,v). IUCN (2001), assessed by Davis & Rakotonasolo (2003: 112).

Coffea zanguebariae Lour., *Fl. Cochinch. 145 (1790). Type:* North Mozambique, *Groenendijk, Maite & Dungo 884 (neotype* K*; isoneotype* LMU*).*
Amaioua africana Spreng., Syst. Veg. 2: 126 (1825).
Hexepta axillaris Raf., Sylva Tellur. 164 (1838).
Coffea ibo A.Froehner, Notizbl. Bot. Gart. Berlin-Dahlem 1: 234 (1897).
Coffea schumanniana Busse, Tropenpflanzer 6: 142 (1902).
Coffea zanzibarensis R.M.Grey, Rep. Harvard Bot. Gard. Cienfuegos Cuba: 31 (1927), pro syn.

Illustrations: Chevalier (1929: 96); Chevalier (1942: pl. 67); Chevalier (1947: 218); Bridson (1982: 847, fig. 9); Bridson (2003: 460, table 91a).

Literature: Bridson (1982: 847); Bridson (1988a: 721); Bridson (2003: 459).

Distribution: East Tropical Africa (south Tanzania); south Tropical Africa (north Mozambique). TDWG: 25 TAN; 26 MOZ.

Ecology: Seasonally dry, deciduous forest, or in seasonally dry, riverine thicket; 10–350(–700) m.

Conservation assessment: VU B1 + 2b. IUCN (1994), assessed by J. Lovett & G. P. Clarke in 1998 (IUCN, 2004). EN D. IUCN (1994), assessed by Mapura & Timberlake, 2002: 168). Note: We concur with the assessment made by J. Lovett and G. P. Clarke (IUCN, 2004), as there are likely to be more than 250 individuals of this species in the wild.

COFFEA SUBGEN. *BARACOFFEA* (J.-F.LEROY) J.-F. LEROY, ASS. SCI. INTERNAT. CAFÉ, (ASIC) 9TH COLLOQUE: 475 (1980). TYPE: *COFFEA HUMBERTII* J.-F.LEROY

**Coffea* sect. *Baracoffea* J.-F.Leroy, Comp. Rend. Acad. Sci. Paris 252: 2287 (1961).

[*Paracoffea* subgen. *Insulanoparacoffea* J.-F.Leroy, J. Agric. Trop. Bot. Appl. 14: 276 (1967), nom. nud.]

Distribution: West Madagascar. TDWG: 29 MDG.

Number of species: 8.

Coffea ambongensis J.-F.Leroy ex A.P. Davis & Rakotonas., ined. *Proposed type specimen:* West Madagascar, *Rakotonasolo 68 (holotype* TAN*; isotypes* K, P, TEF, MO*).*
[*Coffea 'sp. nov. 1'* A.P.Davis, Rakotonas. & Bridson, Monogr. Syst. Bot. Missouri 104: 402 (2005).]

Illustration: Davis *et al*. (2005: 417, fig. 3).

Distribution: West Madagascar (Mahajanga Province). TDWG: 29 MDG.

Ecology: Seasonally dry, deciduous littoral forest (including forest on stabilized dunes); 0–30 m.

Conservation assessment: EN B1ab(iii).

Coffea bissetiae A.P.Davis & Rakotonas., ined. *Proposed type specimen:* West Madagascar, *Bisset M. 13 (holotype* K*; isotypes* P, MO, TEF*).*
[*Coffea 'sp. nov. 4'* A.P.Davis, Rakotonas. & Bridson, Monogr. Syst. Bot. Missouri 104: 402 (2005).]

Illustration: Davis *et al*. (2005: 418, figs 1d, 4e, f).

Distribution: West Madagascar (Mahajanga Province). TDWG: 29 MDG.

Ecology: Seasonally dry, deciduous littoral forest, on the edge of salt flats; 10–20 m.

Conservation assessment: DD.

Coffea boinensis A.P.Davis & Rakotonas., ined. *Proposed type specimen:* West Madagascar, *Rakotonasolo 67 (holotype* TAN*; isotypes* BR, K, P, MO, TEF*).*
[*Coffea 'sp. nov. 2'* A.P.Davis, Rakotonas. & Bridson, Monogr. Syst. Bot. Missouri 104: 402 (2005).]

Illustration: Davis *et al*. (2005: 420, fig. 3a–c).

Distribution: West Madagascar (Mahajanga Province, Parc National d'Ankarafantsika). TDWG: 29 MDG.

Ecology: Seasonally dry, deciduous forest; 170–210 m.

Conservation assessment: CR B1ab(iii).

Coffea decaryana J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **8:** 541 (1961). *Type:* West Madagascar, *Decary 15842 (holotype* P*; isotype* P*).*
Paracoffea decaryana (J.-F.Leroy) J.-F.Leroy, J. Agric. Trop. Bot. Appl. 14: 276 (1967), comb. invalid.

Illustration: Davis *et al*. (2005: 420, fig. 6d).

Literature: Charrier (1978: 110); Davis *et al*. (2005: 413).

Distribution: West Madagascar (Réserve Naturelle Intégrale Namaroka). TDWG: 29 MDG.

Ecology: Seasonally dry, deciduous forest on tsingy (karst-type) limestone; *c*. 130 m.

Conservation assessment: EN B1ab(iii).

Coffea grevei Drake ex A.Chev., *Rev. Bot. Appl. Agric. Trop.* **18:** 836 (1938). *Type:* West Madagascar, *Grevé 215 (holotype* P*; isotype* K*).*
Coffea capuronii J.-F.Leroy, J. Agric. Trop. Bot. Appl. 8: 12 (1961). *Paracoffea capuronii* J.-F.Leroy, J. Agric. Trop. Bot. Appl. 14: 276 (1967), comb. invalid.
Coffea morondavensis J.-F.Leroy, J. Agric. Trop. Bot. Appl. 9: 234 (1962).

Illustrations: Chevalier (1938: 837, pl. 14); Chevalier (1942: pl. 107, 108).

Literature: Chevalier (1947: 126); Leroy (1982: 414); Charrier (1978: 110).

Distribution: West Madagascar. TDWG: 29 MDG.

Ecology: Seasonally dry, deciduous forest, including deciduous littoral forest, infrequently in seasonally dry, mixed deciduous–evergreen forest; 5–250 m.

Conservation assessment: LC.

Coffea humbertii J.-F.Leroy, *J. Agric. Trop. Bot. Appl.* **8:** 11 (1961). *Type:* South-west Madagascar, *Capuron 542-SF (holotype* P*; isotype* TEF*).*
Paracoffea humbertii (J.-F.Leroy) J.-F.Leroy, J. Agric. Trop. Bot. Appl. 14: 276 (1967), comb. invalid.

Illustration: Leroy (1961a, pl. 8).

Literature: Leroy (1961b: 2285); Leroy (1982: 414); Charrier (1978: 110).

Distribution: South-west Madagascar. TDWG: 29 MDG.

Ecology: Seasonally dry deciduous forest, and xerophytic shrubland; 30–50 m.

Conservation assessment: EN B1ab(iii).

Coffea labatii A.P.Davis & Rakotonas., ined. *Proposed type specimen:* West Madagascar, *Labat & Deroin 2291 (holotype* P*; isotype* K*).*
[*Coffea 'sp. nov. 3'* A.P.Davis, Rakotonas. & Bridson, Monogr. Syst. Bot. Missouri 104: 402 (2005), pro parte.]

Distribution: West Madagascar. TDWG: 29 MDG.

Ecology: Seasonally dry, mixed deciduous–evergreen forest on tsingy (karst-type) limestone; *c*. 100–200 m.

Conservation assessment: EN B1ab(iii).

Coffea pterocarpa A.P.Davis & Rakotonas., ined. *Proposed type specimen:* West Madagascar, *Davis & Rakotonasolo 2538 (holotype* K*; isotypes* P, MO, TAN, TEF*).*
[*Coffea 'sp. nov. 3'* A.P.Davis, Rakotonas. & Bridson, Monogr. Syst. Bot. Missouri 104: 402 (2005), pro parte.]

Illustration: Davis *et al*. (2005: 420, fig. 6f).

Distribution: West Madagascar. TDWG: 29 MDG.

Ecology: Seasonally dry, mixed deciduous–evergreen forest on tsingy (karst-type) limestone; *c*. 120–130 m.

Conservation assessment: CR B1ab(iii).

Imperfectly known taxa

Coffea klaurathii K.Schum. ex De Wild., Ann. Jard. Buitenzorg, suppl. 3(1): 372 (1910), nom. nud.
Coffea racemosa sensu A.Chev., Cafeiers de Globe 2, pl. 64 (1942) & 3: 219 (1947), pro parte.

Notes: De Wildeman (1910) based the unpublished *C. klaurathii* on a specimen collected by a Miss Klaurath at Iringa, Tanzania. This specimen was held at Berlin (B) and is assumed to have been destroyed. According to Chevalier (1942, 1947), the *Klaurath* specimen represents *C. racemosa* Lour. This was contested by Bridson (1982: 852) as it lies well outside the geographical range for this species. According to Bridson, the specimen is either closer to *C. mufindiensis* Hutch. ex Bridson or (on the basis of its ribbed fruits) to *C*. sp. J (of Bridson, 1982: 851; see Appendix). De Wildeman (1910) used the spelling 'klaurrathii' and 'Klaurrath' for the collector, but this was corrected by Chevalier (1942, 1947).

SYNONYMS (LISTED ALPHABETICALLY)

See also Appendix (undescribed and informally recognized species).
Amaioua africana Spreng. = *Coffea zanguebariae* Lour.
Buseria resinosa (Hook.f.) T.Durand ex K.Schum. = *Coffea resinosa* (Hook.f.) Radlk.
Canthium rhamnifolium (Chiov.) Chiov. = *Coffea rhamnifolia* (Chiov.) Bridson
Capirona boiviniana Baill. = *Coffea boiviniana* (Baill.) Drake
Coffea 'Dja Mékas' Stoffelen (1998) = *Coffea anthonyi* Stoff. & F.Anthony, ined.
Coffea 'Bakossi' Anthony (1992) = *Coffea charrieriana* Stoff. & F. Anthony, ined.
Coffea 'Moloundou' Anthony (1992) = *Coffea anthonyi* Stoff. & F.Anthony, ined.
Coffea 'sp. A' Bridson (1982) = *Coffea sessiliflora* Bridson
Coffea 'sp. A' Bridson (1988) = *Coffea kimbozensis* Bridson
Coffea 'sp. B' Bridson (1982) = *Coffea bridsoniae* A.P. Davis & Mvungi
Coffea 'sp. Bakossi' Anthony (1992) = *Coffea charrieriana* Stoff. & F.Anthony, ined.
Coffea 'sp. C' Bridson (1982) = *Coffea lulandoensis* Bridson
Coffea 'sp. D' Bridson (1982) = *Coffea schliebenii* Bridson
Coffea 'sp. E' Bridson (1982) = *Coffea pocsii* Bridson
Coffea 'sp. F' Bridson (1982) = *Coffea costatifructa* Bridson
Coffea 'sp. J' Bridson (1988) = *Coffea costatifructa* Bridson
Coffea 'sp. K' Bridson (1982) = *Coffea costatifructa* Bridson
Coffea 'sp. Moloundou' Anthony (1992) = *Coffea anthonyi* Stoff. & F.Anthony, ined.
Coffea 'sp. nov. 1' Davis *et al*. (2005) = *Coffea ambongensis* J.-F.Leroy ex A.P.Davis & Rakotonas., ined.
Coffea 'sp. nov. 2' Davis *et al*. (2005) = *Coffea boinensis* A.P.Davis & Rakotonas., ined.
Coffea 'sp. nov. 3' Davis *et al*. (2005) = *Coffea labatii* A.P.Davis & Rakotonas., ined/*Coffea pterocarpa* A.P. Davis & Rakotonas., ined.
Coffea 'sp. nov. 4' Davis *et al*. (2005) = *Coffea bissetiae* A.P.Davis & Rakotonas., ined.
Coffea 'sp. nov. aff. C. racemosa' Lour. *sensu* Vollesen = *Coffea costatifructa* Bridson
Coffea abeocuta Cramer ex De Wild. = *Coffea liberica* Hiern var. *liberica*

Coffea abeokutae Cramer = *Coffea liberica* Hiern var. *liberica*
Coffea abeokutae var. *camerunensis* A.Chev. = *Coffea liberica* Hiern var. *liberica*
Coffea abeokutae var. *indeniensis* Siebert = *Coffea liberica* Hiern var. *liberica*
Coffea abeokutae var. *indeniensis* (Siebert) A.Chev. = *Coffea liberica* Hiern var. *liberica*
Coffea abeokutae var. *indeniocarpa* Portères = *Coffea liberica* Hiern var. *liberica*
Coffea abeokutae var. *longicarpa* Portères = *Coffea liberica* Hiern var. *liberica*
Coffea abeokutae var. *macrocarpa* A.Chev. = *Coffea liberica* Hiern var. *liberica*
Coffea abeokutae var. *microcarpa* A.Chev. = *Coffea liberica* Hiern var. *liberica*
Coffea abeokutae var. *sphaerocarpa* Portères = *Coffea liberica* Hiern var. *liberica*
Coffea acuminata Ruiz & Pav. = *Coussarea acuminata* (Ruiz & Pav.) Zappi
Coffea afzelii Hiern = *Argocoffeopsis afzelii* (Hiern) Robbr.
Coffea alpestris Wight = *Tarenna alpestris* (Wight) N.P.Balakr.
Coffea ambodirianaensis Portères = *Coffea millotii* J.-F.Leroy
Coffea angolensis Good = *Gardenia brachythamnus* (K.Schum.) Launert
Coffea angustifolia Roxb. = *Pittosporum moluccanum* (Lam.) Miq.
Coffea antsingyensis J.-F.Leroy = *Coffea pervilleana* (Baill.) Drake
Coffea arabica f. *abyssinica* A.Chev. = *Coffea arabica* L.
Coffea arabica var. *abyssinica* A.Chev. = *Coffea arabica* L.
Coffea arabica var. *amarella* A.Froehner = *Coffea arabica* L.
Coffea arabica var. *angustifolia* Cramer = *Coffea arabica* L.
Coffea arabica var. *angustifolia* (Roxb.) Miq. ex A.Froehner = *Pittosporum moluccanum* (Lam.) Miq.
Coffea arabica var. *bourbon* Rodr. ex Choussy = *Coffea arabica* L.
Coffea arabica var. *brevistipulata* Cif. = *Coffea arabica* L.
Coffea arabica var. *bullata* Cramer = *Coffea arabica* L.
Coffea arabica var. *columnaris* Ottol. ex Cramer = *Coffea arabica* L.
Coffea arabica var. *culta* A.Chev. = *Coffea arabica* L.
Coffea arabica var. *cultoides* A.Chev. = *Coffea arabica* L.
Coffea arabica var. *erecta* Ottol. ex Cramer = *Coffea arabica* L.
Coffea arabica var. *humblotiana* (Baill.) A.Froehner = *Coffea humblotiana* Baill.
Coffea arabica var. *intermedia* A.Froehner = *Coffea eugenioides* S.Moore
Coffea arabica var. *latifolia* A.Chev. = *Coffea arabica* L.
Coffea arabica var. *laurina* Laness. = *Coffea arabica* L.
Coffea arabica var. *longistipulata* Cif. = *Coffea arabica* L.
Coffea arabica var. *maragogype* A.Froehner = *Coffea arabica* L.
Coffea arabica var. *mauritiana* (Lam.) Willd. = *Coffea mauritiana* Lam.
Coffea arabica var. *mokka* Cramer = *Coffea arabica* L.
Coffea arabica var. *monosperma* Ottol. & Cramer = *Coffea arabica* L.
Coffea arabica var. *murta* Lalière = *Coffea arabica* L.
Coffea arabica var. *myrtifolia* A.Chev. = *Coffea arabica* L.
Coffea arabica var. *pendula* Cramer = *Coffea arabica* L.
Coffea arabica var. *polysperma* Burck = *Coffea arabica* L.
Coffea arabica var. *pubescens* Cif. = *Coffea arabica* L.
Coffea arabica var. *purpurascens* Cramer = *Coffea arabica* L.
Coffea arabica var. *rachiformis* (Baill.) A.Froehner = *Coffea humblotiana* Baill.
Coffea arabica var. *rotundifolia* Ottol. ex Cramer = *Coffea arabica* L.
Coffea arabica var. *straminea* Miq. ex A.Froehner = *Coffea arabica* L.
Coffea arabica var. *stuhlmannii* A.Froehner = *Coffea canephora* Pierre ex A.Froehner
Coffea arabica var. *sundana* (Miq.) A.Chev. = *Coffea arabica* L.
Coffea arabica var. *typica* Ottol. ex Cramer = *Coffea arabica* L.
Coffea arabica var. *variegata* Ottol. ex Cramer = *Coffea arabica* L.
Coffea × *arabusta* Capot & Aké Assi = *C. arabica* × *C. canephora*
Coffea arnoldiana De Wild. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea aruwimiensis De Wild. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea australis Vell. = *Faramea australis* (Vell.) Müll.Arg.
Coffea baviensis Drake = ? *Nostolachma* sp.
Coffea becquetii A.Chev. = *Coffea eugenioides* S.Moore
Coffea bengalensis Roxb. ex Schult. = *Psilanthus bengalensis* (Roxb. ex Schult.) J.-F.Leroy
Coffea bernardiniana J.-F.Leroy = *Coffea macrocarpa* A.Rich.

Coffea bidentata D.Dietr. = *Palicourea microcarpa* (Ruiz & Pav.) Zappi
Coffea biflora Vell. = *Coussarea biflora* (Vell.) Müll.Arg.
Coffea boiviniana ssp. *drakei* J.-F.Leroy = *Coffea boiviniana* (Baill.) A.Chev.
Coffea bojeriana J.-F.Leroy = *Coffea macrocarpa* A.Rich.
Coffea bonnieri ssp. *androrangae* J.-F.Leroy = *Coffea bonnieri* Dubard
Coffea bonnieri var. *diversifolia* (Jum.) A.Chev. = *Coffea augagneurii* Dubard
Coffea × *borelorum* A.Chev. = *Coffea 'Borelorum'*
Coffea boryana D.Dietr. = *Chassalia boryana* DC.
Coffea bourbonica Pharm. ex Wehmer = *Coffea arabica* L.
Coffea brachyphylla Radlk. = *Coffea pervilleana* (Baill.) Drake
Coffea brasiliensis Walp. = *Rudgea sessilis* (Vell.) Müll.Arg. ssp. *sessilis*
Coffea brenanii J.-F.Leroy = *Argocoffeopsis rupestris* (Hiern) Robbr. ssp. *rupestris*
Coffea brevidens De Wild. = *Coffea brevipes* Hiern
Coffea brevipes var. *heterocalyx* A.Chev. = *Coffea heterocalyx* Stoffelen
Coffea brevipes var. *longifolia* A.Froehner = *Coffea mayombensis* A.Chev.
Coffea bukobensis A.Zimm. = *Coffea canephora* Pierre ex A.Froehner
Coffea calycina Benth. = *Morinda calycina* (Benth.) Steyerm.
Coffea campaniensis J.-F.Leroy = *Coffea mauritiana* Lam.
Coffea canephora f. *sankuruensis* De Wild. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *crassifolia* Lautent ex De Wild. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *gossweileri* A.Chev. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *hiernii* Pierre ex De Wild. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *hinaultii* Pierre ex De Wild. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *kouilouensis* De Wild. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *laurentii* (De Wild.) A.Chev. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *maclaudii* (A.Chev.) A.Chev. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *muniensis* Pierre ex De Wild. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *nganda* Haarer = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *oka* A.Chev. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *oligoneura* Pierre ex De Wild. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *opaca* Pierre ex De Wild. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora subvar. *robusta* (L.Linden) A.Chev. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *sankuruensis* (De Wild.) De Wild. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *stuhlmannii* (A.Froehner) A.Chev. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *trillesii* De Wild. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *ugandae* (Cramer) A.Chev. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *welwitschii* (Pierre ex De Wild.) A.Chev. = *Coffea canephora* Pierre ex A.Froehner
Coffea canephora var. *wildemanii* Pierre ex De Wild. = *Coffea canephora* Pierre ex A.Froehner
Coffea capitata Sieber ex DC. = *Chassalia capitata* DC.
Coffea capitata (DC.) D.Dietr. = *Chassalia capitata* DC.
Coffea capuronii J.-F.Leroy = *Coffea grevei* Drake ex A.Chev.
Coffea chamissonis Hook. & Arn. = *Psychotria kaduana* (Cham. & Schltdl.) Fosberg
Coffea chassalioides D.Dietr. = *Chassalia lanceolata* (Poir.) A.Chev. ssp. *lanceolata*
Coffea ciliata Ruiz & Pav. = *Rudgea ciliata* (Ruiz & Pav.) Spreng.
Coffea ciliolata A.Chev. = *Lemyrea ciliolata* (A.Chev.) A.Chev. & Beille
Coffea claessensii Lebrun = *Argocoffeopsis subcordata* (Hiern) Lebrun
Coffea clusiifolia (DC.) D.Dietr. = *Ochrosia borbonica* J.F. Gmel.
Coffea cochinchinensis Pierre ex Pit. = *Psilanthus cochinchinensis* (Pierre ex Pit.) J.-F.Leroy
Coffea congensis var. *chalotii* Pierre ex De Wild. = *Coffea congensis* A.Froehner
Coffea congensis var. *froehneri* Pierre ex De Wild. = *Coffea congensis* A.Froehner
Coffea congensis var. *micrantha* Lebrun = *Coffea congensis* A.Froehner
Coffea congensis var. *oubanghensis* Pierre ex De Wild. = *Coffea congensis* A.Froehner
Coffea congensis var. *subsessilis* De Wild. = *Coffea congensis* A.Froehner
Coffea coriacea Humb. & Bonpl. ex Schult. = *Rudgea sclerocalyx* (Müll.Arg.) ined.
Coffea corymbulosa Bertol. = *Coffea arabica* L.
Coffea courtii fide A.Chev. = *Coffea stenophylla* G.Don
Coffea × *crameri* A.Chev. = *Coffea 'Crameri'*
Coffea crassifolia Gamble = *Nostolachma crassifolia* (Gamble) Deb & Lahiri

Coffea crassiloba Benth. = *Rudgea crassiloba* (Benth.) B.L.Rob.
Coffea cymosa Willd. ex Schult. = *Tarenna cymosa* (Willd. ex Schult.) Verdc.
Coffea densiflora Mart. = *Ixora densiflora* Müll.Arg.
Coffea densiflora Blume = *Nostolachma densiflora* (Blume) Bakh.f.
Coffea deppeana Steud. = *Hoffmannia excelsa* (Kunth) K.Schum.
Coffea dewevrei De Wild. & T.Durand = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea dewevrei var. *aruwimiensis* (De Wild.) A.Chev. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea dewevrei var. *dybowskii* (Pierre ex De Wild.) A.Chev. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea dewevrei var. *excelsa* (A.Chev.) A.Chev. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea dewevrei var. *ituriensis* A.Chev. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea dewevrei var. *neoarnaldiana* A.Chev. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea dewevrei var. *sylvatica* (A.Chev.) A. Chev. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea dewevrei var. *zenkeri* (De Wild.) A.Chev. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea dewevrei race *excelsoidea* (Portères) A.Chev. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea didymocarpa Bartl. ex DC. = *Psychotria bahiensis* DC. var. *bahiensis*
Coffea divaricata K.Schum. = *Argocoffeopsis rupestris* (Hiern) Robbr. ssp. *rupestris*
Coffea divaricata Tausch ex DC. = *Chassalia lanceolata* (Poir.) A.Chev. ssp. *lanceolata*
Coffea diversifolia Jum. = *Coffea augagneurii* Dubard
Coffea dolichophylla J.-F.Leroy = *Coffea millotii* J.-F.Leroy
Coffea dongnaiensis Pierre ex Pit. = ?(not *Coffea*, not *Psilanthus*)
Coffea dybowskii H.C.Hall = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea dybowskii Pierre ex De Wild. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea × *ealaensis* A.Chev. = *Coffea* '*Ealaensis*'
Coffea ebracteolata (Hiern) Brenan = *Psilanthus ebracteolatus* Hiern
Coffea eketensis Wernham = *Argocoffeopsis eketensis* (Wernham) Robbr.
Coffea elliptica Thwaites = *Byrsophyllum ellipticum* (Thwaites) Hook.f.
Coffea elongata Korth. = ?
Coffea engleri K.Krause = *Sericanthe andongensis* var. *engleri* (K. Krause) Bridson
Coffea eriantha Gardner = *Rudgea coriacea* (Spreng.) K.Schum.
Coffea eugenioides var. *kivuensis* (Lebrun) A.Chev. = *Coffea kivuensis* Lebrun
Coffea excelsa A.Chev. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea excelsoidea Portères ex A.Chev. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea flavicans Humb. & Bonpl. ex Schult. = *Faramea flavicans* (Humb. & Bonpl. ex Roem. & Schult.) Standl.
Coffea floreifoliosa A.Chev. = *Psilanthus bengalensis* (Roxb. ex Schult.) J.-F.Leroy
Coffea floresiana Boerl. = *Psilanthus floresianus* (Boerl.) J.-F.Leroy
Coffea floribunda Miq. = *Molopanthera paniculata* Turcz. var. *paniculata*
Coffea floribunda Mart. = *Ixora densiflora* Müll.Arg.
Coffea fontanesii (DC.) D.Dietr. = *Chassalia lanceolata* (Poir.) A.Chev.
Coffea foveolata Ruiz & Pav. = *Rudgea foveolata* (Ruiz & Pav.) Zahlbr.
Coffea fragrans Wall. ex Hook.f. = *Psilanthus fragrans* (Wall. ex Hook.f) J.-F.Leroy
Coffea gardenioides Cham. = *Rudgea gardenioides* (Cham.) Müll.Arg.
Coffea gilgiana A.Froehner = *Psilanthus mannii* Hook.f.
Coffea glabra Korth. = *Prismatomeris glabra* (Korth.) Valeton
Coffea grandifolia Bojer ex Baker = *Coffea macrocarpa* A.Rich.
Coffea grandifolia (DC.) D.Dietr. = *Chassalia grandifolia* DC.
Coffea grumelioides Wight = *Tarenna alpestris* (Wight) N.P.Balakr.
Coffea guianensis Aubl. = *Faramea lourteigiana* Steyerm.
Coffea herbacea Aubl. ex A.Rich. = *Faramea herbacea* A.Rich.
Coffea hirsuta G.Don = *Cremaspora triflora* (Thonn.) K.Schum. ssp. *triflora*
Coffea horsfieldiana Miq. = *Psilanthus horsfieldianus* (Miq.) J.-F.Leroy
Coffea hypoglauca Welw. ex Hiern = *Belonophora coffeoides* ssp. *hypoglauca* (Welw. ex Hiern) S.E.Dawson & Cheek
Coffea ibo A.Froehner = *Coffea zanguebariae* Lour.

Coffea indica Poir. = ?(not *Coffea*, not *Psilanthus*)
Coffea intermedia (A.Froehner) A.Chev. = *Coffea eugenioides* S.Moore
Coffea ituriensis A.Chev. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea jasminoides Welw. ex Hiern = *Argocoffeopsis eketensis* (Wernham) Robbr.
Coffea jasminoides Cham. = *Rudgea jasminoides* (Cham.) Müll.Arg.
Coffea jasminoides var. *trillesiana* Pierre ex De Wild. = *Argocoffeopsis eketensis* (Wernham) Robbr.
Coffea javanica Blume = *Chassalia javanica* (Blume) Piessch.
Coffea jenkinsii Hook.f. = *Nostolachma jenkinsii* (Hook.f.) Deb & Lahiri
Coffea kaduana Cham. & Schltdl. = *Psychotria kaduana* (Cham. & Schltdl.) Fosberg
Coffea khasiana (Korth.) Hook.f. = *Nostolachma khasiana* (Korth.) Deb & Lahiri
Coffea klainii Pierre ex De Wild. = *Coffea liberica* Hiern var. *liberica*
Coffea klaurathii K.Schum. ex De Wild. = *Coffea* sp. (see 'Imperfectly known taxa')
Coffea kraussiana Hochst. = *Kraussia floribunda* Harv.
Coffea krugii A.Chev. = *Lemyrea krugii* (A.Chev.) A.Chev.
Coffea lamtoensis Portères = *Psilanthus ebracteolatus* Hiern
Coffea lamyi Lebrun fide A.Chev. = *Coffea eugenioides* S.Moore
Coffea lanceolata Cham. & Schltdl. = *Hoffmannia excelsa* (Kunth) K.Schum.
Coffea lanceolata Cham. = *Rudgea brasiliensis* (Walp.) ined.
Coffea lasiodelphys K.Schum. & K.Krause = *Tricalysia lasiodelphys* (K.Schum. & K.Krause) A.Chev.
Coffea laurentii De Wild. = *Coffea canephora* Pierre ex A.Froehner
Coffea laurifolia Salisb. = *Coffea arabica* L.
Coffea laurifolia Kunth = *Rudgea sclerocalyx* (Müll.Arg.) comb. ined.
Coffea laurina Poir. = *Craterispermum laurinum* (Poir.) Benth.
Coffea lebruniana Germ. & Kesler = *Psilanthus lebrunianus* (Germ. & Kesler) J.-F.Leroy ex Bridson
Coffea lemblinii (A.Chev.) Keay = *Argocoffeopsis lemblinii* (A.Chev.) Robbr.
Coffea lemblinii A.Chev. = *Argocoffeopsis lemblinii* (A.Chev.) Robbr.
Coffea lepidophloia Miq. = *Prismatomeris glabra* (Korth.) Valeton
Coffea liberica Bull. = *Coffea liberica* Hiern var. *liberica*
Coffea liberica var. *aurantiaca* A.Chev. = *Coffea liberica* Hiern var. *liberica*
Coffea liberica var. *gossweileri* A.Chev. = *Coffea liberica* Hiern var. *liberica*
Coffea liberica var. *grandifolia* A.Chev. = *Coffea liberica* Hiern var. *liberica*
Coffea liberica var. *indeniensis* Siebert = *Coffea liberica* Hiern var. *liberica*
Coffea liberica var. *ivorensis* Siebert = *Coffea liberica* Hiern var. *liberica*
Coffea liberica var. *liberiensis* Siebert = *Coffea liberica* Hiern var. *liberica*
Coffea liberica var. *liborensis* Siebert = *Coffea liberica* Hiern var. *liberica*
Coffea liberica var. *pyriformis* Fauchère = *Coffea liberica* Hiern var. *liberica*
Coffea ligustrifolia Stapf = *Argocoffeopsis afzelii* (Hiern) Robbr.
Coffea longifolia Ruiz & Pav. = *Coussarea acuminata* (Ruiz & Pav.) Zappi
Coffea luzoniensis Cham. & Schltdl. = *Psychotria luzoniensis* (Cham. & Schltdl.) Fern.-Vill.
Coffea mabesae (Elmer) J.-F.Leroy = *Psilanthus mabesae* (Elmer) J.-F.Leroy
Coffea maclaudii A.Chev. = *Coffea canephora* Pierre ex A.Froehner
Coffea macrochlamys K.Schum. = *Calycosiphonia macrochlamys* (K.Schum.) Robbr.
Coffea macrophylla F.Dietr. = *Faramea subsessilis* (Ruiz & Pav.) Standl.
Coffea madagascariensis Drake ex Dubard = *Tricalysia madagascariensis* (Drake ex Dubard) A.Chev.
Coffea madurensis Teijsm. & Binn. ex Koord. = *Psilanthus madurensis* (Teijsm. & Binn. ex Koord.) J.-F.Leroy
Coffea magnoliifolia Cham. = *Rudgea magnoliifolia* (Cham.) Müll.Arg.
Coffea major Cham. = *Rudgea major* (Cham.) Müll.Arg.
Coffea malayana Ridl. = *Prismatomeris* sp.
Coffea marginata Benth. = *Notopleura marginata* (Benth.) Bullock
Coffea mariniana Cham. & Schltdl. = *Psychotria mariniana* (Cham. & Schltdl.) Fosberg
Coffea mauritiana var. *lanceolata* A.Chev. = *Coffea mauritiana* Lam.
Coffea melanocarpa Welw. ex Hiern = *Psilanthus melanocarpus* (Welw. ex Hiern) J.-F.Leroy
Coffea merguensis Ridl. = *Psilanthus merguensis* (Ridl.) J.-F.Leroy
Coffea merguensis var. *orientalis* Craib = *Psilanthus merguensis* (Ridl.) J.-F.Leroy
Coffea meridionalis Vell. = *Coussarea meridionalis* (Vell.) Müll.Arg.
Coffea mexicana DC. = *Rudgea cornifolia* (Humb. & Bonpl. ex Roem. & Schult.) Standl.
Coffea microcarpa DC. = *Cremaspora triflora* (Thonn.) K.Schum. ssp. *triflora*

Coffea microcarpa Ruiz & Pav. = *Palicourea microcarpa* (Ruiz & Pav.) Zappi
Coffea minor Cham. = *Rudgea minor* (Cham.) Standl.
Coffea × *mixta* A.Chev. = *Coffea 'Mixta'*
Coffea moka Heynh. = *Coffea arabica* L.
Coffea montana K.Schum. ex De Wild. = *Coffea brevipes* Hiern
Coffea morondavensis J.-F.Leroy = *Coffea grevei* Drake ex A.Chev.
Coffea mozambicana DC. = *Coffea racemosa* Lour.
Coffea multibracteata Valeton = see 'Notes' (*1).
Coffea nandiensis Dowson ex Bullock = *Coffea eugenioides* S.Moore
Coffea neoarnoldiana A.Chev. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea neurophylla Miq. = *Prismatomeris glabra* (Korth.) Valeton
Coffea nigerina A.Chev. = *Argocoffeopsis eketensis* (Wernham) Robbr.
Coffea nitida Ruiz & Pav. = *Rudgea ciliata* (Ruiz & Pav.) Spreng.
Coffea nodosa Cham. = *Rudgea nodosa* (Cham.) Benth.
Coffea nossikumbaensis A.Chev. = *Coffea mauritiana* Lam.
Coffea novoguineensis Miq. = *Cyclophyllum novoguineensis* (Miq.) A.P.Davis & Ruhsam
Coffea nudiflora Stapf = *Argocoffeopsis rupestris* (Hiern) Robbr. ssp. *rupestris*
Coffea nufindiensis Hutch. ex A.Chev. = *Coffea mufindiensis* Hutch. ex Bridson
Coffea obovata D.Dietr. = *Chassalia lanceolata* (Poir.) A.Chev. ssp. *lanceolata*
Coffea obovata Cham. & Schltdl. = *Hoffmannia conzattii* B.L.Rob.
Coffea obscura A.Chev. = *Belonophora coffeoides* Hook.f. ssp. *hypoglauca* (Welw. ex Hiern) S.E.Dawson & Cheek
Coffea occidentalis (L.) Jacq. = *Faramea occidentalis* (L.) A.Rich.
Coffea odorata G.Forst. = *Psydrax odorata* (G.Forst.) A.C.Sm. & S.P.Darwin
Coffea oleifolia Kunth = *Psychotria oleifolia* (Kunth) Standl.
Coffea opulina G.Forst. = *Pavetta opulina* (G.Forst.) DC.
Coffea oyemensis A.Chev. = *Coffea liberica* Hiern var. *liberica*
Coffea paniculata Aubl. = *Faramea paniculata* (Aubl.) Benth.
Coffea paolia Bridson = *Coffea rhamnifolia* (Chiov.) Bridson
Coffea parquioides Cham. = *Rudgea parquioides* (Cham.) Müll.Arg.
Coffea parvifolia Cham. = *Rudgea parvifolia* (Cham.) Müll.Arg.
Coffea pawekiana Bridson = *Coffea mufindiensis* ssp. *pawekiana* (Bridson) Bridson
Coffea pedunculata Roxb. = *Prismatomeris tetrandra* ssp. *malayana* (Ridl.) J.T.Johanss.
Coffea perrottetii Steud. ex Buek = *Cremaspora triflora* (Thonn.) K.Schum. ssp. *triflora*
Coffea porophylla Vell. = *Coussarea porophylla* (Vell.) Müll.Arg.
Coffea psychotrioides (DC.) D.Dietr. = *Gaertnera psychotrioides* (DC.) Baker
Coffea pulchella K.Schum. = *Argocoffeopsis pulchella* (K.Schum.) Robbr.
Coffea quillon Wester = *Coffea canephora* Pierre ex A.Froehner
Coffea racemosa Ruiz & Pav. = *Rudgea verticillata* (Ruiz & Pav.) Spreng.
Coffea racemosa sensu A.Chev. (1942, 1947) = *Coffea klaurathii* K.Schum. ex De Wild.
Coffea racemosa var. *myrtoidea* A.Chev. = *Coffea racemosa* Lour.
Coffea rachiformis Baill. = *Coffea humblotiana* Baill.
Coffea ramosa Lour. = *Coffea racemosa* Lour.
Coffea resinosa var. *thouarsii* A.Chev. = *Saldinia* sp.
Coffea robusta L.Linden = *Coffea canephora* Pierre ex A.Froehner
Coffea rosea Moç. & Sessé ex DC. = ?*Hoffmannia* sp.
Coffea royauxii De Wild. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea rupestris Hiern = *Argocoffeopsis rupestris* (Hiern) Robbr.
Coffea rupestris var. *thonneri* (Lebrun) A.Chev. = *Argocoffeopsis rupestris* ssp. *thonneri* (Lebrun) Robbr.
Coffea salicifolia Miq. = *Nostolachma densiflora* (Blume) Bakh.f.
Coffea sambucina G.Forst. = *Tarenna sambucina* (G.Forst.) T.Durand ex Drake
Coffea scandens K.Schum. = *Argocoffeopsis scandens* (K.Schum.) Lebrun
Coffea schmidtii K.Schum. = *Diplospora schmidtii* (K.Schum.) Craib
Coffea schumanniana Busse = *Coffea zanguebariae* Lour.
Coffea semiexserta Colebr. ex Roxb. = *Psilanthus bengalensis* (Roxb. ex Schult.) J.-F.Leroy
Coffea sessilis Vell. = *Psychotria vellosiana* Benth.
Coffea spathicalyx K.Schum. = *Calycosiphonia spathicalyx* (K.Schum.) Robbr.
Coffea spicata Kunth = *Psychotria boqueronensis* Wernham
Coffea staudtii A.Froehner = *Coffea brevipes* Hiern
Coffea stenophylla var. *camaya* Portères = *Coffea affinis* De Wild.
Coffea stipulacea DC. = *Rudgea stipulacea* (DC.) Steyerm.

Coffea stipulacea Steud. = *Bathysa stipulata* (Vell.) C.Presl
Coffea stipulata Vell. = *Bathysa stipulata* (Vell.) C.Presl
Coffea subcordata Hiern = *Argocoffeopsis subcordata* (Hiern) Lebrun
Coffea subsessilis Ruiz & Pav. = *Faramea subsessilis* (Ruiz & Pav.) Standl.
Coffea subsessilis Benth. = *Ronabea erecta* Aubl.
Coffea sumatrana Becc. = ?
Coffea sundana Miq. = *Coffea arabica* L.
Coffea swynnertonii S.Moore = *Coffea racemosa* Lour.
Coffea sylvatica A.Chev. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea sylvestris Willd. ex Schult. = *Coffea mauritiana* Lam.
Coffea talbotii Wernham = *Tricalysia wernhamiana* (Hutch. & Dalziel) Keay
Coffea tenuiflora Benth. = *Morinda tenuiflora* (Benth.) Steyerm.
Coffea tetrandra Roxb. = *Prismatomeris tetrandra* (Roxb.) K.Schum.
Coffea thonneri Lebrun = *Argocoffeopsis rupestris* ssp. *thonneri* (Lebrun) Robbr.
Coffea travancorensis Wight & Arn. = *Psilanthus travancorensis* (Wight & Arn.) J.-F.Leroy
Coffea triflora G.Forst. = *Pavetta triflora* (G.Forst.) DC.
Coffea truncata Vell. = *Faramea truncata* (Vell.) Müll.Arg.
Coffea tsaratanensis J.-F.Leroy = *Coffea tricalysioides* J.-F.Leroy
Coffea ugandae Cramer = *Coffea canephora* Pierre ex A.Froehner
Coffea umbellata Ruiz & Pav. = *Psychotria conephoroides* (Rusby) C.M.Taylor
Coffea umbellata Vell. = *Faramea multiflora* A.Rich.
Coffea uniflora K.Schum. = see 'Notes' (*2).
Coffea utilis A.Chev. = *Lemyrea utilis* (A.Chev.) A.Chev. & Beille
Coffea vanroechoudtii Lebrun ex Van Roech. = *Tricalysia vanroechoudtii* (Lebrun ex Van Roech.) Robbr.
Coffea vaughanii J.-F.Leroy = *Coffea myrtifolia* (A.Rich. ex DC.) J.-F.Leroy
Coffea vaughanii var. *defuncta* J.-F.Leroy = *Coffea myrtifolia* (A.Rich. ex DC.) J.-F.Leroy
Coffea verticillata Ruiz & Pav. = *Rudgea verticillata* (Ruiz & Pav.) Spreng.
Coffea verticillata Vell. = *Ixora verticillata* (Vell.) Müll.Arg.
Coffea viburnoides Cham. = *Rudgea viburnoides* (Cham.) Benth.
Coffea viridiflora Ridl. = *Nostolachma viridiflora* (Ridl.) J.-F.Leroy ex A.P.Davis & Ruhsam, comb. ined.
Coffea volubilis Blanco = Euphorbiaceae
Coffea vulgaris Moench = *Coffea arabica* L.
Coffea welwitschii Pierre ex De Wild. = *Coffea canephora* Pierre ex A.Froehner
Coffea wightiana Wall. ex Wight & Arn. = *Psilanthus wightianus* (Wall. ex Wight & Arn.) J.-F.Leroy
Coffea zanzibarensis R.M.Grey = *Coffea zanguebariae* Lour.
Coffea zenkeri Krause ex De Wild. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Coffea zenkeri De Wild. ex A.Chev. = *Coffea liberica* Hiern var. *dewevrei* f. *dewevrei* (De Wild. & T.Durand) Lebrun
Geniostoma reticulatum Cordem. = *Coffea mauritiana* Lam.
Hexepta axillaris Raf. = *Coffea zanguebariae* Lour.
Hypobathrum commersonianum Baill. = *Coffea commersoniana* (Baill.) A.Chev.
Hypobathrum myrtifolium (A.Rich ex DC.) Baill. = *Coffea myrtifolia* (A.Rich. ex DC.) J.-F.Leroy
Nescidia myrtifolia A.Rich. ex DC. = *Coffea myrtifolia* (A.Rich. ex DC.) J.-F.Leroy
Leiochilus resinosus Hook.f. = *Coffea resinosa* (Hook.f.) Radlk.
Paolia jasminoides Chiov. = *Coffea rhamnifolia* (Chiov.) Bridson
Paracoffea capuronii J.-F.Leroy = *Coffea grevei* Drake ex A.Chev.
Paracoffea decaryana (J.-F.Leroy) J.-F.Leroy = *Coffea decaryana* J.-F.Leroy
Paracoffea humbertii (J.-F.Leroy) J.-F.Leroy = *Coffea humbertii* J.-F.Leroy
Plectronia rhamnifolia Chiov. = *Coffea rhamnifolia* (Chiov.) Bridson
Pleurocoffea boiviniana Baill. = *Coffea boiviniana* (Baill.) Drake
Psilanthopsis kapakata A.Chev. = *Coffea kapakata* (A.Chev.) Bridson
Solenixora pervilleana Baill. = *Coffea pervilleana* (Baill.) Drake

Notes

*1. *Coffea multibracteata* Valeton (1911: 479) was placed in *Lachnostoma* Hassk. by Chevalier (1942: 28, pl. 130 – *L. multibracteata* (Valeton) A.Chev.). The genus *Nostalachma* T.Durand now replaces *Lachnostoma* because of the earlier use of this genus name in the Asclepiadaceae (*Lachnostoma* Kunth.). Previous use of the name *Lachnostoma* in the Rubiaceae used the orthographic variant *Lachnastoma* (including Chevalier, 1942). The plate of *L. multibracteata* in Chevalier (1942: pl. 130) is of rather poor quality and we are unable to place this taxon with any certainty. Moreover, we are doubtful whether Chevalier (1942: pl. 130) used the original material of Valeton (1911) for his

plate, as he cites two collections that do not match the type (*Jaheri* s.n., holotype ?BO). The final taxonomic placement of *C. multibracteata* cannot be made until further data or material is available.

*2. *Coffea uniflora* K.Schum. (Schumann & Hollrung, 1889: 132) was placed in *Ixora* L. by Valeton (1927: 66 – *I. uniflora* (K.Schum.) Valeton), and in *Lachnostoma* by Chevalier (1942: 35, p. 129 – *L. uniflorum* (K.Schum.) A.Chev.). *I. uniflora* (K.Schum.) Valeton is a later homonym (of *I. uniflora* Sessé & Moc.); *Lachnostoma* is now replaced by *Nostolachma* (see above). The plate used by Chevalier, 1942, pl. 129) was based on the type specimen of *C. uniflora* K.Schum. (*Hollrung 607*, holotype B†), but lacks flowers and fruits. From Chevalier's plate, it is not possible to confidently place this species within a genus, although it is certainly Rubiaceae. Bremakamp (1937) considered *I. uniflora* (K.Schum.) Valeton as '*species incertae sedis*, *probalitier non huius generis*'. The final taxonomic placement of *C. uniflora* cannot be made until further data or material is available.

ACKNOWLEDGEMENTS

We are grateful to the directors and staff at the Herbaria at BM, BR, COI, DSM, EA, G, HBG, K, L, LISC, M, MO, P, TAN, TEF, WAG, YA, Z (abbreviations after Holmgren *et al*., 1990) for making specimens available for study. At the Royal Botanic Gardens, Kew, we would like to thank Justin Moat for his help with conservation assessments and Lucy T. Smith for her drawings of *Coffea*. We would also like to thank Elmar Robbrecht for a careful and thorough review of an earlier version of this paper. We gratefully acknowledge Kraft Foods for their generous support of *Coffea* research and, in particular, for funding laboratory research that was used in the delimitation of critical species (as O. Maurin, A. P. Davis, M. Chester, E. F. Mvungi, M. F. Fay, unpubl. data).

REFERENCES

Ali SJ, Robbrecht E. 1991. Remarks on the tropical Asian and Australian taxa included in *Diplospora* or *Tricalysia* (Rubiaceae–Ixoroideae–Gardenieae). *Blumea* **35:** 279–305.

Andreasen K, Baldwin BG, Bremer B. 1999. Phylogenetic utility of the nuclear rDNA ITS region in the subfamily Ixoroideae (Rubiaceae): comparisons with cpDNA and rbcL sequence data. *Plant Systematics and Evolution* **217:** 119–135.

Andreasen K, Bremer B. 1996. Phylogeny of the subfamily Ixoroideae (Rubiaceae). *Opera Botanica Belgica* **7:** 119–138.

Andreasen K, Bremer B. 2000. Combined phylogenetic analysis in the Rubiaceae–Ixoroideae: morphology, nuclear and chloroplast DNA data. *American Journal of Botany* **87:** 1731–1748.

Anonymous. 1896. DXXXII. Highland coffee of Sierra Leone. *Bulletin of Miscellaneous Information [Kew Bulletin]* **119:** 189–191.

Anthony F. 1992. *Les ressources génétiques des caféiers: collecte, gestion d'un conservatoire et évaluation de la diversité génétique. ORSTOM, Série TDM 81*. Paris: ORSTOM.

Anthony F, Combes M, Astorga C, Bertrand B, Graziosi G, Lashermes P. 2002. The origin of cultivated *Coffea arabica* L. varieties revealed by AFLP and SSR markers. *Theoretical and Applied Genetics* **104:** 894–900.

Berthaud J. 1986. *Les ressources genetiques pour l'amelioration des cafeiers Africains diploïdes. ORSTOM, Série TDM 188*. Paris: ORSTOM.

Berthaud J, Guillaumet J-L. 1978. Les caféiers sauvages en Centrafique: résultanats d'une mission de prospection (janvier–février 1975). *Café Cacao Thé* **22:** 171–186.

Bingham MG, Smith P. 2002. Zambia. In: Golding JS, ed. *Southern Africa plant red data lists. Southern Africa Botanical Diversity Network Report no. 14*. Pretoria: SABONET, 135–156.

Bremekamp CEB. 1937. The Malaysian species of the genus *Ixora* (Rub.). *Bulletin du Jardin Botanique de Buitenzorg* **14:** 197–367.

Bremer B, Manen JF. 2000. Phylogeny and classification of the subfamily Rubioideae (Rubiaceae). *Plant Systematics and Evolution* **225:** 43–72.

Bridson DM. 1982. Studies in *Coffea* and *Psilanthus* for part 2 of 'Flora of Tropical East Africa': Rubiaceae. *Kew Bulletin* **36:** 817–860.

Bridson DM. 1985. The lectotypification of *Coffea liberica* (Rubiaceae). *Kew Bulletin* **40:** 805–807.

Bridson DM. 1986. Additional notes on *Coffea* (Rubiaceae) from East Tropical Africa. *Kew Bulletin* **41:** 307–311.

Bridson DM. 1987. Nomenclatural notes on *Psilanthus*, including *Coffea* sect. *Paracoffea* (Rubiaceae tribe Coffeeae). *Kew Bulletin* **42:** 453–460.

Bridson DM. 1988a. Coffea. In: Polhill RM, ed. *Flora of Tropical East Africa, Rubiaceae, Part 2.* Rotterdam: Balkema, 415–474.

Bridson DM. 1988b. Classification. In: Wrigley G, ed. *Coffee – Tropical Agriculture Series*. Harlow: Longman Scientific & Technical, 61–75.

Bridson DM. 1994. Additional notes on *Coffea* (Rubiaceae) from Tropical East Africa. *Kew Bulletin* **49:** 331–342.

Bridson DM. 2003. *Coffea*. In: Pope GV, ed. *Flora Zambesiaca*, Vol. 5, Part 2, *Rubiaceae.* Kew: Royal Botanic Gardens, 452–463.

Bridson GDR, Smith ER. 1991. *B–P–H/S: Botanico–Periodicum–Huntianum/Supplementum*. Pittsburgh, PA: Hunt Institute for Botanical Documentation, Carnegie Mellon University.

Bridson DM, Troupin G. 1985. *Rubiaceae*. In: Troupin G, ed. *Flore du Rwanda: spermatophytes*, Vol. 3. *Belgique Annales,*

serie in-8, Sciences Economiques, no. 15. Tervuren: Musee Royal de l'Afrique Centrale, 154–231.

Bridson DM, Verdcourt B. 2003. *Rubiaceae*. In: Pope GV, ed. *Flora Zambesiaca*, Vol. 5, Part 3, *Rubiaceae*. Kew: Royal Botanic Gardens, 379–720.

Brummitt RK (with assistance from Pando F, Hollis S, Brummitt NA *et al.*). 2001. *Plant taxonomic database standards* No. 2, 2nd edn. *World geographical scheme for recording plant distributions*, 2nd edn. Pittsburgh, PA: Hunt Institute for Botanical Documentation, Canege Mellon University.

Brummitt RK, Powell CE. 1992. *Authors of plant names*. Kew: Royal Botanic Gardens.

Burnett J. 1994. IOPI and the Global Plant Checklist project. *Biology International* **29:** 40–44.

Carvalho A, Medina Filho HP, Fazuoli LC, Guerreiro Filho O, Lima MMA. 1991. Aspectos genéticos do cafeeiro. *Brazilian Journal of Genetics* **14:** 135–183.

Charrier A. 1978. *La structure genetique des cafeiers spontanes de la Région Malgache (Mascarocoffea). Mémoires ORSTOM no. 87.* Paris: ORSTOM.

Charrier A, Berthaud J. 1985. In: Clifford MN, Willson KC, eds. *Coffee: botany, biochemistry and production of beans and beverage*. London: Croom-Helm.

Cheek M, Csiba L, Bridson DM. 2002. A new species of *Coffea* (Rubiaceae) from western Cameroon. *Kew Bulletin* **57:** 675–680.

Cheney RH. 1925. *Coffee. A monograph of the economic species of the genus Coffea L.* New York: New York University Press.

Chevalier A. 1929. Les caféiers du globe, fasc. 1: généralités sur les caféiers. *Encyclopédie Biologique* **5:** 1–196.

Chevalier A. 1938. Essai d'un groupement systématique des caféiers sauvages de Madagascar et des Iles Mascareignes. *Revue de Botanique Appliquée et d'Agriculture Tropicale* **18:** 825–843.

Chevalier A. 1939. Sur quelques caféiers et faux caféiers de l'Angola et du Mayombe Portugais. *Revue de Botanique Appliquée et d'Agriculture Tropicale* **18:** 396–407.

Chevalier A. 1942. Les caféiers du globe, fasc. 2: iconograhie des caféiers sauvages et cultivés. *Encyclopédie Biologique* **12:** 1–36, pl. 1–158.

Chevalier A. 1946. Ecologie et distribution géographique des caféiers sauvages et cultivés. *Revue de Botanique Appliquée d'Agriculture Tropicale* **26:** 81–94.

Chevalier A. 1947. Les caféiers du globe, fasc. 3: systématique des caféiers et faux-caféiers maladies et insectes nusibles. *Encyclopédie Biologique* **28:** 1–352.

Chiovenda E. 1932. *Flora Somalia*, Vol. 2. Modena: R. Orta Botanico.

Clifford MN, Gibson CL, Rakotomalala J-JR, Cros E, Charrier A. 1991. Caffeine from green beans of Mascarocoffea. *Phytochemistry* **30:** 4039–4040.

Clifford MN, Williams T, Bridson DM. 1989. Chlorogenic acids and caffeine as possible taxonomic markers in *Coffea* and *Psilanthus*. *Phytochemistry* **28:** 829–838.

Coulibaly I, Louarn J, Lorieux M, Charrier M, Hamon S, Noirot M. 2003a. Pollen viability restoration in a *Coffea canephora* P. [*sic*] and *C. heterocalyx* Stoffelen backcross. QTL identification for marker-assisted selection. *Theoretical and Applied Genetics* **106:** 311–316.

Coulibaly I, Noirot M, Lorieux M, Charrier A, Hamon S, Louarn J. 2002. Introgression of self-compatibility from *Coffea heterocalyx* to the cultivated species *Coffea canephora*. *Theoretical and Applied Genetics* **105:** 994–999.

Coulibaly I, Revol B, Noirot M, Poncet V, Lorieux M, Carasco-Lacombe C, Minier J, Dufour M, Hamon P. 2003b. AFLP and SSR polymorphism in a *Coffea* interspecific backcross progeny [(*C. heterocalyx* × *C. canephora*) × *C. canephora*]. *Theoretical and Applied Genetics* **107:** 1148–1155.

Couturon E, Lashermes P, Charrier A. 1998. First intergeneric hybrids (*Psilanthus ebracteolatus* Hiern × *Coffea arabica* L.) in coffee trees. *Canadian Journal of Botany* **76:** 542–546.

Cramer PJS. 1913. Gegevens over de variabiliteit van de in Nederlandsch-Indië verbouwde koffie-soorten. *Mededeelingen Uitgeven van het Departement van Landbouw in Nederlandsch Indië Batavia* **11:** 1–696.

Cramer PJS. 1957. *A review of literature of coffee research in Indonesia.* Turrialba: SIC Editorial, Inter-American Institute of Agricultural Sciences.

Cros J. 1994. Implications phylogénétiques des variations de l'ADN chloroplastique chez les caféiers (genres *Coffea* L. et. *Psilanthus* Hook.f.). PhD Dissertation, Université Montpellier II.

Cros J, Combes MC, Trouslet P, Anthony F, Hamon S, Charrier A, Lashermes P. 1998. Phylogenetic analysis of chloroplast DNA variation in *Coffea* L. *Molecular Phylogenetics and Evolution* **9:** 109–117.

Davis AP. 2001. Two new species of *Coffea* L. (Rubiaceae) from eastern Madagascar. *Kew Bulletin* **56:** 479–489.

Davis AP. 2003. A new combination in *Psilanthus* (Rubiaceae) for Australia, and nomenclatural notes on *Paracoffea*. *Novon* **13:** 182–184.

Davis AP, Bridson DM, Rakotonasolo F. 2005. A reexamination of *Coffea* subgenus *Baracoffea* and comments on the morphology and classification of *Coffea* and *Psilanthus* (Rubiaceae–Coffeeae). In: Keating RC, Hollowell VC, Croat T, eds. *A festschrift for William G. D'Arcy: the legacy of a taxonomist. (Monograph in Systematic Botany 104)*. Missouri: MBG Press, 398–420.

Davis AP, Chester M, Maurin O, Fay MF, in press. Searching for the relatives of *Coffea* (Rubiaceae, Ixoroideae): the circumscription and phylogeny of Coffeeae based on plastid sequence data and morphology. *American Journal of Botany*, in press.

Davis AP, Mvungi EF. 2004. Two new and endangered species of *Coffea* (Rubiaceae) from the Eastern Arc Mountains (Tanzania) and notes on associated conservation issues. *Botanical Journal of the Linnean Society* **146:** 237–245.

Davis AP, Rakotonasolo F. 2000. Three new species of *Coffea* L. (Rubiaceae) from Madagascar. *Kew Bulletin* **55:** 405–416.

Davis AP, Rakotonasolo F. 2001a. Three new species of *Coffea* L. (Rubiaceae) from NE Madagascar. *Adansonia, Sér 3* **23:** 137–146.

Davis AP, Rakotonasolo F. 2001b. Two new species of *Coffea* L. (Rubiaceae) from Northern Madagascar. *Adansonia, Sér 3* **23:** 337–345.

Davis AP, Rakotonasolo F. 2003. New species of *Coffea* L. (*Rubiaceae*) from Madagascar. *Botanical Journal of the Linnean Society* **142:** 111–118.

De Wildeman EAJ. 1906a. *Mission Émile Laurent (1903–1904)*, Vol. 1 *(Texte), Fasc 3.* Bruxelles: F. Vandenbuggenhoudt.

De Wildeman EAJ. 1906b. *Mission Émile Laurent (1903–1904)*, Vol. 2 *(Planches).* Bruxelles: F. Vandenbuggenhoudt.

De Wildeman EAJ. 1910. Matériaux pour une etude botanico-agronomique du genre *Coffea*. *Annales du Jardin Botanique de Buitenzorgsupplement* **3:** 345–384.

Dubard M. 1905. Les caféiers sauvages de la Montagne d'Ambre (Madagascar). *L'Agriculture Pratique des Pays Chauds* **6:** 92–100.

Dulloo ME, Guarino L, Engelmann F, Maxted N, Newbury JH, Attere F, Ford-Lloyd BV. 1998. Complementary conservation strategies for the genus *Coffea*: a case study of Mascarene *Coffea* species. *Genetic Resources and Crop Evolution* **45:** 565–579.

Dulloo ME, Maxted N, Guarino L, Florens D, Newbury HJ, Ford Lyoyd BV. 1999. Ecogeographical survey of the genus *Coffea* on the Mascarene Islands. *Botanical Journal of the Linnean Society* **131:** 263–284.

Grandidier A. 1897. *Histoire physique naturelle et politique de Madagascar – Histoire naturelle des plantes 36(6): Atlas 4*. Paris: L'Imprimerie Nationale.

Greuter W, McNeil J, Barrie FR, Burdet HM, Demoulin V, Filgueiras TS, Nicolson DH, Silva PC, Skog JE, Trehane P, Turland NJ, Hawksworth DL. 2000. *International code of botanical nomenclature*. Königstein: Koeltz Scientific Books.

Hall-Martin AJ, Drummond BR. 1980. Annotated list of plants collected in Lengwe National Park, Malawi. *Kirkia* **12:** 151–181.

Hiern WP. 1876. On the African species of the genus *Coffea*. *Transactions of the Linnean Society London, Botany* **1:** 169–176.

Holmgren PK, Holmgren NH, Barnett LC. 1990. *Index herbariorum part 1: the herbaria of the world. Regnum vegetabile*, Vol. 120. Bronx, NY: New York Botanical Garden.

Hooker JD. 1896. *Coffea stenophylla*. *Curtis's Botanical Magazine* **122:** t. 7475.

Igersheim A, Robbrecht E. 1993. The character states and relationships of the Prismatomerideae (Rubiaceae–Rubioideae). *Opera Botanica Belgica* **6:** 61–79.

IUCN. 1994. *IUCN red list categories*, Version 2.3. Gland: IUCN Species Survival Commission.

IUCN. 2001. *IUCN red list categories*, Version 3.1. Gland/Cambridge: IUCN Species Survival Commission.

IUCN. 2004. *2004 IUCN red list of threatened species.* URL http://www.iucnredlist.org [accessed on 12 October 2005].

Johansson JT. 1987. The revision of the genus *Prismatomeris* Thw. (Rubiaceae, Morindeae). *Opera Botanica* **94:** 5–62.

Jumelle H. 1933. Caféiers sauvages de Madagascar. *Annales du Musée Colonial de Marseille. 5e Série* **1** (4)**:** 5–14.

Jumelle H, Perrier de la Bâthie JHMA. 1910. Fragments biologiques de la Flore de Madagascar. *Annales du Musée Colonial de Marseille. 2e Série* **8:** 373–468.

Keay RWJ. 1963. Coffea. In: Hutchinson J, Dalziel JM, eds. *Flora of West Tropical Africa*, 2nd edn, Vol. 2. London: Crown Agents for Oversea Governments and Administrations.

Krug CA, Mendes JET, Carvalho A. 1939. Taxonomia de *Coffea arabica* L. *Instituto Agronomico do Estado, em Campinas, Boletim Técnico* **62:** 1–57.

Lashermes P, Andrzejewski S, Bertrand B, Combes MC, Dussert S, Graziosi G, Trouslot P, Anthony F. 2000. Molecular analysis of introgressive breeding in coffee (*Coffea arabica* L.). *Theoretical and Applied Genetics* **100:** 139–146.

Lashermes P, Combes MC, Trouslot P, Charrier A. 1997. Phylogentic relationships of coffee-tree species (*Coffea* L.) as inferred from ITS sequences of nuclear ribosomal DNA. *Theoretical and Applied Genetics* **94:** 947–955.

Lashermes P, Cros J, Combes MC, Trouslot P, Anthony F, Hamon S, Charrier A. 1996. Inheritance and restriction fragment length polymorphism of chloroplast DNA in the genus *Coffea* L. *Theoretical and Applied Genetics* **93:** 626–632.

Lashermes P, Cros J, Marmey P, Charrier A. 1993. Use of random amplified DNA markers to analyse genetic variability and relationships of *Coffea* species. *Genetic Resources and Crop Evolution* **40:** 91–99.

Lebrun J. 1941. Recherches morphologiques et systématiques sur les caféiers du Congo. *Publications de L'institut National pour L'etude Agronomique du Congo Belge* **11:** 1–186.

Leroy J-F. 1961a. *Coffea* novae Madagascarienses. *Journal d'Agriculture Tropicale et de Botanique Appliquée* **8:** 1–20.

Leroy J-F. 1961b. Sur deux Caféiers remarquables de la forêt sèche de Sud-Ouest de Madagascar (*Coffea humbertii* J.-F.Leroy et *C. capuronii* J.-F.Leroy). *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* **252:** 2285–2287.

Leroy J-F. 1961c. Notes sur quelques caféiers. *Journal d'Agriculture Tropicale et de Botanique Appliquée* **8:** 537–541.

Leroy J-F. 1962. Prospection des caféiers sauvages: rapport préliminaire sur une mission scientifique à Madagascar et aux Iles Mascareignes. *Journal d'Agriculture Tropicale et de Botanique Appliquée* **9:** 211–244.

Leroy J-F. 1967. Diagnose différentielle du genre *Paracoffea* Leroy. *Journal d'Agriculture Tropicale et de Botanique Appliquée* **14:** 276.

Leroy J-F. 1972a. Prospection des caféiers sauvages de Madagascar: deux espèces remarquable (*Coffea tsirananae* n. sp., *C. kianjavatensis* n. sp.). *Adansonia, Series 2* **12:** 317–328.

Leroy J-F. 1972b. Prospection des caféiers sauvages de Madagascar: sur deux espèces sympatriques du nord. *Adansonia, Series 2* **12:** 345–358.

Leroy J-F. 1980a. Les grandes lignées de Caféiers. *Association Scientifique Internationale du Café (ASIC) 9th Colloque* 473–477.

Leroy J-F. 1980b. Evolution et taxogenèse chez les Caféiers (*Coffea* L., *Psilanthus* Hook.f. et *Nostolachma* Durand). Hypothèse sur leur origine. *Compte Rendu Hedomadaire des*

Séances de l'Académie des Sciences Série D, Sciences Naturelles **29:** 593–596.

Leroy J-F. 1981. Les caféiers du genre *Psilanthus* (Rubiacées) en Afrique orientale et en Asie et îles du Pacifique. *Bulletin du Museum National d'Histoire Naturelle. 4e Serie Section B Adansonia Botanique Phytochimie* **3:** 251–258.

Leroy J-F. 1982. L'origine Kenyane du genre *Coffea* L. et la radiation des espèces à Madagascar. *Association Scientifique Internationale du Café (ASIC) 10th Colloque* 413–420.

Leroy J-F. 1989. *Coffea* L. In: Bosser J, Cadet Th, Guého, J, Marais, W, eds. *Flore des Mascareignes La Réunion, Maurice, Rodrigues. 107. Caprifoliacées à 108bis. Valérianacées*. Mauritius: The Sugar Industry Research Institute and L'Office de la Recherche Scientifique et Technique Outre-Mer; Kew: Royal Botanic Gardens, 93–99.

Lombello RA, Pinto-Maglio CAF. 2003. Cytogenetic studies in *Psilanthus ebracteolatus* Hiern., a wild diploid coffee species. *Cytologia* **68:** 425–429.

Lombello RA, Pinto-Maglio CAF. 2004. Cytogenetic studies in *Coffea* L. and *Psilanthus* Hook.f. using CMA/DAPI and FISH. *Cytologia* **69:** 85–91.

Mapaura A, Timberlake JR. 2002. In: Golding JS, ed. *Southern Africa plant red data lists. Southern Africa Botanical Diversity Network Report No. 14*. Pretoria: SABONET, 157–182.

Msekandiana G, Mlangeni E. 2002. In: Golding JS, eds. *Southern Africa plant red data lists. Southern Africa Botanical Diversity Network Report No. 14.* Pretoria: SABONET, 31–42.

Persson C. 2000. Phylogeny of Gardenieae (Rubiaceae) based on chloroplast DNA sequences from the *rps*16 intron and *trn*L (UAA)–F (GAA). *Nordic Journal of Botany* **20:** 257–269.

Rakotonasolo F, Davis AP. 2004. A new and endangered species of *Hyperacanthus* (Rubiaceae) from SE Madagascar: *H. mandenensis*. *Novon* **14:** 327–331.

Robbrecht E. 1981. Studies in tropical African Rubiaceae (II): 5. A survey of *Argocoffeopsis*. 6. A revision of *Calycosiphonia*. *Bulletin du Jardin Botanique National de Belgique* **51:** 359–378.

Robbrecht E. 1988a. Tropical woody Rubiaceae. *Opera Botanica Belgica* **1:** 1–271.

Robbrecht E. 1988b. Tricalysia. In: Polhill RM, ed. *Flora of Tropical East Africa, Rubiaceae, Part 2.* Rotterdam: Balkema, 540–566.

Robbrecht E. 1994. Supplement to the 1988 outline of the classification of the Rubiaceae. *Opera Botanica Belgica* **6:** 173–196.

Robbrecht E, Puff C. 1986. A survey of the Gardenieae and related tribes (Rubiaceae). *Botanische Jahrbücher für Systematik* **108:** 63–137.

Robbrecht E, Rohrhofer U, Puff C. 1994. A survey of *Bertiera* (Rubiaceae), including a discussion of its taxonomic position. *Opera Botanica Belgica* **6:** 101–141.

Schumann K, Hollrung M. 1889. Die Flora von Kaiser Wilhelms Land. Kommissions-Verlag, Asher & Co., Berlin.

Sonké B, Nguembou CK, Davis AP. 2006. A new dwarf *Coffea* (Rubiaceae) from southern Cameroon. *Botanical Journal of the Linnean Society* **151:** 425–430.

Sonké B, Stoffelen P. 2004. Une nouvelle espèce de *Coffea* L. (Rubiaceae, Coffeeae) du Cameroun et quelques notes sue les affinités avec les espèces voisines. *Adansonia, Sér 3* **26:** 153–160.

Stafleu FA, Cowan RS. 1976–88. *Taxonomic literature: a selective guide to. botanical publications and collections with dates, commentaries and types.* 7 Volumes, 2nd edn. *Regnum Vegetabile*, Vols. 94, 98, 105, 110, 112, 115–116. Bohn, Utrecht: Scheltema and Holkema.

Stafleu FA, Mennega EA. 1992+. *Taxonomic literature: a selective guide to botanical publications and collections with dates, commentaries and types. Supplement.* 6+ Volumes. *Regnum Vegetabile*, Vols. 125, 130, 132, 134–135, 137+. Königstein: Koeltz Scientific Books.

Stoffelen P. 1998. *Coffea* and *Psilanthus* in Tropical Africa: a systematic and palynological study, including a revision of the West and Central African Species. PhD Thesis. Katholieke Universiteit Leuven.

Stoffelen P, Cheek M, Bridson DM, Robbrecht E. 1997c. A new species of *Coffea* (Rubiaceae) and notes on Mount Kupe (Cameroon). *Kew Bulletin* **42:** 989–994.

Stoffelen P, Robbrecht E, Smets E. 1996. The '*arabica–congensis* complex': five *Coffea* species with a problematic delimitation. *Opera Botanica Belgica* **7:** 237–248.

Stoffelen P, Robbrecht E, Smets E. 1997a. *Coffea* (Rubiaceae) in Cameroon: a new species and a nomen recognised as species. *Belgian Journal of Botany* **129:** 71–76.

Stoffelen P, Robbrecht E, Smets E. 1997b. Adapted to the rain forest floor: a remarkable new dwarf *Coffea* (Rubiaceae) from Lower Guinea (tropical Africa). *Taxon* **46:** 37–47.

Stoffelen P, Robbrecht E, Smets E. 1999. A new species of *Coffea* (Rubiaceae) from central Africa, with notes on tentative other taxa. *Systematics and Geography of Plants* **69:** 119–124.

Stone JR, Davis AP. 2004. New taxa and nomenclatural notes on the Flora of the Marojejy Massif, Madagascar. VI. Rubiaceae: a new species of *Lemyrea*. *Novon* **14:** 123.

Swynnerton CMF, Philipson WR. 1936. A new *Coffea* from Portugese East Africa, with ecological notes on the genus. *Journal of Botany* **74:** 314–322.

Tennant JR. 1968. New and interesting Rubiaceae from Tropical Africa. II. *Kew Bulletin* **22:** 435–444.

Valeton T. 1911. Rubiaceae. *Nova Guinea* **8:** 437–519.

Valeton T. 1927. 116. Die Rubiaceae von Papuasien. II. *Botanische Jahrbücher* **61:** 32–163.

Vega FE, Rosenquist E, Collins W. 2003. Global project needed to tackle coffee crisis. *Nature* **425:** 343.

Vollesen K. 1980. Annotated check-list of the vascular plants of the Selous Game Reserve, Tanzania. *Opera Botanica* **59:** 1–117.

Wellman FL. 1961. *Coffee, botany, cultivation and utilization*. London: Leonard Hill Books.

Wrigley G. 1988. *Coffee – tropical agriculture series*. Harlow: Longman Scientific & Technical.

APPENDIX

UNDESCRIBED AND INFORMALLY RECOGNIZED SPECIES

Coffea 'sp. A' Bridson, *Fl. Zambesiaca vol. 5, part* **3:** 461 (2003).
Coffea 'sp. J' Bridson, Kew Bull. 36: 851 (1982).

Specimens: Brummitt 8936 (K, LISC, MAL, PRE, SRGH); *Hall-Martin 155* (SRGH), *Hall-Martin 1162* (K).

Illustrations: Bridson (1982: 850, fig. 10h–m); Bridson (2003: 460, table 91c).

Literature: Hall-Martin & Drummond (1980: 179 [as *C. racemosa*].

Distribution: Malawi (Chikwara District, Lengwe Game Reserve). TDWG: 26 MLW.

Ecology: Seasonally dry, deciduous forest, deciduous thicket and deciduous riverine forest; *c*. 100 m.

Notes: According to Bridson (2003: 461) *C*. sp. A is close to *C. zanguebariae* with which it may be conspecific. More material, and particularly of flowers and plants at different growth stages, is required before *C*. sp. A can be either described as a species or placed within *C. zanguebariae.*

Coffea 'sp. G' Bridson, *Kew Bull.* **36:** 841 (1982); *Bridson in Fl. Trop. East Africa, Rubiaceae part* **2:** 718 (1988).

Specimen: Mabberley 1417 (K).

Illustration: Bridson (1982: 850, fig. 8a–d).

Distribution: Tanzania (Kilosa District, Ukaguru Mts., Maniwa Forest Reserve). TDWG: 25 TAN.

Ecology: Humid, evergreen forest; *c*. 1600 m.

Notes: Bridson (1988a: 718) states that: 'This species somewhat resembles *C. mufindiensis* Bridson but can easily be distinguished by its well spaced acuminate leaves and the lobed bracteoles [calyculi]'. The calyx limb is also more developed than in *C. mufindiensis* (D. M. Bridson, pers. comm.). Good quality flowering material is required before this entity can be described as a new species. Molecular sequence data (O. Maurin, unpubl. data) do not support a close relationship between *C.* sp. G and *C. mufindiensis*. Fieldwork in 2001 and 2002 (A. Davis, pers., observ.; E. F. Mvungi, pers. comm.) failed to locate *C*. sp. G at the Maniwa Forest Reserve, Ukaguru Mountains. Changes in vegetation as a result of forestry, small-scale agriculture, and general disturbance may have led to the extirpation of *C*. sp. G. at the Maniwa Forest Reserve.

Coffea 'sp. H' Bridson, *Kew Bull.* **36:** 841 (1982); *Bridson in Fl. Trop. East Africa, Rubiaceae part* **2:** 718 (1988).

Specimens: Rodgers s.n. (C); *Rodgers*, *Homewood & Hall* s.n. (C); *Luke*, *Pa & Mtui 9538* (EA).

Illustration: Bridson (1982: 839, fig. 6m–q).

Distribution: Tanzania (Ulanga District, Kilombero region, Magombera Forest Reserve). TDWG: 25 TAN.

Ecology: Humid (high water-table), evergreen forest; *c*. 250 m. See Vollesen (1980: 9).

Notes: Attempts to locate further material of this species have proved difficult because of the loss of forest cover at Magombera (E. F. Mvungi, pers. comm.), although recent specimens have now been collected [*Luke et al*. *9538* (EA)]. A full appraisal of *C*. sp. H is not yet possible as only fruiting material is known, although, so far, there are good grounds for recognizing *C*. sp. H as an accepted species. According to Q. Luke (pers. comm.), Magombera forest is under considerable threat, and has roughly halved in extent over the last 40 years. The only remaining forested area occurs at Kulunga, a site which has no protection status at the present time. If *C*. sp. H does represent a new species, it would come under the CR category (IUCN, 2001).

Coffea 'sp. I' Bridson, *Kew Bull.* **36:** 841 (1982); *Bridson in Fl. Trop. East Africa, Rubiaceae part* **2:** 720 (1988).

Specimen: Suzuki 104 (EA).

Illustration: Bridson (1982: 846, fig. 8e, f).

Distribution: Tanzania (Kigoma District, Kasakati). TDWG: 25 TAN.

Ecology: Unknown

Notes: Coffea sp. I is known only from a single specimen in the early stages of fruit development; corolla and fruit are unknown.

Coffea cf. mufindiensis Hutch. ex Bridson, *Kew Bull.* **49:** 334 (1994).

Specimen: Bidgood et al. 465 (BR, DSM, EA, K, MO, NHT, VBI, WAG).

Distribution: Tanzania (Morogoro District, Nguru Mts.). TDWG: 25 TAN.

Ecology: Humid, evergreen forest; *c.* 1650 m.

Notes: Coffea cf. *mufindiensis* is close to *C. mufindiensis* ssp. *mufindiensis*, but with differences in the calyx limb and inflorescence stalk length (Bridson, 1994: 334). This entity either represents *C. mufindiensis* ssp. *mufindiensis* or a new species of *Coffea*. Flowering material is needed before any final decision on the placement of *C.* cf. *mufindiensis* can be made.

Coffea 'Babiel' Stoff., *Coff. & Psil. Trop. Africa:* 124 (1998).

Specimen: Breteler & De Wilde 649 (BR, K, WAG).

Distribution: Gabon (near summit of Babiel Nord). TDWG: 23 GAB.

Ecology: Humid, evergreen forest; 950–1000 m.

Notes: Coffea 'Babiel' is closely related to *C. mayombensis*, but lacks domatia as found in the latter and has more coriaceous leaves (Stoffelen, 1998: 124). Further material, and especially fruiting specimens, are needed to ascertain whether this is indeed a new species or a synonym of *C. mayombensis.*

Coffea 'nkolbisonii' Stoff., *Coff. & Psil. Trop. Africa:* 118, 162 (1998).

Specimens: Breteler, *De Wilde & Leeuwenberg 2284* (K, P, WAG); *Leeuwenberg 6039* (BR, K, WAG); *Juliat 28* (P); *Zenker 4878* (BM, BR, M, K, P, COI); *Zenker 4815* (BR, MO, M, K, P, COI).

Literature: Sonké & Stoffelen (2004: 154, 159).

Distribution: Cameroon [Nkolbison (near Yaoundé) and Bipindi (between Kribi and Ebolowa)]. TDWG: 23 CMN.

Ecology: Humid, evergreen forest; 750–900 m.

Notes: Coffea 'nkolbisonii' is similar to *C. canephora* (Stoffelen, 1998: 119), but can be separated from the latter by several differences (Sonké & Stoffelen, 2004: 159). Material from Bipindi (*Zenker 4878* & *4815*) appears to be different from specimens collected at Nkolbison, and it is possible that *C. 'nkolbisonii'* could represent two taxonomic entities. Further study and more complete material are required before any taxonomic conclusions can be made.

Note

Nine other potentially new taxa of *Coffea* from Cameroon and Congo are listed by Stoffelen (1998: 125), based on Anthony (1992: 46, 192) and F. Anthony (pers. comm.), including *C. liberica* 'Koto', *C.* sp. 'Bakossi', *C.* sp. 'Nkoumbala', *C.* sp. 'song Mbong', *C.* sp. 'Moloundou', *C.* sp. 'Mayombe', *C.* sp. 'Cg. 45', *C.* sp. Cg. 46, and *C.* sp. 'Congo'. *C.* sp. 'Bakossi' and *C.* sp. 'Moloundou' are now considered to represent new species: *C. charrieriana* ined. and *C. anthonyi* ined., respectively (see 'Conspectus'). It is likely that most of the other provisional entities are synonymous with accepted taxa, although some appear distinct. Herbarium specimens and DNA samples of some of the above potentially new taxa are currently under investigation (P. Stoffelen, pers. comm.; O. Maurin, unpubl. data) based on material held at the Coffee Research Facility at Centre IRD de Montpellier, France.