A Nomenclator of Croton (Euphorbiaceae) in Madagascar, the Comoros Archipelago, and the Mascarene Islands

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Abstract
All published names of Croton from Madagascar, the Comoros, and the Mascarenes are treated here. We indicate which names are currently accepted (123 native species and 1 introduced), which ones we consider to be heterotypic synonyms (188), which ones are doubtful (25), and which ones should be excluded (5). We newly designate lectotypes for 108 names, and epitypes for C. anisatus Baill., C. nobilis Baill., and C. submetallicus Baill. A total of 133 names are newly treated as synonyms. One new combination is made, Croton basaltorum (Leandri) P.E.Berry for C. antanosiensis var. basaltorum Leandri, and one new name is proposed, Croton toliarensis B.W.vanEe & Kainul. for C. tranomarensis var. rosmarinifolius Radcl.-Sm.

Keywords
Euphorbiaceae, Croton, Madagascar, Comoros, Mascarenes, nomenclator, synonymy

Introduction
This work is part of an effort to lay the taxonomic foundation for a thorough phylogenetic-based revision of Croton (Euphorbiaceae) in the Western Indian Ocean Region (WIOR). Madagascar alone harbors around one third of the roughly 450 species recognized to occur in the Old World (Van Ee et al. 2011). There are also several species...
known to occur on the Mascarene Islands (Mauritius and the French Department of Réunion), as well as on the Comoros Islands (Union of the Comoros and the French Department of Mayotte). There are no known species of Croton in the Seychelles or in any of the smaller, “Scattered Islands” of the WIOR. Because of the relative proximity of these islands to Madagascar, and the phylogenetic findings of Haber et al. (2017) that recovered all sampled Croton species from the Comoros and Mascarenes within a Malagasy clade, all described Croton taxa from this region are treated together here. The main purpose of this paper is to provide a comprehensive nomenclatural index of the published names of Croton from the Western Indian Ocean Region and to indicate their current taxonomic and nomenclatural status, based on our ongoing taxonomic and phylogenetic work on the genus.

Until 2016, taxa of Croton native to the Comoros, Madagascar, and the Mascarenes were published by just eight botanists in the following 27 books or journal articles: Lamarck (1786); Geiseler (1807); Baillon (1861, 1890, 1891a); Müller (1864, 1865, 1866); Baker (1882, 1883, 1887); De Candolle (1901); Leandri (1931, 1935, 1939, 1948, 1957, 1970a, 1970b, 1970c, 1972a, 1972b, 1973a, 1973b, 1974, 1976); and Croizat (1944). In 2016, a large number of new Croton taxa from the WIOR were described. Ten new species of Croton from Madagascar were published by Kainulainen et al. (2016) and Berry et al. (2016a, 2016b). Then, taking advantage of an overly literal interpretation of Article 29.1 of the International Code of Nomenclature for algae, fungi, and plants (McNeill et al. 2012), Martin Cheek of the Royal Botanic Gardens, Kew, submitted three “preprint” copies of a long-dormant manuscript on Malagasy Croton by the late botanist Alan Radcliffe-Smith to the libraries of Kew, Wisley, and the Natural History Museum in London toward the end of December 2016. By early January 2017, most of the names from that manuscript had been posted on the International Plant Names Index website (www.ipni.org), with an effective publication date of 23 December 2016 (Radcliffe-Smith 2016). This manuscript added 150 newly described names of Croton from Madagascar and the Comoros Archipelago, consisting of 26 new species, three new subspecies, and 121 new varieties. All of these recent names have been evaluated here, and our assessment of their current taxonomic status is presented in Tables 1 and 2 and in the “Incertae Sedis” section at the end of the nomenclator.

Materials and methods

The main herbaria consulted for the WIOR Croton types were G, K, MICH, MAO, MO, P, TAN, and TEF. Scanned images of types from these and other herbaria available on JSTOR Global Plants (http://plants.jstor.org/) were also consulted. All original literature sources were also reviewed.

Specimens are considered holotypes when a single gathering in a particular herbarium is cited in the protologue, and there is only one specimen of that gathering housed there, or if there was a single gathering with no herbarium mentioned in the
In the present treatment we recognize 114 accepted species native to Madagascar. All of these species are endemic to the island, with the exception of *C. adenophorus* Baill., which also occurs on Mayotte in the Comoros. Besides this species, there are four species endemic to the Comoros (*C. bifurcatus* Baill., *C. emeliae* Baill., *C. humblotii* Baill., and *C. mayottae* P.E.Berry & Kainul.). Another four species are endemic to Mauritius (*C. fothergillifolius* Baill., *C. grangerioides* Bojer ex Baill., *C. tiliifolius* Lam., and *C. vaughanii* Croizat), and a fifth (*C. mauritianus* Lam.) is endemic to Réunion. *Croton bonplandianus* Baill., a native of South America, is the only documented non-native, naturalized species of *Croton* in the WIOR, having previously been reported from the Mascarenes (Mauritius, Réunion, and Rodrigues; Croizat 1944, Coode 1982). We also report here the occurrence of *C. bonplandianus* from Mayotte. Other species that
are likely to become naturalized weeds, but have not been reported from the region, include *Astraea lobata* L. (formerly *Croton lobatus* (L.) Klotzsch), *C. hirtus* L’Hér., and *C. glandulosus* L. Several non-native species have been cultivated on the islands in the past, presumably for their medicinal or shade properties, such as *C. aromaticus* L., *C. baumanianus* J.Léonard, *C. laccifer* L., and *C. tiglium* L., but there is no evidence that they have persisted.

For the 114 species that are native to Madagascar, only six are truly widespread throughout the island, occurring in all six former provinces, namely *C. catatii* Baill., *C. goudotii* Baill., *C. macrobuxus* Baill., *C. mongue* Baill., *C. myriaster* Baker, and *C. stanneus* Baill. Three others occur in five provinces (*C. chrysodaphne* Baill., *C. hypochalibaues* Baill., and *C. nitidulus* Baker), five in four provinces, six in three provinces, and 29 in two provinces. Sixty-five species are known from just a single province. Of the six provinces, Tolara is the richest in *Croton* species with 53, followed by Antsiranana with 43, Toamasina with 39, Mahajanga with 35, Fianarantsoa with 27, and Antananarivo with 15. While we realize that these six administrative provinces of Madagascar have been superseded by a system of 22 administrative regions that represent subdivisions of the provinces, we did not attempt to further refine the distribution of species, although this will be a promising avenue to pursue in the future for conservation planning efforts. See Fig. 2 for a summary of these figures.

Given the small size of the islands in the Mascarenes and the Comoros Archipelago, and the small area of existing natural habitats, we believe that it is fairly unlikely that any additional *Croton* taxa will be discovered there. On the other hand, Madagascar harbors a large number of undescribed species, which are currently under study by the authors and awaiting formal description. We anticipate the description of at least 20 more new species from Madagascar based on the material we now have on hand. Many of these come from recently explored areas in the eastern part of the island, but also from relatively well-explored areas in the north and south but belonging to difficult species complexes, such as the cuppery, lepidote-leaved species.

The sometimes extensive synonymy presented in this nomenclator (viz., *C. adenophorus*, *C. catatii*, *C. chapelieri*, or *C. stanneus*) suggests that many species have been poorly understood in the past, sometimes known only from sparse descriptions or poor type material, and numerous taxa are based on a single or just a few specimens. For instance, from Baillon (1861) to Leandri (1939) to Radcliffe-Smith (2016), all three authors recognized *Croton chapelieri* as an accepted species, but known only from the type, which was of unspecified provenance. The re-evaluation of this species by Kainulainen et al. (2017a), and again in this paper, reveals that *C. chapelieri* is in fact a widespread species along the eastern littoral zone, and we now consider that it has eight heterotypic synonyms. We should point out that without first-hand knowledge of the species in the field, it may have been impossible to sort out the variability of this species and recognize its restriction to a fairly narrow ecological and elevational zone in sandy coastal habitats. Among earlier workers on the genus in the region, the only one who had any first-hand knowledge of Madagascar was Jacques Leandri. In contrast, we
have made four collecting trips to Madagascar dedicated to studying *Croton*, covering much of the geography of the island, although there are still numerous areas we have not been able to visit. Especially for deciduous species, it is important to collect specimens at different times of the year, since some species flower when leafless and produce their leaves during the rainy season. Ultimately, the greatest progress in understanding the diversity of a large, complex genus like *Croton* on Madagascar will be achieved by local botanists who are able to study populations in the field, revisit sites at different phenological stages, and assess their local and regional variability.

Another instructive example of a previously misunderstood species is *Croton chrysodaphne* Baill., a tree species that Baillon (1861) described based on three syntypes from Madagascar. Baillon’s concept of this species was followed by both Leandri (1939) and Radcliffe-Smith (2016), but Berry et al. (2011) determined that the three syntypes in the protologue actually represent three different species, and while one of the others had a valid name (*C. argyrodaphne*), it took several more years to determine with certainty that the third one was a new species, *C. cupreolepis* P.E.Berry, B.W.van Ee, & Kainul. (Berry et al. 2016b). As a further example, Berry and Van Ee (2011) also deciphered the history of *C. multicostatus* Müll.Arg., a Malagasy species which had erroneously been attributed to Hispaniola in the Caribbean, and included as synonyms two species names from Madagascar, *C. vernicosus* Baker and *C. sclerodorus* Baill. Figure 1A shows an example of foliage that is similar in all these coppery-lepidote tree species, while Fig. 1B–G show major differences in flowers of four species in this assemblage in terms of sepal shape, stigma morphology, and presence or absence of petals in the pistillate flowers, as well as differences in the number of stamens in the staminate flowers.

The recent, hastily published work of Radcliffe-Smith (2016) appears to us to illustrate the problem of a lack of field knowledge in the region and the consequent lack of understanding of the variability in many *Croton* species. In some cases, Radcliffe-Smith picked up on important differences in specimens, but he was very inconsistent in how he treated them. Out of the 150 new taxa that he described, 89 were known only from the type collection, and another 29 were known from just two collections. Such a narrow circumscription tends to recognize every minor variation as a separate taxon. On the other hand, in some cases very distinctive new species were treated as varieties of previously known species. For example, *Croton bemaranus* Leandri is a small shrub, and what Radcliffe-Smith (2016) described as *C. bemaranus var. pseudolepidotus* Radcl.–Sm. is a very distinctive large tree that was rediscovered in the field and described by Berry et al. (2016a) a few months earlier as *C. aleuritoides* P.E.Berry. Our general stance for recognizing varieties for Malagasy crotons is that we do not yet have a sufficient level of understanding of the majority of the species to make meaningful subspecific designations. This may come in time, but the fact that more of Radcliffe-Smith’s (2016) published varieties fell into synonymy under different species than the ones to which they were assigned (see below) is an indication that we are not yet at the stage where widespread designations of infraspecific taxa are advisable.
Figure 1. Diversity of flowers in coppery-lepidote tree species of Croton from Madagascar that are vegetatively very similar. A Croton argyrodotaphne, with leaves that are similar to those of several other species B Part of an inflorescence of Croton nobilis showing pistillate flower (below) with thick, reduplicate sepals and no petals, and staminate flower (above) with an intermediate number of stamens (ca. 18) C Staminate flower of C. chrysoxanthos, with numerous (ca. 40) stamens and the unusual feature of ten (vs. normally five) petals D Pistillate flower of C. chrysoxanthos, with patent, slender bifurcating styles and no petals E Staminate flowers of C. argyrodotaphne, with only 11 stamens F Pistillate flower of C. argyrodotaphne, with a stylar column topped by tightly bunched, short stigmas and also with recurved petals between the sepals (typically the pistillate flowers of this species are apetalous) G Base of an inflorescence of C. multicostatus showing three open pistillate flowers at the base (with well-developed, ligulate petals) and several open staminate flowers showing a low stamen number of 10 or 11. Photos by P. Berry.

The overall disposition of the taxa described by Radcliffe-Smith (2016) is given in Tables 1 and 2. Of the 26 species and three subspecies that he described, only four are maintained here as accepted taxa (Table 1), and all others are considered to be
Figure 2. Distribution of the number of native species of *Croton* in the Western Indian Ocean Region. There are 123 native species overall in the region, with 114 native to Madagascar; one of them (*C. adenophorus*) is shared with Mayotte, and the single species in the Union of the Comoros (*C. humblotii*) also occurs on Mayotte. The species on Mauritius and Réunion only occur there. The map of Madagascar shows how many species occur in each of the six former provinces (there are varying levels of overlap between provinces; see text for details).

synonyms of previously described species. Of the 121 new varieties described, we synonymize 97, more often than not under different species than the ones to which they were assigned (Table 2). Of the remaining 24 varieties described, 22 are included in the ‘Incertae Sedis’ section and two are not validly published (see Names Not Validly Published). Based on this outcome, we contend that the manner in which the new taxa in Radcliffe-Smith (2016) were brought to effective and valid publication, namely by the hand-delivering of three copies of a minimally reviewed and edited manuscript to several London libraries while simultaneously having the taxa entered into IPNI at Kew, avoided a badly needed, more rigorous review of the manuscript and led to the useless creation of a great many names, in contravention of Preamble paragraph 1 of the ICN (McNeill et al. 2012). In our view, the Radcliffe-Smith (2016) publication
Table 1. New species and subspecies of Malagasy *Croton* described by Radcliffe-Smith (2016) and their treatment in this paper. Radcliffe-Smith described 26 new species and 3 new subspecies, besides the 121 varieties treated in Table 2. The four Radcliffe-Smith names in bold below are the only ones maintained here as accepted taxa.

| Radcliffe-Smith (2016) name                          | As treated in this paper                                      |
|------------------------------------------------------|--------------------------------------------------------------|
| *C. adenophoroides* Radcl.-Sm.                       | *C. loucoubensis* Baill.                                     |
| *C. alatensis* Radcl.-Sm.                            | *C. droguetioides* Kainul. & Radcl.-Sm.                      |
| *C. aleicorni* Radcl.-Sm.                            | *C. hypochalibaeus* Baill.                                   |
| *C. alchorneifolius* Radcl.-Sm.                      | *C. alchorneifolius* Kainul. & Radcl.-Sm.                    |
| *C. bracteatus* subsp. *manongarivensis* Radcl.-Sm.  | *C. nitidulus* Baill.                                        |
| *C. bracteatus* subsp. *populifolius* Radcl.-Sm.     | *C. danguyanus* Leandri                                      |
| *C. commiphoroides* Radcl.-Sm.                       | *C. indrisilvae* Kainul., B.W. vanEe & P.E. Berry            |
| *C. daphniphylloides* Radcl.-Sm.                     | *C. chapelieri* Baill.                                       |
| *C. daphniphyllus* Radcl.-Sm.                        | *C. chapelieri* Baill.                                       |
| *C. datigyne* Radcl.-Sm.                             | *C. radiatus* P.E. Berry & Kainul.                          |
| *C. delicatula* Radcl.-Sm.                           | *C. menabeensis* Leandri                                     |
| *C. domohineifolius* Radcl.-Sm.                      | *C. chapelieri* Baill.                                       |
| *C. droguetioides* Radcl.-Sm.                        | *C. droguetioides* Kainul. & Radcl.-Sm.                     |
| *C. echinatus* Radcl.-Sm.                            | *C. dissimilis* Baill.                                       |
| *C. graciolar* Radcl.-Sm.                            | *C. gracilior* Radcl.-Sm.                                   |
| *C. hirsutissimur* Radcl.-Sm.                        | *C. nudatus* Baill.                                          |
| *C. lepidotoioides* Radcl.-Sm.                       | *C. ferricretus* Kainul., B.W. vanEe & P.E. Berry            |
| *C. minimimarginiglandulosus* Radcl.-Sm.             | *C. minimimarginiglandulosus* Radcl.-Sm.                    |
| *C. mocquerysii* subsp. *meridionalis* Radcl.-Sm.    | *C. thouarsianus* Baill.                                     |
| *C. neoholstiifolius* Radcl.-Sm.                     | *C. menabeensis* Leandri                                     |
| *C. oligostemon* Radcl.-Sm.                          | *C. hypochalibaeus* Baill.                                   |
| *C. parietarioioides* Radcl.-Sm.                     | *C. droguetioides* Kainul. & Radcl.-Sm.                     |
| *C. parvifructus* Radcl.-Sm.                         | *C. stanneus* Baill.                                         |
| *C. remotiflorus* Radcl.-Sm.                         | *C. trichotonum* Geisel.                                    |
| *C. rhododendroides* Radcl.-Sm.                      | *C. chapelieri* Baill.                                       |
| *C. scorpidogyne* Radcl.-Sm.                         | *C. beteranthurus* Aug.DC.                                  |
| *C. submetallicoides* Radcl.-Sm.                     | *C. chryrodaphne* Baill.                                    |
| *C. ustulatus* Radcl.-Sm.                            | *C. ustulatus* Radcl.-Sm.                                   |
| *C. vohemarensis* Radcl.-Sm.                         | *C. argyrodaphne* Baill.                                    |

is not at all an accurate reflection of our current knowledge of Malagasy *Croton* taxonomy, and it should not be consulted as such. Rather, with this paper, previous ones we have published (Berry and Van Ee 2011; Berry and Kainulainen, 2017; Berry et al. 2011, 2016a, 2016b; Kainulainen et al. 2016, 2017a, 2017b), our initial molecular results (Van Ee et al. 2011, 2015; Haber et al. 2017) and with more complete molecular studies forthcoming shortly, as well as additional taxonomic novelties and revisions in preparation, we are generating a significantly different and better substantiated vision of the rich diversity of *Croton* in the Western Indian Ocean Region.
Table 2. New varieties of Malagasy *Croton* described by Radcliffe-Smith (2016) and their treatment in this paper. Radcliffe-Smith described 121 new varieties besides the 26 new species and 3 new subspecies listed in Table 1. Of the 121 new varietal names, 97 are reduced to synonymy (45 under the nominal species name and 52 under a different species), 22 are considered as Incertae Sedis, and two are invalid.

| Radcliffe-Smith (2016) name | As treated in this paper |
|----------------------------|--------------------------|
| C. adabolavensis var. hippocaphoëoides | C. adabolavensis Leandri |
| C. adabolavensis var. microlepidotus | C. adabolavensis Leandri |
| C. adabolavensis var. ovalifolius | C. adabolavensis Leandri |
| C. adabolavensis var. stellatipilus | C. adabolavensis Leandri |
| C. alaotrensis var. integrifolius | C. dissimilis Baill. |
| C. ambovombensis var. lepidotus | nom. inval. (Excluded Taxa) |
| C. antanasiensis var. hirsutus | C. hovarum Leandri |
| C. antanasiensis var. ankarantsiaka | Incertae Sedis |
| C. anisatus var. pilosus | C. anisatus Leandri |
| C. antanasiensis var. ambohiby | C. trichotomus Geisel. |
| C. antanasiensis var. fiananantoa | C. hypochalibaeus Baill. |
| C. antanasiensis var. pubescens | C. greveanus Baill. |
| C. bathianus var. bongolavae | Incertae Sedis |
| C. baistardi var. meridionalis | C. muricatus Vahl |
| C. bathianus var. ambatondrazaka | C. scoriarum Leandri |
| C. bathianus var. ihosianus | C. ihosianus Leandri |
| C. bathianus var. toliare | C. crocodilorum Baill. |
| C. bemarana var. parvistipulatus | Incertae Sedis |
| C. bemarana var. pseudoepidotus | C. aleuritoides P.E.Berry |
| C. betiokensis var. haplostylis | Incertae Sedis |
| C. bifurcatus var. humblotti | C. bifurcatus Baill. |
| C. boinis var. parcelepidotus | C. greveanus Baill. |
| C. boinis var. tomentosus | C. catatii Baill. |
| C. bovinianus var. brevifolius | C. nudatus Baill. |
| C. casinoides var. alaotrensis | C. hovarum Leandri |
| C. catatii var. schizoplepis | Incertae Sedis |
| C. catatii var. setosus | C. catatii Baill. |
| C. catatii var. tricholepis | C. catatii Baill. |
| C. chapelteri var. longepetiolata | C. submetallicus Baill. |
| C. chrysodaphne var. meridionalis | C. cupreolepis P.E.Berry, B.W.vanEe, & Kainul. |
| C. crocodilorum var. meridionalis | C. crocodilorum Leandri |
| C. crocodilorum var. platyaster | C. stanneus Baill. |
| C. daphniphyllum var. hirsutus | C. nitidulus Baker |
| C. daphniphyllum var. stellatipilus | Incertae Sedis |
| C. daphniphyllum var. triplinervius | Incertae Sedis |
| C. daphniphyllum var. finarantsoa | C. fianarantoa Leandri |
| C. decaryi var. subglaber | C. muricatus Vahl |
| C. elaeagni var. antiraneanae | C. elaeagni Baill. |
|-------------------------------|-------------------|
| C. elaeagni var. argyrocarpos | Incertae Sedis    |
| C. elaeagni var. brevipedicellatus | Incertae Sedis |
| C. elaeagni var. chrysocephos | C. catatii Baill. |
| C. fianarantsoae var. ambrmontanus | C. minimimarginiglandulosus Radcl.-Sm. |
| C. fianarantsoae var. coursii | C. fianarantsoae Leandri |
| C. fianarantsoae var. masoalae | C. glomeratus Aug.DC. |
| C. fianarantsoae var. microphyllus | C. fianarantsoae Leandri |
| C. fianarantsoae var. obovalisfolius | C. submetallicus Baill. |
| C. fianarantsoae var. petiolaris | Incertae Sedis    |
| C. fianarantsoae var. ranomafinae | C. fianarantsoae Leandri |
| C. fianarantsoae var. tandrokensis | C. fianarantsoae Leandri |
| C. geayi var. paucisquamatus | C. geayi Leandri |
| C. geayi var. pubescens | C. geayi Leandri |
| C. goudotii var. tsaratanae | C. goudotii Baill. |
| C. greveanus var. amboitrensis | C. hovarum Leandri |
| C. greveanus var. micraster | C. catatii Baill. |
| C. hovarum var. hirsutifructus | Incertae Sedis    |
| C. hovarum var. lepidotus | C. hovarum Leandri |
| C. hovarum var. subglaber | C. hovarum Leandri |
| C. incisus var. minor | C. incisus Baill. |
| C. isomonensis var. microcarpus | C. trichotomus Geisel. |
| C. ivohibensis var. aesculopi | C. minimimarginiglandulosus Radcl.-Sm. |
| C. ivohibensis var. alaotrensis | C. humbertii Leandri |
| C. ivohibensis var. ankarananensis | C. minimimarginiglandulosus Radcl.-Sm. |
| C. ivohibensis var. furfuraceus | C. heteranthus Aug.DC. |
| C. ivohibensis var. integrifolius | Incertae Sedis    |
| C. ivohibensis var. lepidotus | C. hovarum Leandri |
| C. ivohibensis var. macrocalyx | Incertae Sedis    |
| C. ivohibensis var. polygynus | Incertae Sedis    |
| C. ivohibensis var. puncticulatus | C. bracteatus Lam. |
| C. ivohibensis var. verticillatus | Incertae Sedis    |
| C. kimosorum var. pubescens | C. kimosorum Leandri |
| C. leandri var. pubescens | C. toliarensis B.W.vanEe & Kainul. |
| C. lichenisilvae var. oligostemon | C. lichenisilvae Leandri |
| C. macrobuxus var. dolchobotrys | C. macrobuxus Baill. |
| C. macrobuxus var. glandulifer | C. macrobuxus Baill. |
| C. macrobuxus var. polygynus | C. chapelieri Baill. |
| C. macrobuxus var. subfoliaceus | C. macrobuxus Baill. |
| C. macrobuxus var. subtrigonus | C. macrobuxus Baill. |
| C. manampetsae var. angustifolius | C. manampetsae Leandri |
| C. manampetsae var. chaetogyne | C. manampetsae Leandri |
| Species                                      | Authority                  |
|---------------------------------------------|---------------------------|
| C. manampetsae var. lepidotus               | Incertae Sedis            |
| C. mavoravina var. concinnus               | C. boiteau Leandri        |
| C. mavoravina var. gracilis                | C. mavoravina Leandri     |
| C. mavoravina var. gymnolepis              | C. mavoravina Leandri     |
| C. mavoravina var. imanombensis            | C. mavoravina Leandri     |
| C. mavoravina var. rotundifolius           | C. mavoravina Leandri     |
| C. mavoravina var. thysanolepis            | C. crossolepis P.E.Berry & Kainul. |
| C. menabeensis var. furfuraceus            | C. nudatus Baill.         |
| C. menarandrae var. pubescens              | C. menarandrae Leandri    |
| C. meridionalis var. latifolius            | Incertae Sedis            |
| C. meridionalis var. pseudolepidotus        | C. meridionalis Leandri   |
| C. meridionalis var. stipularis            | Incertae Sedis            |
| C. miarensis var. monadenius               | C. miarensis Leandri      |
| C. mongue var. borealis                    | C. mongue Baill.          |
| C. nitidulus var. acuminatus               | C. submetallicus Baill.   |
| C. nitidulus var. angustiglans             | C. nitidulus Baker        |
| C. nitidulus var. bekolosianis             | C. nitidulus Baker        |
| C. nitidulus var. cinereus                 | C. submetallicus Baill.   |
| C. nitidulus var. eglandulosus             | Incertae Sedis            |
| C. nitidulus var. fuscicraneus             | C. nitidulus Baker        |
| C. nitidulus var. hypopolioites            | C. submetallicus Baill.   |
| C. nitidulus var. macrophyllus             | C. submetallicus Baill.   |
| C. nitidulus var. microphyllus             | C. macrobuxus Baill.      |
| C. nitidulus var. pubescens                | C. macrobuxus Baill.      |
| C. oreades var. borealis                   | C. mongue Baill.          |
| C. oreades var. craspedadenius             | C. mongue Baill.          |
| C. oreades var. periphoradenius            | C. mongue Baill.          |
| C. peltieri var. hzazotiozense             | C. miarensis Leandri      |
| C. regeneratrix var. mayottensis           | C. mayottae P.E.Berry & Kainul. |
| C. regeneratrix var. ranomafanae           | C. myriaster Baker        |
| C. rubricapitirupis var. macrophyllus      | Incertae Sedis            |
| C. stamneus var. hirsutus                  | C. stamneus Baill.        |
| C. subaemulans var. tsingyensis            | C. bemaranus Leandri      |
| C. submetallicus var. tomentosus           | C. submetallicus Baill.   |
| C. thuarsianus var. angustifolius           | Incertae Sedis            |
| C. thuarsianus var. longifolius             | Incertae Sedis            |
| C. thuarsianus var. macrocalyx             | C. minimimarginiglandulos Radcl.-Sm. |
| C. thuarsianus var. robustior              | C. thouarsianus Baill.    |
| C. tranomarensis var. rosmarinifolius      | C. tolatriensis B.W.vanEe & Kainul. |
| C. tsiampiensis var. ankararrensis         | C. tsiampiensis Leandri   |
| C. tsiampiensis var. macrophyllus          | C. tsiampiensis Leandri   |
| C. tsiampiensis var. microphyllus          | C. tsiampiensis Leandri   |
Nomenclator of Malagasy, Comoros, and Mascarene Croton

1. Croton adabolavensis Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 34. 1939

Croton adabolavensis var. hippophaëoides Radcl.-Sm., Gen. Croton Madag. Comoro 92. 2016, syn. nov.
Type. MADAGASCAR. Prov. Toliara: Cap Ste. Marie Reserve, SW of Tsiombe, 25°35’S, 45°09’E, 27 Dec 1988, P.B. Phillipson 3008 (holotype: K!; isotypes: MO!, P [P00433074]!).

Croton adabolavensis var. microlepidotus Radcl.-Sm., Gen. Croton Madag. Comoro 92. 2016, syn. nov.
Type. MADAGASCAR. Prov. Toliara: Réserve Naturelle Intégrale d’Andohahela, along border road, 25°00’S, 46°40’E, 19 Oct 1990, A. Randrianasolo, D. Faber-Langendoen, N. Dumetz & R. Rabevohitra 174 (holotype: K!; isotypes: MO!, P [P00433039]!).

Croton adabolavensis var. ovalifolius Radcl.-Sm., Gen. Croton Madag. Comoro 92. 2016, syn. nov.
Type. MADAGASCAR. Prov. Toliara: Beza Mahafaly Reserve, near Betioky, ridge E of Sakamena River, valley of Analafahy River, 23°58’S, 44°39’E, 28 Nov 1987, P.B. Phillipson 2621 (holotype: K!; isotype: MO!, P [P00133395]!).

Croton adabolavensis var. stellatipilus Radcl.-Sm., Gen. Croton Madag. Comoro 93. 2016, syn. nov.
Type. MADAGASCAR. Prov. Toliara: 27 km from Tulear (Toliara), 23°21’S, 43°51’E, 30 Dec 1987, P.B. Phillipson 2759 (holotype: K!; isotype: MO!, P [P00133397]!).

Habit and distribution. Shrubs; southeastern Madagascar (Toliara).
Notes. Leandri (1939) named the species after the type locality, Anadabolava, but he may have inadvertently or even purposely omitted the first two letters of the name. The different varieties described by Radcliffe-Smith (2016) all appear to be just minor variants within the normal variability of this species that do not merit taxonomic status, but more intensive work is needed on this and the other small-leaved species from Toliara Province.

2. Croton adenophorus Baill., Adansonia 1: 153. 1861, as ‘adenophorum’

Croton payerianus Baill., Adansonia 1: 154. 1861, as ‘payerianum’.

Type. MADAGASCAR. Prov. Antsiranana: Diana Region, Nossibé, 1849, L.H. Boivin 2187 (lectotype, designated here: P [P00248927]!; isolecotype: P [P00312384]!).
**Croton tulasnei** Baill., Adansonia 1: 156. 1861.

*Type. Mayotte [French Overseas Department]: Bouzi [Ilot M’Bouzi], 1850, *L.H. Boivin s.n.* (lectotype, designated by Kainulainen et al. 2017b, pg. 382: P [P00133305]!; isolectotypes: P [P00133306]!, [P00466148]).

**Croton subaemulans** Baill., Bull. Mens. Soc. Linn. Paris 2: 850. 1890.

*Type. MADAGASCAR. sin. loc., *R. Baron 5795* (holotype: K [K000422590]!; isotype: P [P00133593]!).

**Oxydectes adenophora** (Baill.) Kuntze, Revis. Gen. Pl. 2: 610. 1891.

*Type. Based on *Croton adenophorus* Baill.

**Oxydectes payeriana** (Baill.) Kuntze, Revis. Gen. Pl. 2: 612. 1891.

*Type. Based on *Croton payerianus* Baill.

**Oxydectes tulasnei** (Baill.) Kuntze, Revis. Gen. Pl. 2: 613. 1891.

*Type. Based on *Croton tulasnei* Baill.

**Croton tenuicuspis** Baill., Bull. Mens. Soc. Linn. Paris 2: 927. 1891.

*Type. MADAGASCAR. sin. loc., *R. Baron 5846* (holotype: P [P00133364]!; isotype: K [K000422590]!).

*Habit and distribution.* Shrubs or small trees; northern and northwestern Madagascar (Antsiranana, Mahajanga) and Mayotte in the Comoros Archipelago.

*Notes.* *Croton adenophorus* was substantially recircumscribed from the concept of Leandri (1939) and Radcliffe-Smith (2016) by Kainulainen et al. (2017b). In both earlier publications, *C. loucoubensis* was treated as a synonym of *C. adenophorus*, and *C. subaemulans* was recognized as a distinct species. This earlier synonymy was due to a fundamental misunderstanding of *C. adenophorus*. See Kainulainen et al. (2017b) for further details and the distinguishing features of *C. adenophorus* and *C. loucoubensis*.

The sheet P00466148 is listed in Sonnerat under *Croton tulasnei*, but without an image. We never saw this specimen at P either before or after the herbarium renovation in 2015, and the whole folder of *C. tulasnei* was missing during visits to P in 2016 and 2017.

Radcliffe-Smith (2016) mentioned *Boivin 2187* at P as the lectotype for *Croton adenophorus* but failed to state “designated here” or an equivalent statement, so his designation was not validly published.

**3. Croton alchorneifolius** Radcl.-Sm., Gen. Croton Madag. Comoro 135. 2016

*Type. MADAGASCAR. Prov. Antsiranana: Diana Region, Nossi-bé [Nosy Be], 1837, *J.M.C. Richard 214* (lectotype, designated by Kainulainen et al. 2017b, pg. 382: P [P00123689]!; isotype: P [P00123690]!). MADAGASCAR. Prov. Antsiranana: Diana Region. Nossi-bé [Nosy Be], *J.M.C. Richard 574* (syntype: P [P00123691]!); ibid. loc., 1849, *L.H. Boivin 2187* (syntype: P [P00301515]!).

*Habit and distribution.* Shrubs or small trees; northern and northwestern Madagascar (Antsiranana, Mahajanga) and Mayotte in the Comoros Archipelago.

*Notes.* *Croton adenophorus* was substantially recircumscribed from the concept of Leandri (1939) and Radcliffe-Smith (2016) by Kainulainen et al. (2017b). In both earlier publications, *C. loucoubensis* was treated as a synonym of *C. adenophorus*, and *C. subaemulans* was recognized as a distinct species. This earlier synonymy was due to a fundamental misunderstanding of *C. adenophorus*. See Kainulainen et al. (2017b) for further details and the distinguishing features of *C. adenophorus* and *C. loucoubensis*.

The sheet P00466148 is listed in Sonnerat under *Croton tulasnei*, but without an image. We never saw this specimen at P either before or after the herbarium renovation in 2015, and the whole folder of *C. tulasnei* was missing during visits to P in 2016 and 2017.

Radcliffe-Smith (2016) mentioned *Boivin 2187* at P as the lectotype for *Croton adenophorus* but failed to state “designated here” or an equivalent statement, so his designation was not validly published.

**3. Croton alchorneifolius** Radcl.-Sm., Gen. Croton Madag. Comoro 135. 2016

*Type. MADAGASCAR. Prov. Antsiranana: SAVA Region, summit of Marojejy on path from Mandena, 14°26’56”S, 49°43’58”E, 30 Sep 1994, *B. Lewis, F. Rasoavimbahoaka & J. Rastefanorina 1206* (holotype: K!; isotypes: MO!, P [P00131484]!).
**Habit and distribution.** Small trees; restricted to the Marojejy Massif in northern Madagascar (Antsiranana).

**Notes.** This is a distinctive high-elevation species with well-developed petals in the pistillate flowers and large capsules, belonging to the Mongue Group of Leandri (1939).

4. *Croton aleuritoides* P.E.Berry, Candollea 71: 182. 2016 [17 Jun 2016]

*Croton bemaranus* var. *pseudolepidotus* Radcl.-Sm., Gen. Croton Madag. Comoro 209. 2016 [23 Dec 2016], as ‘*bemarana*’, **syn. nov.**

**Type.** MADAGASCAR. Prov. Antsiranana: Diana Region, Montagne des Français, à l’Est de Diego Suarez, 26 Nov 1958, *Service Forestier 20088* (lectotype, designated here: P [P00312410]!; isolecotypes: B, G [G00341674]!, K [K001040349]!, MO!, P [P00206489]!, S!, TEF!, WAG).

**Habit and distribution.** Trees; known only from Montagne des Français in northernmost Madagascar (Antsiranana).

5. *Croton ambanivoulensis* Baill., Adansonia 1: 165. 1861, as ‘*ambanivoulense*’

*Oxydectes ambanivoulensis* (Baill.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.

**Type.** Based on *Croton ambanivoulensis* Baill.

**Type.** MADAGASCAR. Prov. Toamasina: [region of the] Ambanivoules, [west of] Tamatave, dans les forêts, Dec. 1836, *J.P. Goudot s.n.* (lectotype, designated here: G [G00446336]!; isolecotype: P [P00301514]!).

**Habit and distribution.** Shrubs; eastern lowland Madagascar (Toamasina).

**Notes.** There are two sheets of *Goudot s.n.* at G within the same jacket, meaning they are considered as being part of the same collection (see Gautier et al. 2016). However, they do not fit the criterion of bearing a single label in common. Each sheet has its own label, and they are not identical. One, the lectotype, has a precise collecting date and the locality name of Ambanivoules, whereas the other sheet (G00446337) does not, and the written field description of the plants differs between the two. Also, the lectotype has mainly pistillate flowers open whereas the other syntype has only staminate flowers open. This leads us to conclude that the two sheets are actually different gatherings, even though both were annotated in Baillon’s hand as “*Croton ambanivoulense*.” We have designated the sheet that is most consistent with the protologue (G00446336) as the lectotype.

Ambanivoules were an ethnic group of eastern Madagascar located approximately 80–100 km west of Tamatave, their name derived from the Malagasy “Antanbanivolo,” or “people living at the base of the mountains covered with bamboos” (Schatz 2013).
6. **Croton ambovombensis** Radcl.-Sm. & Govaerts, Kew Bull. 52: 186. 1997

*Croton divaricatus* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 59. 1939, as ‘divaricatus’, nom. illeg. non *Croton divaricatus* Sw., 1788.

**Type.** MADAGASCAR. Prov. Toliara: Androy Region, Ambovombe, 19 Dec 1924, *R. Decary 3174* (lectotype, designated by Radcliffe-Smith 2016, pg. 191: P [P00133060]!; isolecotype: TAN [TAN000529]!). MADAGASCAR. Prov. Toliara: Androy Region, environs d’Ambovombe (extrême sud), 9 Sep 1928, *H. Humbert & C.F. Swingle 5631* (syntypes: G [G00446382]!, P [P00133062]!; MADAGASCAR. Prov. Toliara: Andrahomana, 21 Jun 1926, *R. Decary 4017* (syntype: P [P00133061]!).

**Habit and distribution.** Shrubs; southern lowland Madagascar (Toliara).

7. **Croton androiensis** (Leandri) Leandri, Adansonia, n.s., 9: 507. 1970

*Croton geayi* var. *androiensis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 35. 1939.

**Type.** MADAGASCAR. Prov. Toliara: Androy/Anosy Regions, Bevilany, limite entre l’Anosy et l’Androy, 14 Nov 1932, *R. Decary 10940* (lectotype, designated here): P [P00123697]!; isolecotypes: G, K [K001044841]!, TAN [TAN000533]!). MADAGASCAR. Prov. Toliara: Androy Region, Ambovombe, 6 Jan 1931, *R. Decary 8361* (syntypes: P [P00123696]!), TAN [TAN000532]!). MADAGASCAR. Prov. Toliara: Kotoala, sables et dunes littorales, 21 Jan 1931, *R. Decary 8408* (syntypes: K [K001040395]!, MO [sheet #04861163]!, P [P00404477]!, P [P00123698]!).

**Type.** Based on *Croton geayi* var. *androiensis* Leandri

**Habit and distribution.** Shrubs; southern Madagascar (Toliara).

**Notes.** Radcliffe-Smith (2016) mentioned *Decary 10940* as the lectotype for *Croton geayi* var. *androiensis*, but this is not validly published as he failed to state “designated here” or an equivalent phrase.

8. **Croton anisatus** Baill., Adansonia 1: 159. 1861, as ‘anisatum’

*Oxydectes anisata* (Baill.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.

**Type.** Based on *Croton anisatus* Baill.

**Type.** [Cult. ex Madagascar]: Cultivated in the garden of M. Hubert, Saint Benoit, Réunion, s.d., *M. Lepervanche s.n.* (holotype: P [P00301513]!). MADAGASCAR. Prov. Toamasina: Atsinanana Region, Vohibola, N to NNW of village of Andranokoditra, N of Lac Ampitabe, 18°33’34”S, 49°15’01”E, 5 m, 12 Feb 2003, *P. Lowry, R. Rabenantoandro, R. Razakamalala & S.W.J. Lowry 6072* (epitype, designated here): P [P00548219]!; additional duplicates: DAV!, K!, MICH [MICH1210799]!, MO [sheet # 5902002]!).
Habit and distribution. Shrubs; eastern coast of Madagascar (Toamasina).

Notes. Since the holotype of Croton anisatus has only young inflorescences in bud and is known only from cultivation on a quite different island, we designate an epitype with open flowers. This littoral species can be characterized by its very congested inflorescences and the pseudoverticillate, anisophyllous, and sparsely lepidote-pubescent leaves with an entire margin. The plant is apparently quite aromatic as indicated by the descriptions of both the holotype and epitype, as well as by its specific epithet.

9. Croton ankarensis Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 75. 1939

Type. Madagascar. Prov. Mahajanga: Causse d’Ankara, bois rocallieux et secs sur calcaire jurassique, Dec 1900, H. Perrier de la Bâthie 9830 (lectotype, designated here: P [P00123702]); isolectotype: P [P00123703]!). Madagascar. Prov. Mahajanga: Tsingy du Bemaraha (9e Réserve), 4 Oct 1932, J. Leandri 103bis (syntypes: K [K001040394]!, P [P00123700]!, P [P00123701]!).

Habit and distribution. Shrubs; western Madagascar (Mahajanga).

Notes. The Leandri 103bis syntype corresponds to Croton tsiampiensis.

10. Croton ankeranae Kainul., Candollea 71: 329. 2016

Type. Madagascar. Prov. Toamasina: Atsinanana Region, District Brickaville, Commune Maroseranana, Fokontany Ambodilendemy, Andrangato River, 18°26’37"S, 48°46’31"E, 446 m, 13 Mar 2011, P. Antilahimena 7554 (holotype: MICH [MICH1513200]!; isotypes: MO!, P!, TAN!).

Habit and distribution. Shrubs to small trees; eastern Madagascar (Toamasina).

11. Croton anosiravensis Leandri, Adansonia, n.s., 12: 69. 1972

Croton anosiravensis var. pilosus Radcl.-Sm., Gen. Croton Madag. Comoro 207. 2016, syn. nov.

Type. Madagascar. Prov. Antsiranana: Analamera, 50-400 m, Jan 1938, H. Humbert 19141 (lectotype, designated here: P [P00133307]!; isolectotype: P [P00133308]!).

Type. Madagascar. Prov. Antsiranana: Base des escarpements de l’Anosiravo, plateau kilométrique 6 de la route de Diego Suarez à Orangéa, 12 Dec 1963, Service Forestier 22930-SF (holotype: P [P00404432]!; isotypes: K [K001040369]!, TEF [TEF000193]!).

Habit and distribution. Shrubs; northern Madagascar (Antsiranana).
**Notes.** In its stellate-pubescent and cordate leaves, *Croton anosiravensis* is superficially similar to some of the species in the Adenophorus Group. However, it does not have opposite leaves or laminar glands, and is probably not closely related. It appears to be a rare species, because besides the type from the northern slopes of Montagne des Français, it is otherwise only known from Analamera (*Humbert 19141 [P]*) and Befarafara in Daraina (*Rakotonandrasana et al. 1048 [CNARP, MICH, MO, P, TAN]*)). Radcliffe-Smith (2016) stated “holo: P” for var. *pilosus*, but there are two sheets of the type collection there, so we have selected the more complete of the sheets at P as the lectotype.

12. *Croton antanosiensis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 45. 1939

**Type.** MADAGASCAR. Prov. Toliara: environs de Fort-Dauphin, près de Bévilany, 200-300 m, 14 Sep 1928, *H. Humbert & C.F. Swingle 5695* (lectotype, designated here: P [P00123716]!; isolectotype: P [P00123717]!). MADAGASCAR. Prov. Toliara: Massif de Beampingaratra (Sud-Est), du col de Bevava au sommet de Bekoho, forêt sur latérite de gneiss, 1100-1500 m, 6-7 Nov 1928, *H. Humbert 6416* (syntypes: P [P00123718]!, P [P00154301]!, TAN [TAN000521]!). MADAGASCAR. Prov. Toliara: Fort Dauphin, *J. Cloisel 60* (syntype: P [P00123710]!). MADAGASCAR. Prov. Toliara: Behara, 9 Jul 1926, *R. Decary 4321* (syntypes: P [P00123711]!, S [S07-14102]). MADAGASCAR. Prov. Toliara: Ranofotsy, 29 Jul 1932, *R. Decary 10175* (syntypes: G [G00446368]!, P [P00123712]!).

**Habit and distribution.** Shrubs to small trees; southern Madagascar (Toliara).

**Notes.** We believe that the lectotype chosen here best conforms to the protologue among the syntypes cited by Leandri (1939). Although most of the other syntypes correspond to the same species, one of them, *Humbert 6416*, appears to belong instead to *C. trichotomus*.

13. *Croton argyrodaphne* Baill., Adansonia 1: 146. 1861

*Oxydectes argyrodaphne* (Baill.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.

**Type.** Based on *Croton argyrodaphne* Baill.

*Croton argyrodaphne* var. *occidentalis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 44. 1939, *syn. nov.*

**Type.** MADAGASCAR. Prov. Mahajanga: région du Cap Saint-André, dunes, 8 Jun 1930, *R. Decary 7893* (lectotype, designated here: P [P00127457]!). MADAGASCAR. Prov. Toliara: bassin de la Tsiribihina, Jul 1911, *H. Perrier de la Bâthie 9656* (syntypes: P [P00127460]!, P [P00127461]!, P [P00127462]!). MADAGASCAR. Prov. Toliara: Morondava, received 26 Dec 1878, *H. Grévé 11* (syntype: P [P00127459]!).
Croton argyrodaphne var. boinensis Leandri, Adansonia, sér. 2, 12: 404. 1972, syn. nov.
Type. MADAGASCAR. Prov. Mahajanga: Ampalony, 9 Aug 1971, L.P. Schmitt 515 (holotype: P [P00389629]).

Croton argyrodaphne var. orientalis Leandri, Adansonia, sér. 2, 12: 404. 1972, syn. nov.
Type. MADAGASCAR. Prov. Toamasina: Intendro, près de Fénérive, 9 Jul 1958, Service Forestier 19160-SF (holotype: P [P00418607]).

Croton vohemarensis Radcl.-Sm., Gen. Croton Madag. Comoro 78. 2016, syn. nov.
Type. MADAGASCAR. Prov. Antsiranana: Mantamena, Bekaroaka Range, 7 km N of Daraina (Vohemar), 13°08’S, 49°42’E, 112-330 m, 26 Nov 1990, D. Meyers 206 (holotype: MO!).

Type. MADAGASCAR. Prov. Antsiranana: Diana Region, Nossibé, 1837, J.M.C. Richard 218 (lectotype, first step designated by Leandri 1972b, pg. 404, second step designated here): P [P00127450]!; isolectotype: K [K001040357]!). MADAGASCAR. Prov. Antsiranana: Diana Region, Nossibé, L.M.A. Du Petit-Thouars s.n. (syntype: P [P00123733]!), ibid. loc., 1837, J.M.C. Richard 571 (syntypes: P [P00127451], K [K000347495]!), ibid. loc., 15 Nov 1840, A. Pervillé 236 (syntypes: K [K000347493]!, P [P00127436]!, P [P00127437]!). MADAGASCAR. Prov. Antsiranana: Loucoubé, 1848, L.H. Boivin 2182 (syntypes: G-DC [G00311741]!, G [G00311741]!, K [K000347494]!, P [P00123729]!, P [P00123730]!, P [P00835716]!).

Habit and distribution. Trees to large shrubs; mainly in northern Madagascar, but extending as far south as northern Toliara Province on the west coast and northern Toamasina on the east coast (Antsiranana, Mahajanga, Toamasina, Toliara).

Notes. Leandri (1972b) designated Richard 218 as the type of Croton argyrodaphne. Given that he did not specify an herbarium in his selection of this collection, we complete the lectotypification here by designating P00127450 as a second-step lectotype. The type of C. argyrodaphne var. orientalis comes from an area in northern Toamasina that is well south of the range of most other C. argyrodaphne specimens. However, there is a second collection of the species from the same area, SF-10816 (TEF), which confirms its occurrence near Fénérive.

The type of Croton vohemarensis consists of two small twigs with leaves that are unusually small and wide for C. argyrodaphne. However, the low stamen number (11) and the characteristic stylar column are very typical of C. argyrodaphne (see Fig. 1E–F), and it falls within the geographic and altitudinal range for the species. An additional paratype cited by Radcliffe-Smith (2016), Meyers & Bolz 170 (G, MO), comes from the type locality and is a tree 7 m tall, again with unusually wide and long-petiolate leaves for C. argyrodaphne, but it only has young floral buds.

What Leandri recognized as Croton argyrodaphne var. occidentalis is a rather distinctive element of this species, with a western, subcoastal distribution. The plants are small trees, and the leaves have yellowish pigmentation along the midvein on the adaxial leaf surfaces, but other than that they conform well to the general aspect of C. argyrodaphne.
14. Croton aubrevilecta Leandri, Adansonia, sér. 2, 10: 309. 1970

**Type.** Madagascar. Prov. Toliara: Sud-Ouest, s.d., M.G. Cours 4641 (holotype: P [P00312369]!; isotypes: K [K001044848], MO [sheet # 5737746]!, P [P00380443], P [P00380444]!).

**Habit and distribution.** Shrubs; southwestern Madagascar (Toliara).

**Notes.** Leandri (1970b) designated Cours 4641 as the holotype of *C. aubrevilecta* but there are three sheets of this collection at P. One of them, P00312369, has a label in Leandri’s handwriting saying “type,” and the other two duplicates at P have labels stating “isotype.” The isotypes at P have preprinted labels stating “Itinéraire de Didy à Brickaville (forêt orientale),” but P00380444 has a note added later stating “Localité très douteuse, voir récolte Homolle 1944 (avec M.G. Cours).” The holotype has a penciled note stating “Probablement région de Tranoroa.” In the protologue, Leandri (1970b) also alluded to the erroneous labels from Didy and states that the collection likely came from far southern Madagascar close to Lake Tsimanampetsotsa.

15. Croton barorum Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 66. 1939

**Type.** Madagascar. Prov. Toliara: Antanimora, 16 Jun 1926, R. Decary 4346 (holotype: P [P00301486]!; isotype: K [K001044842]!).

**Habit and distribution.** Shrubs; southwestern Madagascar (Toliara).

16. Croton basaltorum (Leandri) P.E.Berry, comb. et stat. nov.

Crotton antanosiensis var. basaltorum Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 46. 1939.

**Type.** Madagascar. Prov. Mahajanga: Pl. [Plateau] d’Antanimena, entre la Mahavavy et le Betsiboka, Jun 1906, H. Perrier de la Bâthie 9593 (lectotype, designated here: P [P00123726]!; isolectotype: P [P00123725]!).

**Type.** Based on *Croton antanosiensis* var. basaltorum Leandri

**Habit and distribution.** Shrubs; western Madagascar (Mahajanga).

**Notes.** Geographically and morphologically, this species is sufficiently distinct from *C. antanosiensis* to merit recognition at the species level. Morphologically, it appears more similar to *C. cupreolepis*.
17. *Croton bastardii* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 64. 1939, as ‘bastardi’

*Croton appertii* Leandri, Adansonia, sér. 2, 15: 331. 1976, syn. nov.

**Type.** MADAGASCAR. Prov. Toliara: Beharana, près de Manja, 300 m, 17 Nov 1961, *O. Appert 37* (holotype: P [P00312368]!; isotypes: K [K001044847]!, MO [sheet # 2287361]!, Z [Z-000015970]!, Z [Z-000015971]!).

**Habit and distribution.** Shrubs; southwestern Madagascar (Mahajanga, Toliara).

18. *Croton bathianus* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 80. 1939, as ‘bathiana’

**Type.** MADAGASCAR. Prov. Mahajanga: Haut Bemarivo, Oct 1907, *H. Perrier de la Bâthie 9545* (lectotype, designated by Kainulainen et al. 2017b, p. 386: P [P00301483]!; isolecotype: P [P00127503]!). MADAGASCAR. Prov. Mahajanga: collines sèches de haut Bemarivo, Dec 1906, *H. Perrier de la Bâthie 9633* (syntype: P [P00389630]!). MADAGASCAR. Prov. Mahajanga: Maromandia, presqu’ile Radama, 13 Oct 1922, *R. Decary 1133* (syntype: P [P00389631]!), ibid. loc., 11 Oct 1922, *R. Decary 1174* (syntype: P [P00301482]!).

**Habit and distribution.** Shrubs; northwestern Madagascar (Antsiranana, Mahajanga).

19. *Croton bemaranus* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 69. 1939, as ‘bemarana’

*Croton subaemulans* var. *tsingyensis* Radcl.-Sm., Gen. Croton Madag. Comoro 120. 2016, syn. nov.

**Type.** MADAGASCAR. Prov. Mahajanga: Tsingy du Bemaraha (9e Réserve), reçu Feb -Apr 1933, *J. Leandri 116* (holotype: K!; isotypes: P [P00133368!, P00133369!]!).

**Type.** MADAGASCAR. Prov. Mahajanga: causses d’Ankara, Oct 1900, *H. Perrier de la Bâthie 1153* (lectotype, designated here: P [P00206491]!; isolecotypes: K [K001040396]!, P [P00389502]!). MADAGASCAR. Prov. Mahajanga: Bemara, partie Nord de l’Antsingy, entre Ambatomilolohaha et Anjohinomby, 29 Nov 1932, *J. Leandri 656* (syntypes: P [P00127512]!, P [P00389503]!).

**Habit and distribution.** Shrubs; western and northern Madagascar (Antsiranana, Mahajanga).
20. *Croton bemarivensis* Leandri, Adansonia, sér. 2, 13: 423. 1974

**Type.** MADAGASCAR. Prov. Antsiranana: entre Andrangana et la rivière Anjambazam-ba, route de Sambava à Antsirabe-Nord, 2–7 Oct 1966, *Service Forestier* 27197-SF (holotype: P [P00312371!]; isotypes: K [K001044846]!, MO [sheet #04861161]!, P [P00404483]!, TEF [TEF000192]!).

**Habit and distribution.** Shrubs; northeastern Madagascar (Antsiranana, Toamasina).

21. *Croton bergassae* Leandri, Adansonia, sér. 2, 13: 176. 1973

**Type.** MADAGASCAR. Prov. Toamasina: Menagisy, Brickaville, 11 Oct 1956, *Service de Eaux et Forêts de Madagascar* 12358-SF (lectotype, designated here: P [P00312375]!; isolecotypes: P [P00127519]!, TEF!).

**Habit and distribution.** Shrubs or small trees; eastern lowland Madagascar (Antsiranana, Toamasina).

**Notes.** Although the sheet designated here as lectotype has a sticker stating “TYPE” and the other sheet at P has one stating “ISOTYPE,” it is not clear who applied those labels and if it was done after Leandri’s publication. In any case, there is no annotation in Leandri’s hand on either sheet to indicate which of the two he intended to be the holotype.

22. *Croton bernieri* Baill., Adansonia 1: 152. 1861

*Oxydectes bernieri* (Baill.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.

**Type.** Based on *Croton bernieri* Baill.

*Croton bernieri* var. *namorokensis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 54. 1939, *syn. nov.*

**Type.** MADAGASCAR. Prov. Mahajanga: Tsingy de Namoroka (8° Réserve), 1933, *Service Forestier* 11 (holotype: P [P00127543]!).

**Type.** MADAGASCAR. Prov. Antsiranana: Diégo-Suarez, 1835, *A.C.J. Bernier* 306 (lectotype, designated here: P [P00127520]!; isolecotypes: G [G00434420]!, P [P00127521]!, P [P00301481]!). MADAGASCAR. Prov. Antsiranana: Baie de Diégo-Suarez, Dec 1848, *L.H. Boivin* 2657 (syntypes: G [G00311744]!, G-DC [G00311744]!, P [P00127522]!, P [P00127523]!, P [P00127524]!, P [P00301480]!).

**Habit and distribution.** Shrubs to small trees; northern and northwestern Madagascar (Antsiranana, Mahajanga).
23. **Croton betiokensis** Leandri, *Adansonia*, sér. 2, 10: 183. 1970

*Type.* Madagascar. Prov. Toliara: Plateau Mahafaly à l’ouest de Betioky, 100-300 m, 17-20 Mar 1955, *H. Humbert & R. Capuron* 29489 (holotype: P [P00312386]!; isotypes: P [P00127545], P [P00127546]!).

**Habit and distribution.** Shrubs; southern Madagascar (Toliara).

24. **Croton bifurcatus** Baill., *Adansonia* 1: 164. 1861, as ‘*bifurcatum*’

*Croton bifurcatus* var. *genuinus* Müll.Arg. in A.P.de Candolle, Prodr. 16(2): 584. 1866, nom. inval.

*Oxydectes bifurcata* (Baill.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.

*Type.* Based on *Croton bifurcatus* Baill.

*Croton bifurcatus* var. *humblotii* Leandri ex Radcl.-Sm., Gen. Croton Madag. Comoro 25. 2016, *syn. nov.*

*Type.* Mayotte [French Overseas Department]: forêt de Mazé, M. Bini [Majimbini], 24 May 1884, *L. Humblot* 1162 (holotype: K; isotype: P [P00196067]!).

*Type.* Mayotte [French Overseas Department]: Cascade du Msapéré, 1849, *L.H. Boivin* 3380 (holotype: P [P00196066]!; isotypes: G-DC [G00311982]!, G [G00446373]!, P [P00196065]!, P [P00466147]!).

**Habit and distribution.** Shrubs; known only from the French island of Mayotte in the Comoro Islands.

**Notes.** The type of *C. bifurcatus* var. *humblotii* differs in only minor ways from typical *C. bifurcatus*.

25. **Croton bocquillonii** Baill., *Adansonia* 1: 161. 1861, as ‘*bocquillonii*’

*Oxydectes bocquillonii* (Baill.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.

*Type.* Based on *Croton bocquillonii* Baill.

*Croton brevispicatus* var. *bocquillonii* (Baill.) Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 27. 1939.

*Type.* Based on *Croton bocquillonii* Baill.

*Type.* Madagascar. Prov. Mahajanga: Ambongo, 16 Feb 1841, *A. Pervillé* 648 (lectotype, designated here: P [P00127552]!; islectotypes: P [P00127553]!, P [P00127554]!, P [P00131420]!).

**Habit and distribution.** Shrubs; western Madagascar (Mahajanga).

**Notes.** The sheet chosen here as lectotype bears two labels, one on the left that lists *Pervillé* 648 as the collector, and one on the right in Baillon’s hand that seemingly attributes the collection to Boivin, stating “ex Ambongo, cum cl. Pervillé et Bernier
Baillon lists this in his protologue as a separate collection, but it looks identical to the other syntypes, so we believe it is actually part of the same collection by Pervillé.

The types lack pistillate flowers, but they are distinctive from *C. brevispicatus* in bearing a pair of sessile acropetiolar glands and in having relatively long petioles for the size of the leaf, and blades with a rounded-cuneate base and an acuminate apex.

### 26. Croton boinensis Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 29. 1939

**Type.** MADAGASCAR. Prov. Mahajanga: Bongolava, Boïna, Nov 1906, *H. Perrier de la Bâthie* 9567 (lectotype, designated here: P [P00127563]!). MADAGASCAR. Prov. Mahajanga: Ankarafantiska, 7th reserve, chemin de Ste. Marie, Ankorika, 150-200 m, Service Forestier Madagascar 154 (syntypes: K [K001040380]!, P [P00127566]!). MADAGASCAR. Prov. Mahajanga: environs of Madirovalo, Boïnya, Nov 1902, *H. Perrier de la Bâthie* 9803 (syntypes: P [P00127564]!, P [P00127565]!). MADAGASCAR. sin. loc., Service Forestier Madagascar 64 (syntype: P [P00127567]!).

**Habit and distribution.** Shrubs; western Madagascar (Mahajanga).

### 27. Croton boiteaui Leandri, Adansonia, sér. 2, 10: 313. 1970

*Croton mavoravina* var. *concinnus* Radcl.-Sm., Gen. Croton Madag. Comoro 31. 2016, *syn. nov.*

**Type.** MADAGASCAR. Prov. Toliara: environs of Ampandrandava, entre Bekily et Tsivory, 1000 m, Nov 1942, *Herbier du Jardin Botanique de Tananarive* 5730 (holotype: P [P00154405]!).

**Type.** MADAGASCAR. Prov. Toliara: environs of Bekily, 12 Oct 1966, *P. Boiteau* 384 (lectotype, designated here: P [P00312385]!; isolecotypes: P [P00131001]!, P [P00131002]!).

**Habit and distribution.** Shrubs; southern Madagascar (Toliara).

### 28. Croton boivianianus (Baill.) Baill., Adansonia 1: 163. 1861, as ‘boivinanum’

*Furcaria boiviniana* Baill., Étude Euphorb.: 356. 1858.

**Type.** MADAGASCAR. Prov. Antsiranana: Diana Region, Ile Nossibé, 1841, *A. Pervillé* 267 (lectotype, designated here: P [P00312458]!; isolecotypes: G [G00446376]!, P [P00131010]!). MADAGASCAR. Prov. Antsiranana: Diana Region, Nossibé, 1847-1852, *L.H. Boivin* 2183 (syntype: P [P00312459]!).

*Oxydectes boiviniana* (Baill.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.

**Type.** Based on *Furcaria boiviniana* Baill.
Type. Based on *Furcaria boiviniana* Baill.

**Habit and distribution.** Shrubs; northern Madagascar (Antsiranana).

**Notes.** Baillon (1858) did not cite any specific specimens in the description of *Furcaria boiviniana*, just “*F. boiviniana* (herb. Mus.).” Baillon (1861) cited *Boivin 2183* and *Pervillé 267* when he transferred the taxon to *Croton*. Both specimens are annotated in Baillon’s hand as “*Croton (Furcaria) boivinianum* H. Bn., Et. Gen. Euph., 356,” so we therefore consider them to be original material for the taxon.

29. *Croton bojerianus* Baill., *Adansonia* 1: 151. 1861, as ‘bojerianum’

*Croton bakerianus* Baill., Bull. Mens. Soc. Linn. Paris 2: 849. 1890, as ‘bakeriana’.

**Type.** MADAGASCAR. sin. loc., s.d., *R. Baron 2091* (holotype: K [K001040351]!; isotype: P [P0013152]!).

*Oxydectes bojeriana* (Baill.) Kuntze, *Revis. Gen. Pl.* 2: 611. 1891.

**Type.** Based on *Croton bojerianus* Baill.

**Habit and distribution.** Shrubs; central highland Madagascar (Antananarivo, Fianarantsoa, possibly Mahajanga).

30. *Croton bonplandianus* Baill., *Adansonia* 4: 339. 1864, as ‘bonplandianum’

**Type.** ARGENTINA. Prov. Corrientes: 1833, *A. Bonpland s.n.* (lectotype, designated here: P [P00623061]!; isolectotype: P [P00623060]!). PARAGUAY: Apr-May 1845, *H.A. Weddell 3207* (syntypes: P [P00623063]!, P [P00623062]!).

**Habit and distribution.** Herbs to subshrubs; native to southern South America, but naturalized in the Mascarene islands of Mauritius, Réunion, and Rodrigues (Croizat 1944, Coode 1982), as well as on Mayotte (Grande Terre – Mamoudzou, Kawéni, 9 Sep 2005, *Barthelat & Changama 1504*, K).

**Notes.** *Croton bonplandianus* is currently the only non-native, naturalized species of *Croton* in the Western Indian Ocean Region. Oddly, it is known from Mayotte and the Mascarenes, but it has not yet been observed or collected in Madagascar.

31. *Croton bracteatus* Lam., *Encycl.* 2: 208. 1786, as ‘bracteatum’

*Andrichnia bracteata* (Lam.) Baill., *Étude. Euphorb.* 362. 1858.

**Type.** Based on *Croton bracteatus* Lam.
Oxydectes bracteata (Lam.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.
Type. Based on Croton bracteatus Lam.

Croton ivohibensis var. puncticulatus Radcl.-Sm., Gen. Croton Madag. Comoro 150. 2016, syn. nov.
Type. Madagascar. Prov. Fianarantsoa: Farafangana, Réserve spéciale de Manombo, 23°03′42″S, 47°44′26″E, 30 m, 25 Aug 1995, P. Rakotomalaza et al. 452 (holotype: K!; isotype: MO!).

Type. Madagascar. sin. loc., s.d., P. Commerson s.n. (holotype: P-LA [P00382050]!; isotypes: G-DC [G00311196]!, G [G00446380]!, MPU [MPU014765]!, MPU [MPU014766]!, P [P00312457]!; probable isotype: P-JU (P00131377)!).

Habit and distribution. Shrubs or small trees; eastern coastal Madagascar (southern Fianarantsoa).

Notes. The collection locality of the type of Croton bracteatus is uncertain. Although most of Commerson’s collections from Madagascar came from the Fort Dauphin area in Toliara Province, the type of C. bracteatus matches well specimens from the Manombo Reserve south of Farafangana in Fianarantsoa Province.

32. Croton brevispicatus Baill., Adansonia 1: 152. 1861, as ‘brevispicatum’

Croton brachybotryus Müll.Arg., Prodr. 15(2): 571. 1866, nom. superfl.
Type. Based on Croton brevispicatus Baill.

Ooxydectes brevispicata (Baill.) Kuntze, Revis. Gen. Pl. 2: 609. 1891.
Type. Based on Croton brevispicatus Baill.

Type. Madagascar. Prov. Antsiranana: [Diana Region] côte orientale, Baie de Rigny, Dec 1848, L.H. Boivin 2658 (holotype: P [P00131378]!; isotypes: G [G00018191]!, G-DC [G00311751]!, P [P00131406]!).

Habit and distribution. Shrubs; northern and western Madagascar (Antsiranana, Mahajanga).

Notes. Boivin’s collection number 2658 was applied to several different collection events. Baillon (1861) was apparently aware of this given the greater detail in which he cited Boivin’s specimens, such as “Boivin (1848), n. 2658, Madag., baie de Rigny (h. Mus.)” under Croton brevispicatus and “Boivin, n. 2658, cap d’Ambre” under C. squamiger Baill. Müller (1866) cited C. brevispicatus Baill., as well as the type of that species (“Boivin n. 2658! in hb. Mus. Paris”), in his treatment of C. brachybotryus, which we interpret as an illegitimate name for C. brevispicatus. The isotype at P was a gift from the Caen herbarium received by the Paris herbarium in 1974, and it was never annotated by Baillon, although it had been annotated by Müller.
33. *Croton campenonii* Baill., Bull. Mens. Soc. Linn. Paris 2: 847. 1890, as ‘campenoni’

**Type.** MADAGASCAR. “Madagascar central,” *P. Campenon* s.n. (lectotype, designated here: P [P00389501]!; isolectotype: P [P00131482]!).

**Habit and distribution.** Trees; central and northern upland Madagascar (Antananarivo, Antsiranana, Fianarantsoa, Mahajanga).

34. *Croton cassinoides* Lam., Encycl. 2: 211. 1786

*Oxydectes cassinoides* (Lam.) Kuntze, Revis. Gen. Pl. 2: 610. 1891.

**Type.** Based on *Croton cassinoides* Lam.

*Croton delphinianus* Baill., Bull. Mens. Soc. Linn. Paris 2: 928. 1891.

**Type.** MADAGASCAR. Prov. Toliara: Fort Dauphin, s.d., *G.F. Scott-Elliot 1557* (lectotype, designated here: P [P00133052]!). MADAGASCAR. Prov. Toliara: Fort Dauphin, s.d., *G.F. Scott-Elliot s.n.* (possible original material: P [P00131487]!).

**Type.** MADAGASCAR. sin. loc., s.d., *P. Commerson s.n.* (lectotype, designated here: P [P00131494]!; isolectotypes: G-DC [G00311976]!, MPU [MPU014767]!, P-JU [Catal. 16372]!).

**Habit and distribution.** Shrubs; southeastern coastal Madagascar (Toliara).

**Notes.** Unlike most other Malagasy *Croton* species described by Lamarck from Commerson specimens, there is no specimen of *C. cassinoides* found in the Lamarck Herbarium at P, so we designate the sheet in the general herbarium at P as lectotype. Most of Commerson’s collections from Madagascar came from the Fort Dauphin area in Toliara Province, and all other specimens of *C. cassinoides* that we have determined are from near Fort Dauphin, so this is likely where the type came from. In the description of *C. delphinianus* (Baillon 1891a), there was no collection or locality cited (it was the last in the section of Baillon’s text and appeared to be cut off). In the descriptions of other new species in the same publication, the Latin description was always followed by a paragraph containing specimen information. At P there is a sheet [P00133052] that has a label with a note in ink stating “*Croton cassinoides* Lamk. et type du *C. Delphinianus* H. Bn.” It also has a small envelope that reads “*Croton Delphinianus* Scott-Elliot. n. 1557 Fort-Dauphin.” Based on that information, we designate it as lectotype for *C. delphinianus*.

35. *Croton catatii* Baill., Bull. Mens. Soc. Linn. Paris 2: 851. 1890, as ‘catati’

*Croton hilaris* Baill., Bull. Mens. Soc. Linn. Paris 2: 927. 1891.

**Type.** MADAGASCAR. Prov. Toliara: Fort-Dauphin, *G.F. Scott-Elliot 2650* (holotype: P [P00131522]!; isotype: K [K001040342]!).
**Croton ranohirae** Leandri, *Adansonia*, sér. 2, 9: 502. 1970, *syn. nov.*
Type. MADAGASCAR. Prov. Toliara: Plateaux et vallées de l’Isalo à l’Ouest de Ranohira, 900 m, 2 Nov-4 Dec 1946, *H. Humbert 19591* (lectotype, designated here: P [P00312378]!; isolecotypes: K [K000422598]!, K [K000422599]!, P [P00389515]!, P [P00389516]!).

**Croton boinensis** var. *tomentosus* Radcl.-Sm., *Gen. Croton Madag. Comoro* 78. 2016, *syn. nov.*
Type. MADAGASCAR. “NW Madagascar”, sin. loc. cert., recd. Sep 1887, *R. Baron 5477* (holotype: K!).

**Croton catatii** var. *setosus* Radcl.-Sm., *Gen. Croton Madag. Comoro* 45. 2016, *syn. nov.*
Type. MADAGASCAR. Prov. Antsiranana: Forêt de Sahafary, S/P de Diego Suarez, 2 Dec 1970, *M. Debray 1554* (holotype: P [P00154364]!).

**Croton catatii** var. *tricholepis* Radcl.-Sm., *Gen. Croton Madag. Comoro* 45. 2016, *syn. nov.*
Type. MADAGASCAR. Prov. Toliara: bassin de réception de la Mananara, affluent du Mandrare, entre l’Andohahela et l’Elakelaka, près de Mahamavo, Jan-Feb 1934, *H. Humbert 13876* (holotype: K!; isotypes: P [P00127556], P [P00127557], P [P00127558]!).

**Croton elaeagni** var. *chrysocarpos* Radcl.-Sm., *Gen. Croton Madag. Comoro* 91. 2016, *syn. nov.*
Type. MADAGASCAR. Prov. Toliara: Monte Isalo, in nemore Zombitsy, 800 m, 7 Nov 1967, *L. Bernardi 11281* (holotype: K!; isotypes: G!, P [P00127556], P [P00127557]!).

**Croton greveanus** var. *micraster* Radcl.-Sm., *Gen. Croton Madag. Comoro* 41. 2016, *syn. nov.*
Type. MADAGASCAR. Prov. Antananarivo: Ambatotsipihina, Tsinjoarivo, 21 Nov 1949, *Service Forestier 1041* (holotype: P [P00133806]!).

**Type.** MADAGASCAR. Prov. Toamasina: Alaotra-Mangoro Region, Didy, 14 Aug 1889, *L.D.M. Catat 1819* (holotype: P [P00131523]!).

**Habit and distribution.** Shrubs to normally trees; widespread in forested areas of Madagascar (Antananarivo, Antsiranana, Fianarantsoa, Mahajanga, Toamasina, Toliara).

**Notes.** In this circumscription, *Croton catatii* is a variable but distinctive species. It is usually a tree and typically occurs in montane habitats, but in the drier areas of Isalo and Zombitse area in Fianarantsoa and Toliara Provinces, it can be shrubby, and plants there have more verrucose fruits than elsewhere. Although plants of *C. catatii* are typically finely lepidote, plants such as what was described as *C. catatii* var. *setosus* from Sahafary in Antsiranana Province can be softly pubescent, with trichomes having long-protruding central rays.

36. *Croton chapelieri* Baill., *Adansonia* 1: 166. 1861

*Oxydectes chapelieri* (Baill.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.
Type. Based on *Croton chapelieri* Baill.
Croton louvelii Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 40. 1939, as ‘louveli’.
  Type. MADAGASCAR. Prov. Toamasina: forêt côtière, Tampina, Jan. 1924, M. Louvel 217 (holotype: P [P00312340]!).

Croton aymoniniorum Leandri, Adansonia, sér. 2, 13: 175. 1973, as ‘aymoniniorum’.
  Type. MADAGASCAR. Prov. Toliara: Forêt de Mandena, Fort Dauphin, 19 Oct 1970, M. Keraudren-Aymonin & G. Aymonin 24940 (holotype: P [P00312374]!).

Croton daphniphylloides Radcl.-Sm., Gen. Croton Madag. Comoro 164. 2016.
  Type. MADAGASCAR. Prov. Toamasina: Ambila-Lemaitso, 7 Nov 1951, Service Forestier 4228 (holotype: P [P00133469]!).

Croton daphniphyllus Radcl.-Sm., Gen. Croton Madag. Comoro 161. 2016, as ‘daphniphyllum’.
  Type. MADAGASCAR. Prov. Toliara: Fort Dauphin in Mandena, 2 km E of Botanic Garden, 24°58’S, 47°00’E, 9 Oct 1990, D. Faber-Langendoen, N. Dumetz & A. Randrianasolo 2226 (holotype: P [P00133462]!; isotype: MO).

Croton daphniphyllus var. hirsutus Radcl.-Sm., Gen. Croton Madag. Comoro 163. 2016.
  Type. MADAGASCAR. Prov. Toliara: Préfecture de Tôlanarô (Fort Dauphin), Canton de Mananbaro, Petriky Forest, c. 1.5 km W of large dune near N shore of Lake Andranany, c. 12 km WSW of Tôlanarô (Fort Dauphin), 25°03’S, 46°53’E, 14 Apr 1989, R. Gereau, R. Rabevohitra & N. Dumetz 3374 (holotype: K!; isotypes: MO [sheet # 3683138], P [P00133120]!).

Croton domohineifolius Radcl.-Sm., Gen. Croton Madag. Comoro 157. 2016, syn. nov.
  Type. MADAGASCAR. Prov. Fianarantsoa: Fanajazana-Mananjary, Jan 1955, Service Forestier 15451-SF (holotype: P [P00133471]!).

Croton macrobuxus var. polygynus Radcl.-Sm., Gen. Croton Madag. Comoro 177. 2016, syn. nov.
  Type. MADAGASCAR. Prov. Toliara: near Fort Dauphin, s.d., J. Cloisel 178 (holotype: P [P00133612]!).

Croton rhododendroides Radcl.-Sm., Gen. Croton Madag. Comoro 163. 2016.
  Type. MADAGASCAR. Prov. Toliara: Préfecture Tôlanarô (Fort Dauphin), forêt à 5 km de Ste. Luce, au nord de Maliafolaky, 24°47’S, 47°10’E, 21 Oct 1989, N. Dumetz, G. McPherson & R. Rabevohitra 775 (holotype: P [P00133460]!; isotype: MO!).

Type. MADAGASCAR. sin. loc., s.d., L.A. Chapeliers n. (holotype: P [P00389523]!). MADAGASCAR. Prov. Toliara: Sainte Luce, at entrance to preserve, 24°46’46”S, 47°10’17”E, 10 m, 17 Feb 2009, B. van Ee, P.E. Berry, B.L. Dorsey & H. Razanatsoso 925 (epitype, designated by Kainulainen et al. 2017a, pg. 37: MICH [MICH1514617]!; additional duplicates: G, K, MAPR, MO, NY, P, TAN).

Habit and distribution. Shrubs; southeastern and eastern coastal Madagascar (Antsiranana, Fianarantsoa, Toamasina, Toliara).

Notes. Croton chapelieri was accepted by Leandri (1939) but was restricted to the type specimen, due at least in part to the meager type specimen and the lack of any reported collection locality. Similarly, C. aymoniniorum has been recognized only from
the type collection. Extensive collections and our own field studies from coastal areas of southeastern Toliara Province (Manenda, Petrisky, and Sainte Luce) show that both of these type specimens correspond to a locally common species found in sandy, littoral forests to the west and north of Fort Dauphin, in the Mahabo area of Fianarantosa Province, and then in Toamasina Province much farther north. Chapelier collected mainly in the Foulpointe and Tamatave area (Dorr 1997), and his specimen is similar to the type of *C. louvelii*, from a nearby area. Many herbarium specimens of this species were identified by the late Alan Radcliffe-Smith and subsequent botanists as *Croton daphniphyllus* Radcl.-Sm., or sometimes as *Croton rhododendroides* Radcl.-Sm. for a more pubescent form. See Kainulainen et al. (2017a) for more details about the circumscription of *C. chapelieri*. Newly added to the synonymy here are *C. domohinei-folius* Radcl.-Sm. and *C. macrobuxus* var. *polygynus* Radcl.-Sm., both from littoral sites on the east coast where *C. chapelieri* is one of the few species to occur.

### 37. Croton chauvetiae Leandri, Adansonia, sér. 2, 10: 310. 1970

**Type.** MADAGASCAR. Prov. Toliara: P.K. 30, route de Tulear à Tana, 16 Feb 1962, F. Chauvet 273 (lectotype, designated here: P [P00312370]!; isolecotypes: G [G00074264]!, K [K001044839]!, MO [sheet #04861159]!, P [P00380439]!, P [P00380440]!, P [P00380441]!, TEF [TEF000188]!).

**Habit and distribution.** Shrubs; southern Madagascar (Toliara).

### 38. Croton chlaenacicomes Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 50. 1939

**Croton arenicola** Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 57. 1939, nom. illeg. non *Croton arenicola* Small 1905, **syn. nov.**

**Type.** MADAGASCAR. Prov. Toliara: Ambovombe, 10 Aug 1924, R. Decary 2949 (syntypes: MO [5598316]!, P [P00131546]!, P [P04777784]!, S [S07-14591]!, TAN [TAN000523]!).

**Madagascar.** Prov. Toliara: Ambovombe, 1-50 m, 9 Sep 1928, R. Decary 9182 (syntypes: MO [5598316]!, P [P00131547]!, ibid. loc., 9 Sep 1928, H. Humbert & C.F. Swingle 5624 (syntypes: K [K001040350]!, MO [1709286]!, MO [1842163]!, P [P00422331]!, P [P00422332], TAN [TAN000522]); Bevilany, District de Fort-Dauphin, 8 Aug 1932, R. Decary 10254 (syntypes: MO [1592371]!, P [P00133412]).

**Madagascar.** Prov. Toliara: Manampany, s.d., M.F. Geay 6385 (syntype: P [P00131548]).

**Madagascar.** Prov. Toliara: moyenne Mananara, a la limite orientale de l’Androy,
27 Nov 1931, R. Decary 9443 (syntypes: G [G00446375], MO [5598315]!, MO [5608957]!, P [P00133411]! = Croton toliarensis).

Croton leandrii Croizat, Trop. Woods 77: 15. 1944, as ‘leandri’, syn. nov.
Type. Based on (replacement name for) Croton arenicola Leandri

**Type.** MADAGASCAR. Prov. Toliara: vallée moyenne du Mandrare, près d’Anadabolava, mont Vohitrotsy, 850 m, Dec 1933, H. Humbert 12659 (lectotype, designated here: P [P00131549]!; isolectotypes: G [G00018190]!, K [K001040365]!, P [P00131550]!; TAN [TAN000527]!).

**Habit and distribution.** Shrubs or small trees; southern Madagascar (Toliara).

**Notes.** Radcliffe-Smith (2016) noted that Croton leandrii and C. chlaenacicomes are very similar, and in fact there is no reason to keep them separate. Some specimens that were identified under these names in the past, but with pubescence on the upper surface of the leaves as well as below, are now treated under C. toliarensis B.W. vanEe & Kainul.

39. Croton chrysodaphne Baill., Adansonia 1: 147. 1861

**Oxydectes chrysodaphne** (Baill.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.
Type. Based on Croton chrysodaphne Baill.

Croton lepidotus Aug.DC., Bull. Herb. Boissier, sér. 2, 1: 565. 1901.
Type. MADAGASCAR. Prov. Toamasina: Maroantsetra, forêts à l’intérieur de la baie d’Antongil, 1897, A. Mocquerys 274 (holotype: G-DC [G00018155]!; isotypes: Z [Z-000015984], Z [Z-000015985]).

Croton meesei Leandri, Notul. Syst. (Paris) 13: 184. 1948, syn. nov.
Type. MADAGASCAR. Prov. Toamasina: Soanianara-Antasibe, 350 m, 13 Oct 1938, H.J. Lam & B. Meeuse 5957 (holotype: P [P00312381]!; isotypes: L [L0234889]!, WAG!).

Croton submetallicoides Radcl.-Sm., Gen. Croton Madag. Comoro 58. 2016, syn. nov.
Type. MADAGASCAR. Prov. Toamasina: Betampona Réserve Naturelle Intégrale, 40 km NW of Toamasina, 275-650 m, 17°31’S, 49°07’E, 28 Sep 1993, B. Lewis & S. Razafimandimbison 656 (holotype: K!; isotypes: MO!, P [P00433129]!).

**Type.** MADAGASCAR. Prov. Toamasina: Foulpointe or near Tamatave, 21 Jul 1794 [date on attached letter], L.A. Chapelier s.n. (lectotype, designated by Leandri 1972b: P [P00389522]!; isoelectotype: P [P00133024]!). MADAGASCAR. sin. loc., s.d., L.M.A. Dupetit-Thouars s.n. (syntype: P [P00133022]! = C. cupreolepis). MADAGASCAR. Prov. Mahajanga: in montosis in Mazangay, s.d., W. Bojer s.n. (syntype: P [P00133021]! = C. argyrodamphne); MADAGASCAR. Prov. Toamasina: Analalava Forest Reserve, 7 km W of Foulpointe, 17°42.586’S, 49°27.175’E, 22 m, 2 Mar 2009, B. van Ee, P.E. Berry & H. Razanatsosa 998 (epitype, designated by Berry et al. 2011, pg. 113: MICH [MICH1514785]!; additional duplicates: G!, MO!, P!, TAN).
Habit and distribution. Large shrubs or trees; eastern lowland Madagascar (Antsiranana, Fianarantsoa, Mahajanga, Toamasina, eastern Toliara).

Notes. Baillon (1861) included material of Croton argyrodaphne (Bojer s.n.) and C. cupreolepis (Dupetit-Thouars s.n.), among the syntypes of C. chrysodaphne, which was lectotypified on a Chapelier specimen by Leandri (1972b). See Berry et al. (2011) and Berry et al. (2016b) for further discussions.

Both Croton meeusei and C. submetallicoides fit well within the variation of leaf size and shape of C. chrysodaphne, but they are reported to have the normal five petals in staminate flowers, whereas specimens from the Foulpointe area (the presumed lectotype locality as well as the epitype locality) have the unusual number of ten petals. We judge this to be somewhat of an anomaly and not a feature that has been fixed in the species overall. The type of C. meeusei lacks pistillate flowers altogether, whereas the type of C. submetallicoides has the short, curved inflorescence and pistillate flowers that are typical of C. chrysodaphne.

40. Croton chypreae Leandri, Adansonia, sér. 2, 9: 498. 1970

Type. MADAGASCAR. Prov. Antsiranana/Mahajanga border: Massif du Tsaratanana, crête séparant les bassins du Sambirano et de la Mahavavy, entre la cote 2362 et la base du piton coté 2831 m, 11-13 Nov 1966, Service Forestier 27057-SF (holotype: P [P00312380]!; isotype: TEF [TEF000189]!).

Habit and distribution. Shrubs or small trees; high elevations of north-central Madagascar (border area of Antsiranana and Mahajanga).

41. Croton cotoneaster Müll.Arg., Flora 47: 484. 1864

Oxydectes cotoneaster (Müll.Arg.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.

Type. Based on Croton cotoneaster Müll.Arg.

Croton mahafaliensis Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 75. 1939.

Type. MADAGASCAR. Prov. Toliara: plateau Mahafaly, Menaranda, Feb 1910, H. Perrier de la Bâthie 9776 (lectotype, designated here: P [P00312455]!; isolectotype: P [P00133488]!) MADAGASCAR. Prov. Toliara: Beheloka, 80 m, Jun 1910, H. Perrier de la Bâthie 9767 (syntypes: P [P00312456], P [P00133487]). MADAGASCAR. Prov. Toliara: environs de Tûlûar, Aug 1919, H. Perrier de la Bâthie 12804 (syntype: P [P00312454]). MADAGASCAR. Prov. Toliara: Lac Manampetsa [Tsimanampetsotsa], Apr 1933, H. Perrier de la Bâthie 19047 (syntype: P [P00312453]).

Type. MADAGASCAR. Prov. Toliara: St. Augustin, 1837, L. Bouton s.n. (holotype: K [K001040358]!).

Habit and distribution. Shrubs; southern Madagascar (Toliara).
42. *Croton crocodilorum* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 80. 1939

*Croton bathianus* var. *toliarae* Radcl.-Sm., Gen. Croton Madag. Comoro 115. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Toliara: Beza Mahafaly Reserve near Betioky, E of Sakamena River, near Ambinda, 23°40'S, 44°38'E, 3 Nov 1987, *P.B. Phillipson 2511* (holotype: K!; isotypes: MO, P [P00127504]!).

*Croton crocodilorum* var. *meridionalis* Radcl.-Sm., Gen. Croton Madag. Comoro 112. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Toliara: environs de Tulear, 10-12 Jan 1947, *H. Humbert 19816* (holotype: K!; isotype: P [P00433491]!).

**Habit and distribution.** Shrubs; mainly southern and western Madagascar (Mahajanga, Toliara), but also in Fianarantsoa Province.

**Notes.** The Geneva sheet was chosen as the lectotype of *Croton crocodilorum*, since it is the most complete sheet among the syntypes and contains many seeds in the packet. It was annotated by Leandri as ‘*Croton crocodilorum* Leandri n. sp.,’ before it was acquired by Geneva as part of the Herbier Delessert in 1949.

The type of *Croton bathianus* var. *toliarae* supposedly differs from the type of *C. crocodilorum* in its rugulose (vs. smooth) seeds (Radcliffe-Smith 2016). However, wrinkled seeds were also seen in the type of *C. crocodilorum*, whereas the type of *C. bathianus* has no fruits. The type of *C. crocodilorum* var. *meridionalis* supposedly differs from the type of *C. crocodilorum* by its denser cinereous indumentum on the lower side of the leaves and larger capsules and seeds (Radcliffe-Smith 2016), but we consider this merely an extreme pubescence outlier in the morphological variation of the species.

43. *Croton crossolepis* P.E.Berry & Kainul., Phytotaxa 307(1): 95. 2017

*Croton mavoravina* var. *thysanolepis* Radcl.-Sm., Gen. Croton Madag. Comoro 32. 2016.

**Type.** MADAGASCAR. Prov. Toliara: environs de Tuléar, 10-12 Jan 1947, *H. Humbert 19816* (holotype: K!; isotype: P [P00433491]!).

**Habit and distribution.** Shrubs; dry forest and scrub in southwestern Madagascar (Toliara).
44. *Croton cupreolepis* P.E.Berry, B.W.van Ee & Kainul., Syst. Bot. 41: 977. 2016

*Croton nobilis* var. *delphinensis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 48. 1939.

**Type.** MADAGASCAR. Prov. Toliara: Anosy Region, environs de Fort-Dauphin, forêt de Manantantely, 60–300 m, 15 Sep 1928, *H. Humbert & C.F. Swingle* 5742 (lectotype, designated by Berry et al. 2016b, pg. 977: P [P00133655]); isolectotypes: G, [00446398]!, P [P00133656]!.

*Croton chrysodaphne* var. *meridionalis* Radcl.-Sm., Gen. Croton Madag. Comoro 62. 2016, syn. nov.

**Type.** MADAGASCAR. Prov. Toliara: Préfecture de Fort-Dauphin, Forêt de Manantantely, 50-200 m, 9 Nov 1990, *R. Rabevohitra* 2428 (holotype: K!; isotypes: MO!, P [P00133653]!).

**Type.** MADAGASCAR. Prov. Toliara: Domaine de la Cascade private preserve (Manantantely-Soanerana), several km north of Route Nationale 13 at Point Kilométrique 9 west of Fort Dauphin, 24°59’05”S, 46°55’39”E, 168–283 m, 2 Aug 2015, *B. van Ee & P.E. Berry* 2153 (holotype: MICH!; isotypes: MO, P, TAN!).

**Habit and distribution.** Trees, eastern montane forests of Madagascar (Antsiranana, Fianarantsoa, Toamasina, Toliara).

45. *Croton danguyanus* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 66. 1939, as ‘*danguyana*’

*Croton bracteatus* subsp. *populifolius* Radcl.-Sm., Gen. Croton Madag. Comoro 138. 2016, syn. nov.

**Type.** MADAGASCAR. Prov. Mahajanga: Route Tananarine-Majunga, environs de la Betsiboka, Jan 1949, *Service des Eaux et Forêts 148SF* (holotype: P [P00154434]!).

**Type.** MADAGASCAR. Prov. Mahajanga: environs de Madirovalo (Boïny), Nov 1907, *H. Perrier de la Bâthie* 9832 (lectotype, designated here: P [P00389520]!); isolecotype: P [P00327989]!). MADAGASCAR. Prov. Mahajanga: Bongolava, Boïny, Nov 1906, *H. Perrier de la Bâthie* 9565 (syntypes: P [P00389519]!, P [P00133040]!). MADAGASCAR. [probably Prov. Mahajanga, Réserve de Namoroka], *Service Forestier 76* (syntype: P [P00389517]!). MADAGASCAR sin. loc., received 4 Apr 1933, *Service Forestier 104* (syntype: P [P00389518]!).

**Habit and distribution.** Shrubs; western Madagascar (Mahajanga).

46. *Croton decaryi* Leandri, Bull. Mus. Natl. Hist. Nat., sér. 2, 3: 370. 1931

*Croton bevilaniensis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 79. 1939, syn. nov.

**Type.** MADAGASCAR. Prov. Toliara: confines de l’Anosy et de l’Androy, Bevilany, 8 Aug 1932, *R. Decary* 10258 (lectotype, designated here: P [P00127548]!); isolectotypes: K [K000253646]!, TAN [TAN000525]!).
Type. MADAGASCAR. Prov. Toliara: Massif de l’Angavo, à l’Est d’Antanimora, 19 Jul 1926, R. Decary 4446 (lectotype, designated here: P [P00133044]!; isolecotypes: K [K000253647]!, P [P00133043]!, TAN [TAN000531]!).

Habit and distribution. Shrubs; southern Madagascar (Toliara).

47. Croton dissimilis Baill., Bull. Mens. Soc. Linn. Paris 2: 861. 1890

Croton echinatus Radcl.-Sm., Gen. Croton Madag. Comoro 13. 2016, syn. nov.
Type. MADAGASCAR. Prov. Antsiranana: environs d’Antalaha, 23 Nov. 1948, H. Humbert & R. Capuron 21918 (holotype: P [P00131511]!).

Croton alaotrensis var. integrifolius Radcl.-Sm., Gen. Croton Madag. Comoro 11. 2016, syn. nov.
Type. MADAGASCAR. Prov. Toamasina: Mananara Avaratra, Antanambe, above Mahavohobe River, 16°27’S, 49°47’E, 26 Oct 1994, G. Prance & J. Andriantiana 30783 (holotype: K!).

Type. MADAGASCAR. Prov. Toamasina: Fito (Ambanivoules), 1833, J.P. Goudot 7 (holotype: P [P00154404]!).

Habit and distribution. Shrubs; eastern lowland Madagascar (Antsiranana, Toamasina).

Notes. Leandri (1939) considered Croton dissimilis to be a synonym of C. ambanivoulensis, but C. dissimilis differs in its larger, usually crenate leaves and echinate ovary with trichomes with a long, porrect central ray. Although the type of C. echinatus has entire leaves (the type of C. dissimilis has crenate leaves), it has similar whitish bark with contrasting tufts of brown trichomes, acropetiolar glands that are cylindrical and shortly stipitate, and the ovary shares the distinctive feature of being covered by long porrect trichomes that give it the appearance of being “echinate.” Similarly, the type of C. alaotrensis var. integrifolius has entire to slightly crenate leaves, and it comes from eastern lowland Toamasina Province, near the presumed type locality of C. dissimilis.

48. Croton droguetioides Kainul. & Radcl.-Sm., Candollea 71: 331. 2016 [23 Nov 2016]

Croton droguetioides Radcl.-Sm., Gen. Croton Madag. Comoro 16. 2016 [23 Dec 2016].

Type. MADAGASCAR. Prov. Toamasina: marais et bordures de Torotorofotsy, 18°52’S, 48°20’E, 24 Feb 1997, P. Rakotomalaza et al. 1170 (holotype: K!; isotype: MO!), nom. illeg.

Croton alaotrensis Radcl.-Sm., Gen. Croton Madag. Comoro 10. 2016, syn. nov.

Type. MADAGASCAR. “Central Madagascar”, received Dec 1883, R. Baron 3006 (holotype: K!, isotype: P [P00131488]!).
**Croton parietarioides** Radcl.-Sm., Gen. Croton Madag. Comoro 16. 2016, *syn. nov.*

**Type.** MADAGASCAR. Prov. Toamasina: Ambatoharanana, près Antevabe, 1000 m, 6 Mar 1951, *G. Cours 4111* (holotype: K!; isotype: P [P00418635]).

**Habit and distribution.** Shrubs; eastern montane Madagascar (Toamasina).

**Notes.** Radcliffe-Smith (2016) erroneously placed the type of *Croton parietarioides* in Antananarivo Province, mistaking Antsevabe for Antsirabe. Antsevabe is close to the Ankeniheny-Zahamena eastern montane forest corridor and lies ca. 25 km southeast of Ambatondrazaka.

49. **Croton elaegani** Baill., Bull. Mens. Soc. Linn. Paris 2: 848. 1890

*Croton elaegani* var. *antsingyensis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 34. 1939, *syn. nov.*

**Type.** MADAGASCAR. Prov. Mahajanga: Andranoboka, 21 Nov 1932, *J. Leandri 551* (lectotype, designated here: P [P00133092]; isolecotypes: P [P00133093], S [S07-14588]). MADAGASCAR. Prov. Mahajanga: Amborokontsy, 6 Oct 1932, *J. Leandri 124* (syntypes: P [P00133090], P [P00133091]).

*Croton elaegani* var. *antsirananae* Radcl.-Sm., Gen. Croton Madag. Comoro 90. 2016, *syn. nov.*

**Type.** MADAGASCAR. Prov. Antsiranana: Réserve Spéciale d’Ankarana, à environ 106 km au Sud d’Antsiranana par route, et 12 km à l’Ouest de Mahamasina au Lac Vert, 12°55’13”S, 49°05’10”E, 12 Dec 1995, *O. Andrianantoanina & R. Bezara 908* (holotype: K!, isotypes: MO, P [P00433269]).

**Type.** MADAGASCAR. Prov. Toliara: Andakabé, près Morondava, s.d., *H. Grevé 82* (lectotype, designated here: P [P00133081]; isolecotypes: G [G00018188], K [K001040385], P [P00133082], P [P00133083], P [P00133084], P [P00133085], P [P05481486]).

**Habit and distribution.** Shrubs; northern, western and southern Madagascar (Antsiranana, Mahajanga, Toliara).

50. **Croton elliotianus** Baill., Bull. Mens. Soc. Linn. Paris 2: 863. 1890

**Type.** MADAGASCAR. Prov. Toliara: Fort-Dauphin, s.d., *G.F. Scott-Elliot 2970* (lectotype, designated here: P [P00133118]; isolecotype: K [K000347488]).

**Habit and distribution.** Shrubs; southern Madagascar (Toliara).
51. Croton emeliae Baill., Adansonia 1: 166. 1861

*Croton bifurcatus* var. *emeliae* (Baill.) Müll.Arg. in A.P.de Candolle, Prodr. 15(2): 584. 1866.

_Type._ Based on *Croton emeliae* Baill.

_Type._ Mayotte [French Overseas Department]: Jul 1849, *H. Boivin* 3381 (lectotype, designated here: P [P00404495]!; isolecotypes: G-DC [G00311983]!, P [P00133119]!, P [P00213565]!).

_Habit and distribution._ Shrubs; known only from the French island of Mayotte in the Comoro Islands.

52. Croton enigmaticus P.E.Berry & B.W.van Ee, Candollea 71: 333. 2016

_Type._ Madagascar. Prov. Toamasina: Alaotra-Mangoro Region, along dirt road north of Route Nationale 2, past village of Savahoana, 981 m, 18°55′06″S, 48°20′38″E, 14 Aug 2015, *B. van Ee, P.E. Berry & H. Razafindraibe* 2212 (holotype: MICH [MICH1513196]!; isotypes: MICH [MICH1513197]!, MO, P, TAN).

_Habit and distribution._ Shrubs; montane forests of eastern Madagascar (Toamasina).

53. Croton ericius Leandri, Cat. Pl. Madag., Euphorb.: 32. 1935

_Croton horridulus_ Baill., Bull. Mens. Soc. Linn. Paris 2: 977. 1891, nom. illeg. non *Croton horridulus* (Baill.) Müll.Arg., 1866.

_Croton lapiazicola_ Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 42. 1939, *syn. nov._

_Type._ Madagascar. Prov. Mahajanga: Tsingy du Bemaraha (9e Réserve), Feb. 1933, *J. Leandri* 945 (lectotype, designated here: P [P00312339]!); isolecotype: P [P00133400]!). Madagascar. Prov. Mahajanga: Tsingy du Bemaraha (9e Réserve), 5 Oct 1932, *J. Leandri* 139 (syntype: P [P00312339]!), ibid. loc., Oct 1932, *J. Leandri* 162 (syntype: P [P00389500]!).

_Type._ Madagascar. *R. Baron* 5579 (holotype: P [P00133163]!); isotype: K [K000422591]!.

_Habit and distribution._ Shrubs; northern and western Madagascar (Antsiranana, Mahajanga).

54. Croton farinosus Lam., Encycl. 2: 211. 1786

_Oxydectes farinosa_ (Lam.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.

_Type._ Based on *Croton farinosus* Lam.
Croton scottii Baill., Bull. Mens. Soc. Linn. Paris 2: 967. 1891, as ‘scotti’, syn. nov.
Type. MADAGASCAR. Prov. Toliara: Fort-Dauphin, s.d., G.F. Scott-Elliot 2987 (holotype: P [P00154436]!; isotype: K [K000253644]!).

Croton moraharivensis Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 68. 1939, syn. nov.
Type. MADAGASCAR. Prov. Toliara: vallée de la Manambolo, rive droite (bassin du Mandrare) aux environs d’Isomono (confluent de la Sakamalio), Mont Morahariva, 1000-1400 m, Dec 1933, H. Humbert 13176 (lectotype, designated here: P [P00132989]!; isolectotypes: G [G00018151]!, P [P00132990]!). MADAGASCAR. Prov. Toliara: bassin de réception de la Mananara, affluent du Mandrare, pentes occidentales des montagnes entre l’Andohahela et l’Elakelaka, 600-800m, Feb 1934, H. Humbert 14041 (syntypes: K [K000815882]!, P [P00132991]!).

Croton vohibariensis Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 78. 1939, syn. nov.
Type. MADAGASCAR. Prov. Toliara: vallée moyenne du Mandrare, près d’Anadabolava, Mont Vohibaria (sommet), 800-810 m, Dec 1933, H. Humbert 12627 (lectotype, designated here: P [P00133322]!; isolectotypes: G [G00446383]!, K [K000253645]!, P [P00133323]!, P [P00133324]!). MADAGASCAR. Prov. Toliara: vallée moyenne du Mandrare, près d’Anadabolava, Mont Vohitrosy, sommet, vers 850 m, Dec 1933, H. Humbert 12673 (syntype: P [P00133325]!).

Type. MADAGASCAR: sin. loc., s.d., P. Commerson s.n. (holotype: P-LA [P00382067]!; isotypes: G [G00446383]!, G [G00446384]!, LINN [LINN-HS1492-5], P [P00404490]!).

Habit and distribution. Shrubs; southeastern Madagascar (Toliara).

Notes. Although there is a wide elevational variation in this species as here circumscribed, the three names listed in synonymy share the characteristic glaucous-farinose lower leaf surface, and all appear to have an affinity for igneous outcroppings.

55. Croton ferricretus Kainul., B.W. van Ee & P.E. Berry, Candellea 71: 337. 2016 [23 Nov 2016]

Croton lepidotoides Radcl.-Sm., Gen. Croton Madag. Comoro 71. 2016 [23 Dec 2016], syn. nov.
Type. MADAGASCAR. Prov. Toamasina: ca. 15 air-km NE of Moramanga, ca. 11 km E of Antanambo, Ambatovy, 18°51'08"S, 48°18'40"E, 30 Jan 1997, P. Rakotomalaza et al. 1024 (holotype: K!; isotypes: G!, K!, MAPR!, MO!, P!, TAN!).

Type. MADAGASCAR. Prov. Toamasina: Alaotra-Mangoro Region, Moramanga district, Andasibe, Berano, Ambatovy mine concession, on “cuirasse” between the workers houses and the Ambatovy supply road, 18°51’02"S, 48°18’29"E, 1142 m, 21 Mar 2016, B. van Ee, P. Antilahimena, K. Kainulainen & P.E. Berry 2436 (holotype MICH [MIC1513194]!; isotypes: G!, K!, MAPR!, MO!, P!, TAN!).

Habit and distribution. Shrubs; eastern Madagascar (Moramanga District of Toamasina Province).
56. *Croton fianarantsoae* Leandi, Adansonia, sér. 2, 13: 295. 1973

*Croton nitidulus* var. *grandifolius* Leandi, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 39. 1939, as ‘*grandifolia*’.

**Type.** MADAGASCAR. Prov. Fianarantsoa: Vondrozo, 17 Sep 1926, *R. Decary* 5333 (holotype: P [P00133643]!; isotypes: K [K001040382]!, P [P00425637 - wood], S [S07-17118]!, TAN [TAN000539]!).

*Croton nitidulus* var. *tandrokensis* Leandi, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 39. 1939, **syn. nov.**

**Type.** MADAGASCAR. Prov. Fianarantsoa: Massif d’Andringitra, col du Tandroka, versant Est, 1200 m, Sep 1910, *H. Perrier de la Bâthie* 9749 (holotype: P [P00133638]!).

*Croton fianarantsoae* var. *grandifolius* Leandi, Adansonia, sér. 2, 13: 297. 1973, as ‘*grandifolia*’, **syn. nov.**

**Type.** MADAGASCAR. Prov. Toamasina: Sahasanato, Antajonomby, Canton Befody, Distr. Nosy-Varika [N de Manajary], 21 May 1955, *Service Forestier* 14556 (lectotype, designated here: P [P00154399]!; isolecotypes: P [P00154400]!, P [P00154401]!, TEF [TEF000191]!).

*Croton daphniphylloides* var. *hirsutus* Radcl.-Sm., Gen. Croton Madag. Comoro 165. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Fianarantsoa: Parc National de Ranomafana, Talakately, 21°15’S, 47°27’E, 27 Jul–6 Aug 1993, *A. Kotozafy* 131 (holotype: K!; isotypes: MO, P [P00433137]!).

*Croton fianarantsoae* var. *coursii* Radcl.-Sm., Gen. Croton Madag. Comoro 154. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Toamasina: Rahobevava, 1300 m, 14 Mar 1951, *G. Cours* 4370 (holotype: P [P00133614]!).

*Croton fianarantsoae* var. *microphyllus* Radcl.-Sm., Gen. Croton Madag. Comoro 155. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Fianarantsoa: Parc National de Ranomafana, SE of Savondronona, Maharira, 21°18’S, 47°23’E, 1200-1400 m, 21-23 Apr 1993, *S. Malcolm*, *C. Hemingway* & *A. Randriamananantena* 2441 (holotype: K!; isotypes: MO, P [P00422457]!).

*Croton fianarantsoae* var. *ranomafanae* Radcl.-Sm., Gen. Croton Madag. Comoro 156. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Fianarantsoa: Parc National de Ranomafana, trail S from Cabine de Recherche to Vato camp, 21°15’S, 47°27’E, 1060 m, 11-15 Nov 1991, *S. Malcolm*, *A. Leeuwenberg*, *C. Rakotomazana*, *H. Ranarljadna* & *G. Rahajasoa* 1042 (holotype: K; isotypes: MO, P [P00422461]!).

*Croton fianarantsoae* var. *tandrokensis* (Leandi) Radcl.-Sm., Gen. Croton Madag. Comoro 156. 2016, **syn. nov.**

**Type.** Based on *Croton nitidulus* var. *tandrokensis* Leandi
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Type. Madagascar. Prov. Fianarantsoa: Andrambovato, Parcelle B5 [Fort Carnot], 23 Mar 1954, Service Forestier 10169-SF (holotype: P [P00338570]!; isotype: P [P00154402]!, TEF [TEF000190]!).

Habit and distribution. Shrubs to small trees; eastern Madagascar (Antsiranana, Fianarantsoa, Toamasina).

Notes. *Croton fianarantsoae* is part of a difficult species complex, and further work is needed to differentiate it from similar species such as *C. nitidulus*.

57. *Croton fothergillifolius* Baill., Adansonia 1: 150. 1861, as ‘fothergillifolium’

*Oxydectes fothergillifolia* (Baill.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.

Type. Based on *Croton fothergillifolius* Baill.

Type. Mauritius. sin. loc., L.M.A. Du Petit-Thouars s.n. (lectotype, designated here: P [P00404184]!; isolectotype: P [P00404183]!).

Habit and distribution. Shrubs; Mauritius.

Notes. Bojer (1837) listed a plant from the Grand Bassin of Mauritius as *Croton muricatus* Vahl, a native Malagasy species. Based on this, the name “*C. muricatus* Bojer, nom. nud.” has been included in several indices, including IPNI, Tropicos, and Goovaerts et al. (2000). In the same manner as Leandri (1939), we interpret Bojer (1837) as a misidentification of what Baillon (1861) later described as *C. fothergillifolius*, rather than the publication of a nomen nudum.

58. *Croton geayi* Leandri, Bull. Mus. Natl. Hist. Nat., sér. 2, 3: 368. 1931

*Croton geayi* var. *paucisquamatus* Radcl.-Sm., Gen. Croton Madag. Comoro 94. 2016, syn. nov.

Type. Madagascar. Prov. Toliara: Plateau Mahafaly à l’Ouest de Betioky, 17-20 Mar 1955, H. Humbert & R. Capuron 29490 (holotype: P [P00123679]!).

*Croton geayi* var. *pubescens* Radcl.-Sm., Gen. Croton Madag. Comoro 95. 2016, syn. nov.

Type. Madagascar. Prov. Toliara: vallée inférieure de l’Onilahy, 12 Aug 1928, H. Humbert & C.F. Swingle 5235 (holotype: P [P00133137]!; isotype: G!).

Type. Madagascar. Prov. Toliara: sin. loc., 1906, M.F. Geay 28 (holotype: P [P00133132]!).

Habit and distribution. Shrubs; southern Madagascar (Toliara).

Notes. The two varieties of *Croton geayi* described by Radcliffe-Smith (2016) only differ from the nominal species in degree and type of pubescence, and this does not seem to justify their recognition as distinct taxonomic entities.
59. *Croton glomeratus* Aug.DC., Bull. Herb. Boissier, sér. 2, 1: 566. 1901

*Croton lamianus* Leandri, Notul. Syst. (Paris) 13: 184. 1948, as ‘*Lamiana*’, **syn. nov.**

Type. MADAGASCAR. Prov. Toamasina: Soanianana-Ambahoabe, 50 m, 5 Dec 1938, *H.J. Lam & B. Meeuse* 5756 (lectotype, designated here: P [P00312383]!; isolecotypes: K [K001040375]!, L [93970419], P [P00312382]!). MADAGASCAR. Prov. Toamasina: Soanianana-Ambahoabe, 100 m, 3 Dec 1938, *H.J. Lam & B. Meeuse* 5604 (syntypes: P [P00133398]!, L [939171491]).

*Croton fianarantsoae* var. *masoalae* Radcl.-Sm., Gen. Croton Madag. Comoro 154. 2016, **syn. nov.**

Type. MADAGASCAR. Prov. Antsiranana: Manarivola, Sahamalaza, Vinanivao, Antalaha, Parc Masoala, 15°48'25"S, 50°17'15"E, 12–22 Feb 1996, *R. Bernard* et al. 213 (holotype: K!; isotypes: MO, P [P00433259]!).

Habit and distribution. Shrubs; northeastern Madagascar (Antsiranana, Toamasina).

60. *Croton goudotii* Baill., Adansonia 1: 157. 1861

*Croton platanifolius* Bojer ex Baker, J. Bot. 20: 268. 1882.

Type. MADAGASCAR. edges of woods in East Betsileo, received Jul 1880, *R. Baron* 262 (holotype: K [K000422589]!; isotype(fragment): P [P00133700, upper packet]!).

*Croton emirnensis* Baker, J. Linn. Soc., Bot. 20: 252. 1883.

Type. MADAGASCAR. sin. loc. s.d., *R. Baron* 1854 (lectotype, designated here: K [K000422588]!). MADAGASCAR. sin. loc., s.d., *R. Baron* 1841 (syntypes: K [K001040356]!, P [P00133701]!).

*Oxydectes goudotii* (Baill.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.

Type. Based on *Croton goudotii* Baill.

*Croton mollivelus* Baill. Bull. Mens. Soc. Linn. Paris 2: 926. 1891, as ‘*mollivelum*’.

Type. MADAGASCAR. sin. loc., s.d., *C.M. Le Myre de Vilers* s.n. (holotype: P [P00310180]!).

*Croton tsaratananae* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 5(1): 74. 1939, **syn. nov.**

Type. MADAGASCAR. Prov. Antsiranana/Mahajanga border: Mont Tsaratanana, 2000 m, Dec 1912, *H. Perrier de la Bâthie* 9720 (lectotype, designated here: P [P00389496]!; isolecotypes: P [P00154411]!, P [P00154412]!).

*Croton goudotii* var. *tsaratananae* (Leandri) Radcl.-Sm., Gen. Croton Madag. Comoro 128. 2016, **syn. nov.**

Type. Based on *Croton tsaratananae* Leandri
Type. MADAGASCAR. Prov. Antananarivo: environs de Tananarivo, rec’d. 1840, J.P. Goudot s.n. (holotype: G [G00018187]!; isotype (fragment from G): P [P00133700, lower packet].

Habit and distribution. Trees; upland forests across Madagascar (Antananarivo, Antsiranana, Fianarantsoa, Mahajanga, Toamasina, Toliara).

61. Croton gracilior Radcl.-Sm., Gen. Croton Madag. Comoro 108. 2016

Type. MADAGASCAR. Prov. Mahajanga: Tsingy de Bemaraha, N of the Malambo River, 19°09’S, 44°49’E, 27 Nov 1996, C.C.H. Jongkind, J. Andriantiana & H. Razanatsoa 3235 (holotype: K!; isotypes: MO!, WAG).

Habit and distribution. Shrubs; western Madagascar (Mahajanga – Melaky Region).

62. Croton grangerioides Bojer ex Baill., Adansonia 1: 149. 1861

Croton boutonianus Müll.Arg., Linnaea 34: 80. 1865.

Type. MAURITIUS. in sylvis montosis, 1833, W. Bojer s.n. (lectotype, designated here: G-DC [G00311198]!; isolateotypes: G [G00446409]!, M [M0110371]!).

MAURITIUS. 1857, L. Bouton s.n. (syntype: G-DC [G00311197]!).

Oxydectes boutoniana (Müll.Arg.) Kuntze, Revis. Gen. Pl. 2: 611. 1891.

Type. Based on Croton boutonianus Müll.Arg.

Oxydectes grangerioides (Bojer ex Baill.) Kuntze, Revis. Gen. Pl. 2: 610. 1891.

Type. Based on Croton grangerioides Bojer ex Baill.

Type. MAURITIUS. s.d., J. Néraud s.n. (lectotype, designated here: G [G00446387]!; possible isolectotype: P [P00404205]!). MAURITIUS. à l’embrasure, au-dessous du Pouce, s.d., L.M.A. Du Petit-Thouars s.n. (syntypes: P [P00404204]!, P [P0040179]!). MAURITIUS. crêtes de la montagne de Port-Louis, vers l’extrémité au-dessus de l’anse Courtois, Oct 1849, L.H. Boivin s.n. (syntype: P [P00404203]!). MAURITIUS. 1850, J.N.E. Vesco s.n. (syntype: P [P00404180]!). MAURITIUS. W. Bojer s.n. (original material: MAU [1402; specimen not seen], possible type: G [G00446413]!, M [M0110457]!).

Habit and distribution. Shrubs; Mauritius.

Notes. Baker (1877) distinguished Croton boutonianus from C. grangerioides in his key by the former having entire leaves and pistillate flowers with petals and the latter obscurely crenulate leaves and pistillate flowers that lack petals. Leandri (1939) accepted C. grangerioides, but appears to have overlooked mentioning C. boutonianus, even as a synonym. Coode (1982) treated C. boutonianus as a synonym of C. grangerioides, describing the petals of the staminate flowers as small and delicate, and the crenulation of the leaf margins as variable. We follow here the taxonomy of Coode (1982) in treating C. boutonianus as a synonym of C. grangerioides.
63. *Croton greveanus* Baill., Bull. Mens. Soc. Linn. Paris 2: 849. 1890

*Croton greveanus* var. *borealis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 45. 1939.

_type._ MADAGASCAR. Prov. Mahajanga: région littorale, entre Masoarivo et Ambato, Nov 1932, *J. Leandri* 536 (lectotype, designated here: P [P00133803]!; isolectotypes: G [G00446389]!, P [P00133804]!, P [P00133805]!). MADAGASCAR. Prov. Mahajanga: Tsingy du Bemara, 9e Réserve Naturelle, Tsimbivisositra, 10 Nov 1932, *J. Leandri* 517 (syntype: P [P00133802]!). MADAGASCAR. Prov. Mahajanga: Tranor Passage, *J. Leandri* 264 (P [P00133800], P [P00133802]!). MADAGASCAR. Prov. Mahajanga: Savalika, 11 Dec 1932, *J. Leandri* 341 (P [P00133785]!, P [syntype: P00133786]!). MADAGASCAR. Prov. Mahajanga: Boina, Firingalava, Dec 1898, *H. Perrier de la Bâthie* 777 (syntypes: P [P00133788]!, P [P00133789]!). MADAGASCAR. Prov. Mahajanga: cause d’Ankara, bois rocailleux calcaire de Kamakama, Dec 1901, *H. Perrier de la Bâthie* 9798 (syntype: P [P00154464]!).

*Croton antanosiensis* var. *pubescens* Radcl.-Sm., Gen. Croton Madag. Comoro 43. 2016, _syn. nov._

_type._ MADAGASCAR. Prov. Toliara: 44 km Tulear-Ihosy, 12 Nov 1967, *L. Bernardi* 11411 (lectotype, designated here: G ["Hb. G 0044814"]!; isolectotypes: G ["Hb. G 0044804"]!, P [P00154375]!).

*Croton boinensis* var. *parcelepidotus* Radcl.-Sm., Gen. Croton Madag. Comoro 78. 2016, _syn. nov._

_type._ MADAGASCAR. Prov. Mahajanga: Ampasimandoro, Maintirano, 12 May 1956, *Service Forestier* 16322-SF (lectotype, designated here: P [P00347747]!; isolectotype: P [P00154435]!).

_type._ MADAGASCAR. Prov. Toliara: Bé-Kapaké [Bekopaka], ad. riv. Morondava, s.d., *H. Grevé* 239 (lectotype, designated here: P [P00404488]!; isolectotypes: P [P00133768]!, P [P00133769]!, P [P00133770]!, P [P00133771]!).

_Habit and distribution._ Large shrubs or small trees; western, central, and southern Madagascar (Fianarantsoa, Mahajanga, Toliara).

64. *Croton guerelae* Leandri, Adansonia, sér. 2, 9: 507. 1969 [1970]

_type._ MADAGASCAR. Prov. Antananarivo: forêt basse a feuilles persistantes, restes de forêt du Mt. Ambohiby (SE de Tsiroanomandidy), 1600 m, 11-16 Nov 1952, *J. Leandri* et al. 1790 (lectotype, designated here: P [P00312376]!; isolectotypes: K [K001044845]!, P [P00404478]!, P [P00404479]!).

_Habit and distribution._ Shrubs; central Madagascar (Antananarivo, Toamasina).
65. **Croton heteranthus** Aug.-DC., Bull. Herb. Boissier, sér. 2, 1: 566. 1901

*Croton ivohibensis* var. *furfuraceus* Radcl.-Sm., Gen. Croton Madag. Comoro 149. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Antsiranana: Sous-Préfecture d’Andapa, Bealampona, Befingotra, Réserve Anjanaribe-Sud on RN Andapa-Bealanana, Antsahanifelana, near Ampiferantany, 14°47’45”S, 49°27’54”E, 22 May 1995, *D. Ravelonarivo & R. Rabesonina* 816 (holotype: K!; isotype: MO!).

*Croton scorpistogyne* Radcl.-Sm., Gen. Croton Madag. Comoro 166. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Antsiranana: Amboihalanana Ct., Antalaha Distr., 15 Dec 1956, *Réserves Naturelles 8059-RN* (holotype: P [P00133301]!).

**Habit and distribution.** Large shrubs or small trees; northeastern Madagascar (Antsiranana, Toamasina).

66. **Croton hildebrandtii** Baill., Bull. Mens. Soc. Linn. Paris 2: 847. 1890

*Croton heterochrous* Baill., Bull. Mens. Soc. Linn. Paris 2: 862. 1890, nom. illeg. non *Croton heterochrous* Müll.Arg. 1865.

*Croton belintae* Leandri, Cat. Pl. Madag., Euphorb.: 30. 1935, **syn. nov.**

**Type.** MADAGASCAR. Prov. Antsiranana: Vavatobé, Belinta, Feb 1880, *J.M. Hildebrandt* 3326 (lectotype, designated here: P [P00127506]!; isolecotypes: G [G00018184]!, G [G00018185]!, JE [JE00015890], JE [JE00015891]!, K [K001040370]!, M [M-0110366], P [P00127507]!, P [P00133155]!, P [P00133156]!).

**Type.** MADAGASCAR. Prov. Antsiranana: Pasandava-bai [Bay], Kisimani, Jun 1879, *J.M. Hildebrandt* 3013 (lectotype, designated here: G [G00075617]!; isolecotypes: G [G00075618]!, G [G00018186]!, JE [JE00000063]!, K [K000347497]!, M [M0110367]!, P [P00133157]!, P [P00133158]!, P [P00133159]!).

**Habit and distribution.** Shrubs; northern and northwestern Madagascar (Antsiranana, Mahajanga).

**Notes.** The type of *Croton belintae* differs from the typically lepidote plants of *C. hildebrandtii* only in the presence of prominent porrect rays emerging from the center of the lepidote scales, which gives the plant a more fuzzy-pubescent appearance. In all other characters, however, such as leaf shape, petiolar glands, and the small flowers with somewhat recurved pedicels, they are identical. We therefore treat *C. belintae* as a synonym of the earlier name *C. hildebrandtii*. 
67. Croton hovarum Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 40. 1939

Croton rubricapitirupis Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 40. 1939, syn. nov.
Type. MADAGASCAR. Prov. Fianarantsoa: Ambatomenaloha, à l’W d’Itremo, 20 Jan 1955, R. Capuron 11580 (lectotype, designated here: P [P00380442]!; isolecctotypes: P [P00154295]!, P [P00154296]!, P [P00154297]!, TEF [TEF000185]).

Croton anisatus var. hisrisatus Radcl.-Sm., Gen. Croton Madag. Comoro 14. 2016, syn. nov.
Type. MADAGASCAR. Prov. Toamasina: Ambatondrazaka Distr., Ambatosoratra Canton, 26 Aug 1959, Réserves Naturelles 10857 (holotype: P [P00131518]!).

Croton cassinoides var. allaotrensis Radcl.-Sm., Gen. Croton Madag. Comoro 10. 2016, syn. nov.
Type. MADAGASCAR. Prov. Toamasina: Ambatondrazaka Distr., Ambatosoratra Canton, near the shore of Lac Alaotra, 16 Oct 1958, Réserves Naturelles 9633-RN (holotype: P [P00133165]!).

Croton greveanus var. ambositrensis Leandri ex Radcl.-Sm., Gen. Croton Madag. Comoro 39. 2016, syn. nov.
Type. MADAGASCAR. Prov. Fianarantsoa: Andina, environs d’Ambositra, Dec 1921, H. Perrier de la Bâthie 18606 (holotype: P [P00133790]!).

Croton hovarum var. lepidotus Radcl.-Sm., Gen. Croton Madag. Comoro 179. 2016, syn. nov.
Type. MADAGASCAR. sin. loc., Oct 1881, R. Baron 678 (holotype: K [not seen]; isotype: P [P00133165]!).

Croton hovarum var. subglaber Radcl.-Sm., Gen. Croton Madag. Comoro 179. 2016, syn. nov.
Type. MADAGASCAR. Prov. Fianarantsoa: RN 5, Ambalavao Distr., Sendrisoa Canton, 12 Nov 1953, Réserves Naturelles 5871 (lectotype, designated here: P [P00133188]!; isolecctotype: P [P00133187]!).

Croton ivohibensis Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 37. 1939, syn. nov.
Type. MADAGASCAR. Prov. Fianarantsoa: chaine du Vohibory, à l’ouest d’Ivohibe, 1000-1300 m, 1 Nov 1924, H. Humbert 3051 (lectotype, designated here: P [P00133264]!; isolecctotypes: G [G00018157]!, K [K001040387]!, P [P00133263]!, P [P00133265]!, TAN [TAN000535]!).

Croton ivohibensis var. lepidotus Radcl.-Sm., Gen. Croton Madag. Comoro 149. 2016, syn. nov.
Type. MADAGASCAR. Prov. Fianarantsoa: Réserve Naturelle V, Antaniloha Canton, Ivohibe District, 29 Nov 1951, Réserves Naturelles 35-29 RN (lectotype, designated here: P [P00133632]!; isolecctotype: P [P00133631]!).

Type. MADAGASCAR. Prov. Antananarivo: Imerina, Ifanangoavana, Jan 1881, J.M. Hildebrandt 3811 (lectotype, designated here: P [P00133177]!; isolecctotypes: G [G000446390]!, G [G00446405]!, JE [JE00015925]!, K [K001040345]!, M [M0110359]!, P [P00133176]!). MADAGASCAR sin. loc., s.d., R. Baron 675 (syntype: P [P00133164]!), Baron 678 (syntypes: K [K001040346]!, P [P00133165]), R. Baron
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3151 (syntypes: K [K001040347]!, P [P00133166], P [P00133167]!). MADAGASCAR. Prov. Antananarivo: 20 km E de Tananarive, sur la route de Tamatave, 30 Oct 1928, *R. Decary 6813* (syntypes: P [P00133171]!, G [G00018161]!, S [S07-14579]!), ibid. loc., 30 Sep 1928, *R. Decary 6834* (syntypes: P [P00133172]!, MO [5598313]!).

MADAGASCAR. Prov. Antananarivo: au Nord d’Ankazobe, 9 Mar 1930, *Decary 7292* (syntypes: P [P00133173], GB [GB-0047692]!), ibid. loc., 11 Mar 1930, *R. Decary 7380* (syntypes: P [P00133174]!, MO [1602793]!). MADAGASCAR. Prov. Antananarivo: Manankazo, au NE d’Ankazobe, Nov 1913, *H. Perrier de la Bâthie 9867* (syntypes: P [P0013383]!, P [P0013384]!, P [P0013385]!), ibid. loc., *H. Perrier de la Bâthie 9877* (P [P00133186]!).

MADAGASCAR. Prov. Toamasina: Andovoranto, Moramanga, bord de la Sahamarirana entre Ampasimpotsy et Bevalanirano, 24 Oct 1912, *R. Viguier & H. Humbert 989* (syntypes: P [P00422391]!, P [P00422392]!, K [K001040344]!).

MADAGASCAR. Prov. Fianarantsoa: Vakinankaratra, Ambatolampy, bois entre Tsinjoarivo et Ambohimasina, 2 Oct 1912, *R. Viguier & H. Humbert 1924* (syntypes: P [P00133190]!, P [P00133191]!).

Habit and distribution. Shrubs; central upland Madagascar (Antananarivo, Fianarantsoa, Toamasina).

Notes. Leandri (1973a) distinguished *Croton rubricapitirupis* from *C. hovarum* almost exclusively by the sparser, lepidote pubescence on the leaf undersides of *C. rubricapitirupis*. *Croton hovarum* is quite variable in leaf size and degree of indumentum, and we do not consider this a sufficient distinction at the species level. In its monopodial branching, large accrescent female calyx, and finely crenate to serrate leaf margins, *C. hovarum* is a readily recognizable species in upland Madagascar. The syntype *Viguier & Humbert 989* corresponds to *C. hypochalibaeus*.

68. *Croton humbertii* Leandri, *Ann. Mus. Colon. Marseille*, sér. 5, 7(1): 22. 1939, as ‘humberti’

*Croton ivohibensis* var. *alaotrensis* Radcl.-Sm., Gen. *Croton Madag. Comoro* 148. 2016, *syn. nov.*

Type. MADAGASCAR. Prov. Toamasina: Befody – forêt de l’Est, Ambatondrazaka, 29 Aug 1952, *Service de Eaux et de Forêts de Madagascar* 4052-SF (holotype: P [P00133207]!).

Type. MADAGASCAR. Prov. Toamasina: forêt d’Analamazaotra, Dec 1932, *J. Leandri 709* (lectotype, designated here: P [P00133198]!; isolectotypes: P [P00133197]!, P [P00133199]!). MADAGASCAR. Prov. Toamasina: forêt d’Analamazaotra, 1000m, 19 Oct 1912, *R. Viguier & H. Humbert 805* (syntypes: P [P00133209]!, P [P00133210]!, B [B100153963]!), ibid. loc., 21 Oct 1912, *R. Viguier & H. Humbert 830* (G [G00018160]!, P [P00133210]!, P [P00133211]!, P [P00133212]!), ibid. loc., Feb 1912, *H. Perrier de la Bâthie 9739* (syntypes: P [P00133200]!, P [P00133201]!, P [P00133202]!).

Habit and distribution. Shrubs; eastern montane Madagascar (Toamasina).
69. *Croton humblotii* Baill., Bull. Mens. Soc. Linn. Paris 2: 846. 1890

*Croton humblotii* var. *anjuanensis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 44. 1939, syn. nov.

Type. **Union of the Comoros**: Anjouan, Apr 1905, *Lavanchie* s.n. (holotype: P [P00154408]!).

**Type.** Mayotte [French Overseas Department]: forêt de Combani, 10 Oct 1884, *L. Humblot* 1298 (lectotype, designated here: P [P00196068]!; isolectotypes: K [K000347496]!, K [K001040343]!, LD [LD1210694], LD [LD1210214], LG [LG0000009002795]), P [P00196069], P [P00196070].

**Habit and distribution.** Shrubs or trees; Comoro Islands, occurring on Mayotte and the three islands of the Union of the Comoros (Anjouan, Grande Comore, and Mohéli).

70. *Croton hypochalibaeus* Baill., Bull. Mens. Soc. Linn. Paris 2: 862. 1890, as ‘hypochalibaeum’

*Croton squamiger* var. *acutifolius* Müll.Arg. in A.P.de Candolle, Prodr. 15(2): 523. 1866, syn. nov.

Type. **Madagascar** in sylvis ins. Madag., s.d., *W. Bojer* s.n. (holotype: P [P00133274]!; isotype: M [M0110356]!).

*Croton alceicornu* Radcl.-Sm., Gen. Croton Madag. Comoro 70. 2016, syn. nov.

Type. **Madagascar**. Prov. Toamasina: Ambatovy, 18°51’34”S, 48°18’25”E, 3 Mar 1997, *P. Rakotomalaza* et al. 1220 (holotype: K!; isotype: MO!).

*Croton antanosiensis* var. *fianarantsoae* Radcl.-Sm., Gen. Croton Madag. Comoro 42. 2016, syn. nov.

Type. **Madagascar**. Prov. Fianarantsoa: Ranomafana National Park, 7 km S of the National Road 25 W of Ranomafana, 21°15’30”S, 47°25’00”E, 31 Mar 1993, *D. Turk* et al. 378 (holotype: K!; isotype: G [G00414720]!, MO!, P [P00418629]!).

*Croton oligostemon* Radcl.-Sm., Gen. Croton Madag. Comoro 45. 2016, syn. nov.

Type. **Madagascar**. Prov. Antsiranana: Analamaza, Binara Range, SW of Daraina (Vohemar), 13°15’S, 49°38’E, 26 Apr 1990, *D. Meyers* 90 (holotype: K!; isotypes G00414721!, MO!, P [P00433104]!).

**Type.** Madagascar. sin. loc., s.d., *R. Baron* 5635 (lectotype, designated by Kainulainen et al. 2016, pg. 344: K [K001040371]!; isolectotypes: P [P00133213]!, P [P00133661]!).

**Habit and distribution.** Shrubs; montane forests of Madagascar (Antananarivo, Antsiranana, Fianarantsoa, Toamasina, Toliara).

**Notes.** Leandri (1939) considered *Croton hypochalibaeus* to be a synonym of *C. noronhae*, whereas Radcliffe-Smith (2016) considered it to be a synonym of *C. jennyanus*. *Croton hypochalibaeus* was accepted by Kainulainen et al. (2016), based on a
number of distinguishing morphological and ecological criteria. It is one of the most wide-ranging *Croton* species in Madagascar.

### 71. Croton ihosianus Leandri, Adansonia, sér. 2, 9: 508. 1970, as ‘ihosiana’

*Croton barorum* var. *mangokyensis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 68. 1939, **syn. nov.**

**Type.** MADAGASCAR. Prov. Fianarantsoa: Vallée d’Ihosy, bassin du Mangoky, 800-1000 m, 29-30 Oct 1924, *H. Humbert* 2992 (lectotype, designated here: P [P00301485]!; isolecotypes: P [P00404482]!, P [P00127484]!).

*Croton bathianus* var. *ihosianus* Radcl.-Sm., Gen. Croton Madag. Comoro 114. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Fianarantsoa: environs d'Ihosy, Mar 1934, *H. Humbert* 14445 (holotype: P [P00127476]!).

**Habit and distribution.** Shrubs; south-central Madagascar (Fianarantsoa).

### 72. Croton incisus Baill., Adansonia 1: 159. 1861, as ‘incisum’

*Oxydectes incisa* (Baill.) Kuntze, Revis. Gen. Pl. 2: 612. 1891.

**Type.** Based on *Croton incisus* Baill.

*Croton incisus* var. *minor* Leandri, Notul. Syst. (Paris) 13: 183. 1948, **syn. nov.**

**Type.** MADAGASCAR. Prov. Toamasina: Reserve Naturelle de Betampona, près de Tamatave; 450 m, 19 Feb 1938, *H.J. Lam & B. Meeuse* 6014 (holotype: P [P00133221]!; isotypes: G [G00446382]!, K!, L, S!).

**Type.** MADAGASCAR. sin. loc., s.d., *L.M.A. Du Petit-Thouars* s.n. (holotype: P [P00389622]!).

**Habit and distribution.** Shrubs; eastern lowland Madagascar (Toamasina).

**Notes.** Some indices, such as Govaerts et al. (2000), have listed Baillon (1891b) as the publication in which *C. incisus* was described; however, the correct citation is Baillon (1861).

### 73. Croton indrisilvae Kainul., B.W.van Ee & P.E.Berry, Candollea 71: 338. 2016 [23 Nov 2016]

*Croton commiphoroides* Radcl.-Sm., Gen. Croton Madag. Comoro 21. 2016. [23 Dec 2016], **syn. nov.**

**Type.** MADAGASCAR. Prov. Toamasina: Périeret-Analamazaotra, 8-9 Aug 1961, Service Forestier 20317 (holotype: P [P00133230]!).
74. Croton inops Baill., Bull. Mens. Soc. Linn. Paris 2: 864. 1890

**Type.** Madagascar. Prov. Toliara: pays arides des Antandroi, Fort Dauphin, Jun-Jul, received Sep 1890, G.F. Scott-Elliot 2986 (lectotype, designated here: P [P00133237]!; isolecotype: K [K000422592]!).

**Habit and distribution.** Small shrubs; southern Madagascar (Toliara).

75. Croton isalensis (Leandri) Leandri, Adansonia, sér. 2, 12: 71. 1972

*Croton brevispicatus* var. *aisalensis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 28. 1939.

**Type.** Madagascar. Prov. Fianarantsoa: Isalo, 1910, H. Perrier de la Bâthie 9788 (lectotype, designated by Leandri 1972a, pg. 71: P [P00389628]!). Madagascar. Prov. Fianarantsoa: Isalo, 900 m, Oct 1924, H. Perrier de la Bâthie 16607 (syntypes: K [K001040354]!, P [P00133240]!). Madagascar. Prov. Toliara: plateaux et vallées de l’Isalo, gorges de la Sakamarekely et de la Sambalinieto, 500-1000 m, 19-25 Oct 1924, H. Humbert 2849 (syntypes: G [G00446377]!, G [G00446378]!, G [G00446379]!, K!, P [P00389626]!, P [P00389627]!, K [K001040353]! TAN [TAN000526]!).

**Type.** Based on *Croton brevispicatus* var. *aisalensis* Leandri

**Habit and distribution.** Shrubs; southern Madagascar (Fianarantsoa, Toliara).

**Notes.** In his publication elevating *Croton brevispicatus* var. *aisalensis* to *C. isalensis*, Leandri (1972a) called the *Perrier de la Bâthie 9788* specimen at P the holotype. We interpret this as a lectotypification of the taxon, and given that there appears to only be a single duplicate of *Perrier de la Bâthie 9788* at P there is no need for a second-step lectotypification.

76. Croton isomonensis Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 48. 1939

**Type.** Madagascar. Prov. Toliara: vallée de la Manambolo, rive droite (basin du Mandrare) aux environs d’Isomono (confluent de la Sakamalio), Mont Morahariva (Mahamena), 1000–1400 m, Dec 1933, H. Humbert 13247 (lectotype, designated here: P [P00133243]!; isolecotypes: G [G00018158]!, K [K001040341]!, P [P00133244]!,
TAN [TAN000534]). MADAGASCAR. Prov. Toliara: vallée de la Sakamalio, affluent de la Manambolo (basin du Mandrare), 900-1100 m, Dec 1933, H. Humbert 13367 (syntypes: P [P00133245]!, P [P00133246]!). MADAGASCAR. Prov. Toliara: bassin de reception de la Mananara, affluent du Mandrare, pentes occidentales des montagnes entre l’Andohahela et l’Elakelaka au Vatazo (S d’Imonty), 900-950 m, Feb 1934, H. Humbert 14076 (syntypes: P [P00133249]!, P [P00133250]!). MADAGASCAR. Prov. Toliara: bassin de reception de la Mananara, affluent du Mandrare, pentes occidentales des montagnes entre l’Andohahela et l’Elakelaka entre Ampahiso et Mahamavo, 800 m, Jan-Feb.1934, H. Humbert 13768 (syntype: G [G00018159]!).

Habit and distribution. Large shrubs to small trees; southeastern Madagascar (Toliara).

Notes. Leandri (1939) cited four Humbert collections as syntypes of Croton isomonenis: 13247, 13367, 14070, and 13768. We have not located a Humbert 14070 specimen, but the Humbert 14076 collection has the verbatim collection locality as given in Leandri (1939) for Humbert 14070. We surmise that the ‘14070’ in Leandri (1939) is a typographic error for ‘14076.’

77. Croton jennyanus Gris ex Baill., Adansonia 1: 160. 1861, as ‘jennyanum’

Croton squamiger Baill., Adansonia 1: 168. 1861, as ‘squamigerum’.

Type. MADAGASCAR. Prov. Antsiranana: sin. loc., s.d., J.M.C. Richard 576 (lectotype, designated here: P [P00133578]!; isolectotype: P [P00133579]!). MADAGASCAR. Prov. Antsiranana: Diégo-Suarès et baie de Rigny, 1837, J.M.C. Richard 176 (syntype: P [P00133577]!). MADAGASCAR. Prov. Antsiranana: Cap d’Ambre, 1847-1852, L.H. Boivin 2658 (syntype: P [P00133273]!).

Croton squamiger var. obtusifolius Müll.Arg. in A.P.de Candolle, Prodr. 15(2): 523. 1866, nom. inval.

Type. Based on Croton squamiger Baill.

Oxydectes jennyana (Gris ex Baill.) Kuntze, Revis. Gen. Pl. 2: 612. 1891.

Type. Based on Croton jennyanus Gris ex Baill.

Oxydectes squamigera (Baill.) Kuntze, Revis. Gen. Pl. 2: 613. 1891.

Type. Based on Croton squamiger Baill.

Type. MADAGASCAR. Prov. Antsiranana [Diana Region]: vers les bas-fonds humides, lorsqu’on s’élève par les torrents au dessus des montagnes qui se trouvent au nord du port Lugwata [Diego Suarez], 1833, J.P. Goudot s.n. (holotype: G [G00434419]!; isotypes: P [P00133278]!, P [P00154519]!).

Habit and distribution. Shrubs; northern and western Madagascar (Antsiranana, Mahajanga).

Notes. We follow here the precedent of Leandri (1939) and Radcliffe-Smith (2016) in treating Croton squamiger as a synonym of C. jennyanus, but we differ in treating C. hypochalibæus as a distinct, more highland species rather than as another
synonym of *C. jennyanus* (see Kainulainen et al., 2016). According to our interpretation, *C. jennyanus* is restricted to lower elevations in northern Madagascar (Montagne des Français, Sahafary, Daraina, Ankarana), as well as in far midwestern Madagascar on or near tsingy formations (Bemaraha).

Concerning the type of *Croton squamiger*, three other sheets of *Boivin 2658* correspond to *C. brevispicatus*, so this is clearly a mixed collection. In the description of *C. squamiger*, Baillon (1861) divided the species into two infraspecific taxa, a and b. These were subsequently named by Müller (1866) as *C. squamigerus* var. *obtusifolius* (the typical variety) and *C. squamigerus* var. *acutifolius*, respectively. The latter has been recognized here to be synonymous with *C. hypochalibaeus*.

We have corrected the termination of the specific epithet to “squamiger” [masc. gender, Adj. group A nom., see Stearn (1992: 91) and Art. 23.5 and Art. 60.9 Ex. 24 (ICN 2012; *Croton ciliato-glanduliferum* Ortega corrected to *C. ciliatoglandulifer*).

Radcliffe-Smith (2016) listed *Croton jennyanus* as being present in the Comoros Archipelago. The three collections he cited [*Pascal 928* (K, P) from Mayotte, and *Floret 1241* (P) and 1249 (P) from Mohéli] all correspond to *C. humblotii*.

78. *Croton kimosorum* Leandri, *Ann. Mus. Colon. Marseille*, sér. 5, 7(1): 29. 1939

*Croton kimosorum* var. *pubescens* Radcl.-Sm., *Gen. Croton Madag. Comoro* 73. 2016, syn. nov.

*Type*. MADAGASCAR. Prov. Toliara: NW of Tôlanaro, Andohahela Réserve Intégrale, 24°57’S, 46°39’E, 23 Dec 1993, S. Malcomber 2642 (holotype: K!; isotype: MO!).

*Type*. MADAGASCAR. Prov. Toliara: vallé de la Sakamalio, affluent de la Manambolo (basin du Mandrare), 500-800 m, Dec 1933, *H. Humbert 13320* (holotype: P [P00133294]!; isotypes: G [G00018156]!, K [K001040378]!, P [P00133406]!).

Habit and distribution. Shrubs; southern Madagascar (Toliara).

79. *Croton lasiopyrus* Baill., *Bull. Mens. Soc. Linn. Paris* 2: 926. 1891

*Type*. MADAGASCAR: “Central Madagascar”, Oct 1882, *R. Baron 1951* (lectotype, designated by Kainulainen et al. 2016, pg. 350: P [P00133406]!, isolectotypes: K [K001040378]!, P [P00133407]!). MADAGASCAR: “Central Madagascar”, Oct 1882, *R. Baron 2114* (syntypes: K [K001040377]!, P [P00133408]!); “Central Madagascar”, s.d., *R. Baron 4078* (K [K001040376]!). MADAGASCAR. Prov. Toliara: Fort-Dauphin, s.d., G.F. Scott-Elliot 1557 (syntype: P [P00133052 packet in upper right]!).

Habit and distribution. Shrubs; eastern montane forests (Antananarivo, Toamasina).

Notes. See the note above under *Croton cassinioides* and its synonym *C. delphini-anus* regarding the *Scott-Elliot 1557* specimen (P00133052, upper right), which was
also cited by Baillon (1891a) as a syntype of *C. lasiopyrus*. *Croton cassinioides* and *C. lasiopyrus* are sufficiently different that they are not easily confused; the former has smaller (1.5–6 × 0.7–3 cm) elliptic leaves with dentate to subentire margins and grows in littoral zones near sea level, while the latter has larger (4–15.5 × 2.5–7 cm) obovate leaves with entire margins and grows in moist montane forests.

80. *Croton lichenisilvae* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 62. 1939

*Croton lichenisilvae var. oligostemon* Radcl.-Sm., Gen. Croton Madag. Comoro 198. 2016, *syn. nov*.

Type. MADAGASCAR. Prov. Toamasina: Anony, Sihanaka, 3 Sep 1937, *Herb. Jard. Bot. Tan.* 2953 (holotype: P [P00131512]).

Type. MADAGASCAR. Prov. Toamasina: Alaotra-Mangoro Region, environs d’Analamazaotra, s.d., 1000 m, *H. Perrier de la Bâthie* 9637 (lectotype, designated here: P [P00389499]; isolectotype: P [P00133451]).

**Habit and distribution.** Shrubs; eastern montane Madagascar (Toamasina).

81. *Croton loucoubensis* Baill., Adansonia 1: 155. 1861, as ‘loucoubense’

*Croton adenophorus* var. *loucoubensis* (Baill.) Müll.Arg. in A.P.de Candolle, Prodr. 15(2): 589. 1866.

Type. Based on *Croton loucoubensis* Baill.

*Croton adenophoroides* Radcl.-Sm., Gen. Croton Madag. Comoro 117. 2016.

Type. MADAGASCAR. Prov. Antsiranana: Besinkara, Ambalafary, Andvakena: premier cours d’eau sur le chemin de Bekolosy, 14°04’S, 48°17’E, 500 m, 12 Nov 1994, *L. Gautier & P. Derleth* 2529 (holotype: K!; isotypes: G!, MO!, P [P00433174]).

Type. MADAGASCAR. Prov. Antsiranana: Diana Region, Nossibé, forêt de Loucoubé, Mar 1851, *L.H. Boivin* s.n. (lectotype, designated by Kainulainen et al. 2017b, pg. 390: P [P00133453]!). MAYOTTE [FRENCH OVERSEAS DEPARTMENT]: Jun 1848, *L.H. Boivin* 3382 (syntype: P [P00133452]).

**Habit and distribution.** Large shrubs or small trees; northern Madagascar (Antsiranana).

**Notes.** Leandri (1939) treated *Croton loucoubensis* as a synonym of *C. adenophorus*, but his concept of *C. adenophorus*, as shown in his key and description, conforms to the type of *C. loucoubensis* as treated here. The syntype of *C. loucoubensis* from Mayotte is sterile and cannot definitively be placed in this species; it could also potentially belong to *C. mayottae*. 
82. *Croton macrobuxus* Baill., Bull. Mens. Soc. Linn. Paris 2: 863. 1890

*Croton sambiranensis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 41. 1939.
Type. MADAGASCAR. Prov. Antsiranana: Haut Sambirano, 500 m, Dec 1912, *H. Perrier de la Bâthie* 9699 (lectotype, designated here: P [P00133571]!; isolectotypes: P [P00133572]!, P [P00404491]!).

*Croton macrobuxus* var. *dolichobotrys* Radcl.-Sm., Gen. Croton Madag. Comoro 176. 2016, **syn. nov.**
Type. MADAGASCAR. Prov. Toamasina: Ambatovy, NE of Moramanga, 18°51’07"S, 48°18’26"E, 28 Feb 1998, *G. McPherson* 17500 (holotype: K; isotype: MO!).

*Croton macrobuxus* var. *glandulifer* Radcl.-Sm., Gen. Croton Madag. Comoro 176. 2016, **syn. nov.**
Type. MADAGASCAR. Prov. Toamasina: Ambatovy, 18°51’25"S, 48°17’50"E, 28 Feb 1997, *P. Rakotomalaza et al.* 1194 (holotype: K; isotype: MO, P [P00433501]!).

*Croton macrobuxus* var. *subfoliaceus* Radcl.-Sm., Gen. Croton Madag. Comoro 177. 2016, **syn. nov.**
Type. MADAGASCAR. Prov. Toamasina: Torotorofotsy R., Berano, 15 air-km NE of Moramanga, 11 km E of Antanambo, between Ambatovy-South & Analamay-East, 18°50’32"S, 48°19’55"E, 20 Feb 1997, *P. Rakotomalaza*, *G. Razafimanantsoa* & *F. Andriatsiferana* 1149 (holotype: MO!).

*Croton macrobuxus* var. *substrigosus* Radcl.-Sm., Gen. Croton Madag. Comoro 177. 2016, **syn. nov.**
Type. MADAGASCAR. Prov. Antananarivo: Sambaina-Manjakandriana, Ankatsihazoe, 29 Oct 1968, *R. Razafindrarnambao* H534R (holotype: P [P00154348]!).

*Croton nitidulus* var. *microphyllus* Radcl.-Sm., Gen. Croton Madag. Comoro 173. 2016, **syn. nov.**
Type. MADAGASCAR. Prov. Antsiranana: Reserve Naturelle Marojejy, along the trail to the summit of Marojejy Est, 14°26’S, 49°15’E, 10 Oct 1988, *J. Miller et al.* 3524 (holotype: K!; isotype: MO!).

*Croton nitidulus* var. *pubescens* Radcl.-Sm., Gen. Croton Madag. Comoro 173. 2016, **syn. nov.**
Type. MADAGASCAR. Prov. Antsiranana: Marojejy, N d’Andapa, 14°29’S, 49°38’E, coll. 21-22 Jan 1994, *F. Rasoavimbahoaka et al.* 30 (holotype: K!; isotype: MO!).

*Type.* MADAGASCAR. Madag. Centr., s.d., *R. Baron* 3063 (lectotype, designated here: K [K001040373]!; isolectotype: P [P00133472]!).

**Habit and distribution.** Shrubs; upland forests of Madagascar (Antananarivo, Antsiranana, Fianarantsoa, Mahajanga, Toamasina, Tolitara).

**Notes.** Both *Croton nitidulus* var. *microphyllus* and *C. nitidulus* var. *pubescens* from high elevations in the Marojejy massif are smaller-leaved plants than most other specimens of *C. macrobuxus*. They should be studied in further detail to determine if they should be recognized as a distinct, related species.
83. *Croton maevaranensis* Leandri, *Adansonia*, sér. 2, 9: 501. 1970

**Type.** MADAGASCAR. Prov. Antsiranana: Massif de l’Ambohimirahavavy, rebord Sud du plateau de Marofamano, 6 Feb 1951, *Service des Eaux et Forêts de Madagascar* 984-SF (lectotype, designated here: P [P00389625]!; isolectotypes: K [K000422594]!, MO [sheet #04861162], P [P00389623]!, P [P00389624]!, TAN!, TEF [TEF000186]!).

**Habit and distribution.** Trees; northern and northwestern Madagascar (Antsiranana, Mahajanga).

84. *Croton manampetsae* Leandri, *Ann. Mus. Colon. Marseille*, sér. 5, 7(1): 25. 1939

*Croton manampetsae* var. *angustifolius* Radcl.-Sm., Gen. *Croton Madag. Comoro* 27. 2016, *syn. nov.*

**Type.** MADAGASCAR. Prov. Toliara: Beza Mahafaly Reserve, near Betioky, 23°41’S, 44°35’E, 28 Oct 1987, *P.B. Phillipson 2473* (holotype: K; isotypes: MO, P [P00133494]!).

*Croton manampetsae* var. *chaetogyne* Radcl.-Sm., Gen. *Croton Madag. Comoro* 27. 2016, *syn. nov.*

**Type.** MADAGASCAR. Prov. Toliara: Fort Dauphin, Ranopiso, Manatalinjo, Réserve Naturelle Intégrale d’Andohahela, 24°49’S, 46°37’E, 26-30 Oct 1994, *S. Eboroke 875* (holotype: K; isotypes: MO, P [P004533495]!).

**Type.** MADAGASCAR. Prov. Toliara: Lac Manampetsa, Apr 1933, *H. Perrier de la Bâthie 19087* (lectotype, designated here: P [P00133491]!; isolectotypes: K [K001040386]!, P [P00133492]!).

**Habit and distribution.** Shrubs; southern Madagascar (Toliara).

**Notes.** Except for *Croton manampetsae* var. *lepidotus* (see Incertae Sedis section), the varieties recognized by Radcliffe-Smith (2016) appear to be inconsequential forms of the same species, with minor variations in pubescence and leaf shape.

85. *Croton mauritianus* Lam., *Encycl.* 2: 206. 1786

*Halecus mauritianus* (Lam.) Raf., *Sylva Tellur.*: 62. 1838.

**Type:** Based on *Croton mauritianus* Lam.

*Klotzschiphytum mauritianum* (Lam.) Baill., *Étude Euphorb.*: 383. 1858.

**Type:** Based on *Croton mauritianus* Lam.

*Oxydectes mauritiana* (Lam.) Kuntze, *Revis. Gen. Pl.* 2: 612. 1891.

**Type:** Based on *Croton mauritianus* Lam.

**Type.** RÉUNION [French Overseas Department]: Île de Bourbon, s.d., *P. Com- merson s.n.* (holotype: P-LA [P00382069]!; isotypes: G-DC [G00311200]!,
G [G00446393]!, G [G00446394]!, MPU [MPU014846]!, MPU [MPU014847]!, MPU [MPU014848]!, P [P00121732]!, P [P00404317]!, P-JU Catal. 16377!, P [P00404321]!, P [P00404316]!, P [P00404318]!; possible isotypes, K [K001040358]!, P [P00404319]!, P [P00404320]!).

**Habit and distribution.** Large shrubs or small trees; restricted to the island of Réunion.

**Notes.** Lamarck clearly attributed this species to the Île de Bourbon, the former name of Réunion, so it is unclear why he named it “mauritianus.” At the time of Lamarck’s publication, both Réunion (Île de Bourbon) and Mauritius (Île de France) were occupied by the French, and Réunion was administered out of Port Louis, Mauritius. So perhaps Lamarck used the name in a general sense for the islands administered out of Mauritius.

*Croton mauritianus* Lam. is the type of *Croton* sect. *Klotzschiphytum* Baill. (Baillon, 1861), which is one of the few described sections of *Croton* with an Old World species as its type.

### 86. *Croton mavoravina* Leandri, *Ann. Mus. Colon. Marseille*, sér. 5, 7(1): 25. 1939

*Croton capuronii* Leandri, Bull. Soc. Bot. France 103: 604. 1957 [‘1956’].

**Type.** MADAGASCAR. Prov. Toliara: Anosy Region: environs de Bevilany, route Ambovombe-Fort Dauphin, 23 Sep 1953, *R. Capuron 8493bis* (lectotype, designated here: P [P00312141]!; isolectotype: P [P00347487]!). MADAGASCAR. Prov. Toliara: environs de Fort Dauphin, près de Bevilany, 14 Sep 1928, *H. Humbert & C.F. Swingle 5673* (syntypes: G, K, P [P00133508]!).

*Croton mavoravina* var. *gracilis* Radcl.-Sm., Gen. Croton Madag. Comoro 31. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Toliara: Beza Mahafaly Reserve near Betioky, 23°40’S, 44°35’E, 5 Jan 1988, *P.B. Phillipson 2785* (holotype: K; isotypes: MO, P [P00133515]!).

*Croton mavoravina* var. *gymnolepis* Radcl.-Sm., Gen. Croton Madag. Comoro 32. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Toliara: District d’Amboasary, Canton de Tranomaro, Ambatomika, 25 May 1957, *G. Cours 5221* (holotype: P [P00133507]!).

*Croton mavoravina* var. *imanombensis* Radcl.-Sm., Gen. Croton Madag. Comoro 32. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Toliara: Imanombo, Nov 1952, *J.M. Bosser 3837* (holotype: P [P00133495]!).

*Croton mavoravina* var. *rotundifolius* Radcl.-Sm., Gen. Croton Madag. Comoro 32. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Toliara: Beza Mahafaly Reserve near Betioky, hills E of the Sakamena River, valley of the Ambinda stream, 23°40’S, 44°39’E, 26 Oct 1987, *P.B. Phillipson 2450* (holotype: K; isotypes: MO, P [P00133513]!).
**Type.** MADAGASCAR. Prov. Toliara: de Tsivory à Anadabolava, Mandrare moyen, 300-400 m, Dec 1933, H. Humbert 12319 (lectotype, designated here: P [P00312342]!; isolectotype: P [P00133510]!).

**Habit and distribution.** Shrubs; southern Madagascar (Toliara).

**Notes.** A fourth variety of *Croton mavoravina* that was described by Radcliffe-Smith (2016) as *C. mavoravina var. thysanolepis* is not part of this species at all, but rather is a synonym of *C. crossolepis*.

**87. Croton mayottae** P.E.Berry & Kainul., Candollea 72: 392. 2017

*Croton regeneratrix* var. *mayottensis* Radcl.-Sm., Gen. Croton Madag. Comoro 202. 2016.

**Type.** MAYOTTE [FRENCH OVERSEAS DEPARTMENT]: Rassi Maoussi, 30 m, 24 Apr 997, O. Pascal 915 (holotype: K!; isotypes: BR, G!, K, MAO!, MO!, P [P00144592]!; WAG).

**Type.** MAYOTTE [FRENCH OVERSEAS DEPARTMENT]: Grande-Terre, Chiconi, village, 16 Jan 2001, F. Barthelat, M’Changama & A.B. Sifary 225 (holotype: P [P00229211]!; isotypes: G!, K!, MAO!, MO!).

**Habit and distribution.** Shrubs; endemic to the island of Mayotte in the Comoro Islands.

**88. Croton menabeensis** Leandri, Adansonia, sér. 2, 12: 68. 1972

*Croton subaemulans* var. *minor* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 82. 1939, **syn. nov.**

**Type.** MADAGASCAR. Prov. Mahajanga: caisse d’Ankara, Kamakama, Dec 1900, H. Perrier de la Bâthie 9814 (lectotype, designated here: P [P00133377]!; isolectotype: P [P00133376]!). MADAGASCAR. Prov. Mahajanga: embouchure de la Soahanina, Tsiamphihy, 15 Oct 1932, J. Leandri 298 (syntypes: K [K001040361]!, P [P00133370]!).

*Croton delicatulus* Radcl.-Sm., Gen. Croton Madag. Comoro 20. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Mahajanga: station forestière d’Ampijoroa, ca. 3 km N d’Andranofasika, 16°20’S, 46°51’E, 8 Apr 1984, L. Dorr & L. Koenders 2962 (holotype: P [P00131505]!; isotypes: K!, MO!).

*Croton neooholstiifolius* Radcl.-Sm., Gen. Croton Madag. Comoro 120. 2016, **syn. nov.**

**Type.** MADAGASCAR. Prov. Mahajanga: Tsingy de Bemaraha, Antsalova-Tsiandro Berano, 18°39’S, 44°44’E, 24 Nov 1992, J. Labat, T. Deroin, R. Edmond, H. Rabarion & O. Laivao 2153 (holotype: K!; isotype: P [P05606030]!).

**Type.** MADAGASCAR. Prov. Mahajanga: Antsingy, vers Andobo (E d’Antsalova), vers Tsiandro, 300 m, 5-8 Feb 1960, J. Leandri & P. Saboureau 3021bis (lectotype, designated here: P [P00389507]!; isolectotype: P [P00132918]!).

**Habit and distribution.** Shrubs; western Madagascar (Mahajanga, Toliara).
89. *Croton menarandrae* Leandri, *Adansonia*, sér. 2, 10: 189. 1970

*Croton menarandrae* var. *pubescens* Radcl.-Sm., Gen. *Croton* Madag. Comoro 87. 2016, syn. nov.

**Type.** MADAGASCAR. Prov. Toliara: Environs d’Ampandrandava, entre Bekily et Tsivory, Oct 1942, *A. Seyrig 139bis* (holotype: P [P00154452]!).

**Type.** MADAGASCAR. Prov. Toliara: Berge Menarandra, Ampanihy, 25 Sep 1953, *Service Forestier 8273* (lectotype, designated here: P [P00347525]!; isolectotypes: P [P00132921]!, TEF [TEF000187]!).

**Habit and distribution.** Shrubs; southern Madagascar (Toliara).

90. *Croton meridionalis* Leandri, *Ann. Mus. Colon. Marseille*, sér. 5, 7(1): 59. 1939

*Croton sublinearis* Leandri, *Ann. Mus. Colon. Marseille*, sér. 5, 7(1): 60. 1939.

**Type.** MADAGASCAR. Prov. Toliara: Lahimanara, env. d’Ambomombe, 8 Jun 1931, *R. Decary 8991* (holotype: P [P00133597]!; isotypes: G [G00018136]!, K [K001040363]!, S [S07-16870], TAN).

*Croton tranomarensis* Leandri, *Ann. Mus. Colon. Marseille*, sér. 5, 7(1): 60. 1939, syn. nov.

**Type.** MADAGASCAR. Prov. Toliara: Anosy Region, Tranomaro, au NE d’Ambomombe, 19 Jun 1931, *R. Decary 9022* (lectotype, designated here: P [P00133389]!; isolectotypes: G [G00018135]!, K [K001040392]!, S [S07-16871], TAN [TAN000544]).

*Croton meridionalis* var. *pseudolepidotus* Radcl.-Sm., Gen. *Croton* Madag. Comoro 194. 2016, syn. nov.

**Type.** MADAGASCAR. Prov. Fianarantsoa: 47–49 km SE of Ihosy on the road to Ivo-hibe, 5 Nov 1967, *L. Bernardi 11179* (holotype: K!; isotypes: G!, P [P00154376]!).

**Type.** MADAGASCAR. Prov. Toliara: bassin supérieur du Mandrare (Sud-Est), vallée de l’Isalo, environs de Fanjahira 300–400 m, 23–24 Nov 1928, *H. Humbert 6798* (lectotype, designated here: P [P00132929]!; isolectotypes: G [G00018153]!, P [P00132929]!). MADAGASCAR. Prov. Toliara: plateaux et vallées de l’Isalo, environs de Fanjahira 300–600 m, 9–12 Oct 1924, *H. Humbert 2737* (syntype: P [P00132928]!). MADAGASCAR. Prov. Toliara: Vallée de l’Onilahy, aux environs de Tongobory, 100–200 m, 1–8 Oct 1924, *H. Humbert 2737* (syntypes: G [G00018154]!, P [P00132927]!).

**Habit and distribution.** Shrubs; southern Madagascar (Fianarantsoa, Toliara).

**Notes.** Most individuals of this species have pairs of falcate, foliaceous, clasping stipules and stellate pubescence. Plants with similar stipules, but usually broader and more silvery-lepidote lower leaf surfaces were described under *Croton meridionalis* var. *latifolius* and *C. meridionalis* var. *stipularis*, which may represent a different species (see Incertae Sedis).
91. *Croton miarensis* Leandri, *Adansonia*, sér. 2, 9: 504. 1970

*Croton peltieri* Leandri, *Adansonia*, sér. 2, 10: 184. 1970, **syn. nov.**

*Type.* MADAGASCAR. Prov. Toliara: Lac Manampetsa (“Tsimanampetsotsa”), 23 Oct 1940, *R. Decary* 16060 (lectotype, designated here: P [P00338571]!; isolecotypes: P [P00154280]!, P [P00154281]!).

*Croton peltieri* var. *hazofotsiensis* Radcl.-Sm., *Gen. Croton Madag. Comoro* 74. 2016, **syn. nov.**

*Type.* MADAGASCAR. Prov. Toliara: Hazofotsy Reserve 11, 28 Apr 1971, *A. Richard* 123 (holotype: K!).

*Croton miarensis* var. *monadenius* Radcl.-Sm., *Gen. Croton Madag. Comoro* 76. 2016, **syn. nov.**

*Type.* MADAGASCAR. Prov. Toliara: Cap Sainte-Marie et environs Nord du Cap, 17 Dec 1968, *Service Forestier* 28552-SF (lectotype, designated here: P [P00154277]!; isolecotype: P [P00154276]!).

*Habit and distribution.* Shrubs; southern Madagascar (Toliara).

*Notes.* This is a very distinctive species from southern Madagascar with silvery, ovate, long-petiolate leaves that usually have a single acropetiolar gland. It is also very unusual in having 1- or 2-locular capsules, and the branching is strongly dichotomous. All of the taxa placed here in synonymy share these features.

92. *Croton milanjensis* Leandri, *Adansonia*, sér. 2, 12: 66. 1972

*Type.* MADAGASCAR. Prov. Mahajanga: Milanja, près de Soalala, 18 Nov 1954, *Conservation de Réserves Naturelles* 6863RN (holotype: P [P00389506]!).

*Habit and distribution.* Shrubs; western Madagascar (Mahajanga).

93. *Croton minimimarginiglandulosus* Radcl.-Sm., *Gen. Croton Madag. Comoro* 18. 2016.

*Croton fianarantsoae* var. *ambremontanus* Radcl.-Sm., *Gen. Croton Madag. Comoro* 153. 2016, **syn. nov.**

*Type.* MADAGASCAR. Prov. Antsiranana: National Park of Montagne d’Ambre, path from station to Bianamalo, 12°32’S, 49°10’E, 1120 m, 4 Jun 1989, *B. Du Puy, D. Du Puy, & G. Guy* 218 (holotype: K!; isotype: P [P00060699]!).

*Croton ivohibensis* var. *aesculops* Radcl.-Sm., *Gen. Croton Madag. Comoro* 148. 2016, **syn. nov.**
Type. Madagascar. Prov. Antsiranana: Reserve Spéciale d’Ankarana, 12°54’43”S, 49°06’39”E, 19 Feb 1994, M. Andrianarisata et al. 43 (holotype: K!; isotypes: MO!, P [P00433266]).

Croton ivohibensis var. ankaranaensis Radcl.-Sm., Gen. Croton Madag. Comoro 148. 2016, syn. nov.
Type. Madagascar. Prov. Antsiranana: Reserve Naturelle Intégrale d’Ankarana, 12°51’S, 49°05’E, 18 May 1987, M. Nicoll & J.P. Abraham 684 (holotype: K!; isotypes: MICH [MICH1514788]!, MO!, P [P00133271]).

Croton thouarsianus var. macrocalyx Radcl.-Sm., Gen. Croton Madag. Comoro 183. 2016, syn. nov.
Type. Madagascar. Antsiranana: Ankarana Reserve, Tsingy area, 12°54’42”S, 49°06’42”E, 22 May 1993, C.C.H. Jongkind & S. Rapanarivo 960 (holotype: K!; isotypes: MICH [MICH1514787]!, MO!, P [P00433151]).

Type. Madagascar. Prov. Antsiranana: au sud d’Antsiranana, près de Joffreville dans le Parc National de Montagne d’Ambre, 12°27’S, 49°13’E, 3-10 Aug 1993, O. Andri-anantoanina & Rocseotchelher 283 (holotype: K!; isotype: MO!).

Habit and distribution. Shrubs; northern Madagascar (Antsiranana).

Notes. This species is restricted to Montagne d’Ambre and tsingy habitats in the Ankarana Special Reserve. It has somewhat anisophyllous terminal leaves like C. thouarsianus, but the calyx of the pistillate flowers is much larger and more accrescent in fruit, with a long pedicel. Plants vary considerably in pubescence, with some hirsute stems in the type of C. thouarsianus var. macrocalyx. Quoting from Radcliffe-Smith (2016), “The admittedly rather cumbersome name, of 10 syllables & 24 letters, can be justified on the grounds of the distinctive minute ogivaliform marginal glands to be found on the otherwise entire leaf-margins of this species. The name is not occupied in the genus.” No surprise there!

94. Croton mocquerysii Aug.DC., Bull. Herb. Boissier, sér. 2, 1: 565. 1901, as ‘moquerysi’

Type. Madagascar. Prov. Toamasina: Maroa [Maroantsetra], forêts à l’intérieur de la baie d’Antongil, 1897, A. Mocquerys 256 (holotype: G [G00018152]!; isotype: Z [Z-000015988]!).

Habit and distribution. Shrubs or small trees; eastern lowland Madagascar (Antsiranana, Toamasina).

95. Croton mongue Baill., Adansonia 1: 158. 1861

Oxydectes mongue (Baill.) Kuntze, Revis. Gen. Pl. 2: 612. 1891.

Type. Based on Croton mongue Baill.
Croton oreades Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 72. 1939, syn. nov.
Type. MADAGASCAR. Prov. Toamasina: Analamazaotra, 800 m, Dec, H. Perrier de la Bâthie 5287 (lectotype, designated here: P [P00389513]; isolecotypes: P [P00389512], P [P00389514]). MADAGASCAR. Prov. Fianarantsoa: haute vallée de la Rienana, province de Farafangana, 3 Oct 1926, R. Decary 5563 (syntypes: K [K001040348], P [P00133687]). MADAGASCAR. Prov. Fianarantsoa: Sud-Est de Fianarantsoa, 1000-1200 m, 27 Oct 1926, R. Decary 5842 (syntypes: P [P00133688], S [S07-17117]).

Croton oreades var. occidentalis Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 73. 1939, syn. nov.
Type. MADAGASCAR. Prov. Mahajanga: plateau de Miangaka [Marangaka, Ankaizina], 1000 m, Dec 1922, H. Perrier de la Bâthie 15130 (lectotype, designated here: P [P00133691]; isolecotype: P [P00133690]).

Croton mongue var. vatambensis Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 72. 1939.
Type. MADAGASCAR. Prov. Toliara: Vatambe, Fort-Dauphin, 7 Sep 1932, R. Decary 10601 (holotype: P [P00132950], isotypes: K [K001040389], TAN [TAN000537]).

Croton mongue var. borealis Radcl.-Sm., Gen. Croton Madag. Comoro 131. 2016, syn. nov.
Type. MADAGASCAR. Prov. Antsiranana: Réserve Naturelle Intégrale no. 12 de Marojejy, le long d’un affluent de la rivière Manantenina, 11 km NW de village Manantenina, 14°26’S, 49°44’E, 1220 m, 27 Oct 1996, P.J. Rakotomalaza, N. Messner & D. Ravelonarivo 793 (holotype: K!, isotypes: MO!, P [P00433430]).

Croton oreades var. ceraspedadenius Radcl.-Sm., Gen. Croton Madag. Comoro 132. 2016, syn. nov.
Type. MADAGASCAR. Prov. Antsiranana: Andapa, Ambalamanasy II, Andasibe Kobaahina, suivant la piste entre Andasibe Kobahina et Andranovola, dans la Réserve Naturelle Intégrale de Marojejy, 14°31’S, 49°38’E, 603 m, 1-3 Feb 1994, F. Rasoavimbahoaka et al. 86 (holotype: K!, isotypes: MO!, P [P00433034]).

Croton oreades var. periphoradenius Radcl.-Sm., Gen. Croton Madag. Comoro 133. 2016, syn. nov.
Type. MADAGASCAR. Prov. Fianarantsoa: Ampamaherana, 29 Sep 1949, Service Forêstier 2033-SF (holotype: P [P00132967]).

Type. MADAGASCAR. sin. loc., s.d., L.A. Chapelier s.n. (lectotype, designated here: P [P00132944]; isolecotype: P [P00132945]).

Habit and distribution. Trees; montane forests of Madagascar (Antananarivo, Antsiranana, Fianarantsoa, Mahajanga, Toamasina, Toliara).
Notes. It is surprising to us that neither Leandri (1939) nor Radcliffe-Smith (2016) realized that *Croton oreades* is not distinct from *C. mongue*. This is the largest tree species among Malagasy *Croton*, and it is widespread in moist, montane forests.

96. *Croton multicostatus* Müll.Arg., *Linnaea* 34: 79 (1865)

*Oxydectes multicostata* (Müll.Arg.) Kuntze, Revis. Gen. Pl. 2: 612. 1891.
Type: Based on *Croton multicostatus* Müll.Arg.

*Croton vernicosus* Baker in *J. Linn. Soc.*, Bot. 22: 519. 1887.
Type. MADAGASCAR. sin. loc., s.d., *R. Baron 4935* (lectotype, designated here: K [K000347500]!, isolectotype: K [K000347498]!).

*Croton sclerodorus* Baill., Bull. Mens. Soc. Linn. Paris 2: 968. 1891, as ‘sclerodorum’.
Type. Madagascar. sin. loc., s.d., *R. Baron 4735* (holotype: P [P00133318]!).

Type. MADAGASCAR. Prov. Toliara: Fort Dauphin, no collector indicated, (holotype: P-JU [Catalogue # 16338]!; isotype: Madagascar j. maut. No. 39, P-LA [P00382066]!).

Habit and distribution. Large shrubs or small trees; southeastern Madagascar (Toliara, possibly also in Fianarantsoa).

Notes. See Berry and Van Ee (2011) for a discussion of how Müller (1865) mistook the type locality of *Croton multicostatus* for the Caribbean (Hispaniola) rather than for Madagascar. In that paper, we attributed both the P-JU and P-LA sheets as being a Philibert Commerson collection, but more likely these were collected by Franz Wilhelm Sieber, who visited Madagascar between 1822 and 1825, and included them under his series “j. maut.”, as indicated on the P-LA sheet.

97. *Croton muricatus* Vahl in E.F. Geiseler, *Croton* Monogr.: 47. 1807

*Oxydectes muricata* (Vahl) Kuntze, Revis. Gen. Pl. 2: 612. 1891.
Type. Based on *Croton muricatus* Vahl in E.F. Geiseler

*Croton denisii* Leandri, *Bull. Mus. Natl. Hist. Nat.*, sér. 2, 3: 367. 1931, as ‘denisi’, syn. nov.
Type. MADAGASCAR. Prov. Toliara: Behara, 9 Jul 1926, *R. Decary 4320* (holotype: P [P00389632]!).

*Croton bastardii* var. *meridionalis* Radcl.-Sm., Gen. Croton Madag. Comoro 204. 2016, syn. nov.
Type. MADAGASCAR. Prov. Toliara: Antanimora, Dec 1959, *J. Bosser 13913* (holotype: P [P00133042]!; isotype: [P00133041]!).

*Croton decaryi* var. *subglaber* Radcl.-Sm., Gen. Croton Madag. Comoro 124. 2016, syn. nov.
Type. MADAGASCAR. Prov. Toliara: Antanimora, Dec 1959, *J. Bosser 13913* (holotype: P [P00133041]!; isotype: P [P00133042]!).
Type. MADAGASCAR. sin. loc., s.d., P. Commerson s.n. (holotype: P-JU [Catal. # 16373]), isotype: P [P00312343]).

Habit and distribution. Shrubs; southern Madagascar (Toliara).

Notes. Different sheets of the same collection were designated as types of Croton bastardii var. meridionalis and C. decaryi var. subglaber by Radcliffe-Smith (2016). Both clearly belong to the Adenophorus Group and are placed here in synonymy.

98. Croton myriaster Baker, J. Bot. 20: 268. 1882

Croton calomeris Baill., Bull. Mens. Soc. Linn. Paris 2: 860. 1890.

Type. MADAGASCAR. Madag. centr., s.d., R. Baron 5929 (lectotype, designated here: P [P00132997]); isolecotypes: K [K001040364], P [P00132998]).

Croton myriaster var. austromadecassus Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 58. 1939, as ‘austromadecassa’.

Type. MADAGASCAR. Prov. Fianarantsoa: Pic d’Ivohibe (Bara), 1500-2000 m, 5-11 Nov 1924, Humbert 3198 (lectotype, designated here: P [P00224708]); isolecotypes: P [P00338294], TAN [TAN000538]). MADAGASCAR. Prov. Fianarantsoa: Befotaka (Prov. de Farafangana), 20 Aug 1926, R. Decary 5147 (syntype: P [P00133001]). MADAGASCAR. Prov. Fianarantsoa: Massif d’Andringitra, 1700 m, Sep 1911, H. Perrier de la Bâthie 9762 (syntype: P [P00133016]). MADAGASCAR. Prov. Fianarantsoa: haute vallée de la Rienana (Bassin du Matitanana), 1000-1400 m, 18-22 Nov 1924, H. Humbert 3624 (syntype: P [P00133005]).

MADAGASCAR. Prov. Toliara: Massif du Beampingaratra, vallée de la Maloto, 800-1500 m, 31 Oct-1 Nov 1938, H. Humbert 6328 (syntypes: P [P00133008], US [US01050275]). MADAGASCAR. Prov. Toliara: Massif de l’Andohahela, 1800-1979 m, 21-22 Oct 1928, H. Humbert 6213 (syntype: P [P00133007]).

MADAGASCAR. Prov. Fianarantsoa: Massif de l’Ikongo (Prov. de Farafangana), 17 Oct 1926, R. Decary 5692 (syntype: P [P00133002]). MADAGASCAR. Prov. Fianarantsoa: Massif de l’Ikongo (Prov. de Farafangana), 17 Oct 1926, R. Decary 5779 (syntype: P [P00133003]).

Croton regeneratrix var. ranomafanae Radcl.-Sm., Gen. Croton Madag. Comoro 202. 2016, syn. nov.

Type. MADAGASCAR. Prov. Fianarantsoa: W of Ranomafana, Parc National Ranomafana, 21°16’S, 47°28’E, 900-1100 m, 8-10 Sep 1992, S. Malcomber & R. Rakoto 1551 (holotype: K!; isotype: MO!).

Type. MADAGASCAR. sin. loc., s.d., R. Baron 223 (lectotype, designated here: K [K000422585]); isolecotypes: [K000422584], P [P00132995]).

Habit and distribution. Trees; montane forests of Madagascar (Antananarivo, Antsiranana, Fianarantsoa, Mahajanga, Toamasina, Toliara).
99. *Croton nitidulus* Baker, J. Linn. Soc., Bot. 20: 253. 1883

*Croton microprunus* Baill., Bull. Mens. Soc. Linn. Paris 2: 861. 1890.
   Type. MADAGASCAR. Prov. Toamasina: Alaotra-Mangoro Region, Didy, 14 Aug 1889, *L.D.M. Catat* 1812 (holotype: P [P00132942]).

*Croton macrochlamys* Baill., Bull. Mens. Soc. Linn. Paris 2: 863. 1890.
   Type. MADAGASCAR. sin. loc., s.d., *R. Baron* 4074 (holotype: K [K001040393]).

*Croton fuscirameus* Baill., Bull. Mens. Soc. Linn. Paris 2: 927. 1891.
   Type. MADAGASCAR. “Central Madagascar, received Dec 1883, *R. Baron* 2988 (lectotype, designated here: K [K001040379]); isolectotype: P [P00154398]).

*Croton nitidulus* var. *meridionalis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 39. 1939.
   Type. MADAGASCAR. Prov. Fianarantsoa: Chaîne du Vohibory, à l’Ouest d’Ivohibe, 1000-1300 m, 1 Nov 1924, *H. Humbert* 3051bis (lectotype, designated here: P [P00133622]); isolectotypes: G [G00446406]!, K [K001040388, K001040390]!. MADAGASCAR. Prov. Fianarantsoa: haute vallée de l’Iantara, bassin du Manampatra, 500-800 m, 16-17 Nov 1924, *H. Humbert* 3433 (syntype: P [P00133623]).

*Croton nitidulus* var. *parvifolius* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 39. 1939, as ‘*parvifolia*’.
   Type. MADAGASCAR. Prov. Antsiranana: Analamahitso (haut Bemarivo), 1000 m, Aug 1907, *H. Perrier de la Bâthie* 9534 (holotype: P [P00133648]).

*Croton nitidulus* var. *spatulatus* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 40. 1939, as ‘*spatulata*’.
   Type. MADAGASCAR. Prov. Toamasina: Bassin de l’Onive, Mangoro, forêt d’Andasibe, 1000 m, Nov 1911, *H. Perrier de la Bâthie* 9659 (lectotype, designated here: P [P00133626]); isolectotypes: P [P00133627], P [P00133628]!

*Croton nitidulus* var. *fuscirameus* (Baill.) Radcl.-Sm., Gen. Croton Madag. Comoro 171. 2016.
   Type. Based on *Croton fuscirameus* Baill.

*Croton bracteatus* subsp. *manongarivensis* Radcl.-Sm., Gen. Croton Madag. Comoro 137. 2016, *syn. nov.*
   Type. MADAGASCAR. Prov. Antsiranana: Manongarivo Massif, above Ambodisa-koana, E of Ankaramy, 14°05’S, 48°20’E, 17 Oct 1994, *G. McPherson & H. van der Werff* 16377 (holotype: K!; isotype: MO!).

*Croton nitidulus* subsp. *angustiglans* Radcl.-Sm., Gen. Croton Madag. Comoro 170. 2016, *syn. nov.*
   Type. MADAGASCAR. Prov. Toamasina: Route d’Anjiro-Moramanga (M28), Nov 1938, *G. Cours* 813 (holotype: P [P00148095]).

*Croton nitidulus* subsp. *bekolosiensis* Radcl.-Sm., Gen. Croton Madag. Comoro 170. 2016, *syn. nov.*
   Type. MADAGASCAR. Prov. Antsiranana: Réserve Spéciale de Manongarivo, R. Bekolosy, 1180 m, 14°02’S, 48°18’E, 16 May 1995, *L. Gautier & C. Chatelain* LG2681 (holotype: K!; isotype: G!).
**Type.** MADAGASCAR. Madag. Centr., s.d., R. Baron 1302 (lectotype, designated here: K [K000347491]!; isoelectotype: P [P00133607]!). MADAGASCAR. Madag. Centr., s.d., R. Baron 1349 (syntypes: K [K000347490]!, P [P00133610]!, P [P00133611]!).

**Habit and distribution.** Shrubs; montane forests of eastern and central Madagascar (Antsiranana, Antananarivo, Fianarantsoa, Toamasina, Toliara).

100. *Croton nobilis* Baill., *Adansonia* 1: 148. 1861, as ‘*nobile’*

*Oxydectes nobilis* (Baill.) Kuntze, Revis. Gen. Pl. 2: 612. 1891.

**Type.** Based on *Croton nobilis* Baill.

**Type.** MADAGASCAR. sin. loc., s.d., L.M.A. Dupetit-Thouars s.n. (lectotype, designated here: P [P00133651]!; isoelectotypes: P [P00133652]!, P [P00312353]!). MADAGASCAR. Prov. Toliara: Anosy Region, southern slopes of Col de Maningotry, road to Ranomafana, 150 m, 16 Feb 2009, B. van Ee, P.E. Berry, B.L. Dorsey & H. Razanatsoa 938 (epitype, designated here: MICH [MICH1514784]!; additional duplicates: MO, P, TAN).

**Habit and distribution.** Trees; submontane moist forests of southeastern Madagascar (Toliara).

**Notes.** The existing syntypes of *Croton nobilis* at P are all large-leaved (most around 18 × 7 cm), sterile branches. They are consistent with oversized sucker shoots that can sometimes be found on basal growth or regrowth of cut trees. The leaves on these specimens also resemble sucker leaves of *C. chrysodaphne*, which comes from eastern coastal Madagascar. However, Baillon (1861) clearly stated in the protologue that the staminate flowers of *C. nobilis* have five petals (the normal state in *Croton*), whereas *C. chrysodaphne* usually has ten (Berry et al. 2011). Also, the pistillate sepals of *C. chrysodaphne* are described by Baillon (1861) as being oblong and entire, whereas those of *C. nobilis* are broad, squat, and reduplicate (Berry, pers. obs.). The lectotype chosen here contains a packet labeled “Flores,” with only a small fragment of an inflorescence with an irregularly flattened and straight rachis, but lacking any recognizable floral parts that can be reconstructed. The inflorescences of *C. chrysodaphne* tend to be more slender, subterete, and curved, and this fragment does not fit that profile. Finally, Du Petit-Thouars spent six months in the Fort Dauphin area between 1792 and 1793 (Dorr 1997), so this would be consistent with the limited localities where *C. nobilis* occurs to the northwest of Fort Dauphin. We therefore conclude that the Dupetit-Thouars collections are consistent with the tree species that has subsequently been collected in moist, mid-elevation forests in the area that is now part of Andohahela National Park, named *C. nobilis*. To stabilize better this concept of *C. nobilis*, we designate here a modern epitype that has also been photographed in situ (viz., Fig. 1B) and sequenced for molecular phylogenetic studies (Haber et al. 2017).
101. *Croton noronhae* Baill., *Adansonia* 1: 162. 1861

*Oxydectes noronhae* (Baill.) Kuntze, *Revis. Gen. Pl.* 2: 612. 1891.

**Type.** Based on *Croton noronhae* Baill.

**type.** **Madagascar.** Prov. Toamasina: Côte est, s.d., *L.A. Chapelier s.n.* (lectotype, designated here: P [P00133669]); isolecotypes: MPU [MPU014849]!, P [P00133668]). **Madagascar.** Prov. Toamasina: Foulpointe, *F. Noronha s.n.* (syntypes: G [G00018150]!, G-DC [G00311743]; ibid. loc., *W. Bojer s.n.* (syntypes: K [K001040398]!, P [P00133664]!). **Madagascar.** sin. loc., *L.M.A. Du Petit-Thouars s.n.* (syntypes: P [P00133680]!, P [P00133681]!).

**Habit and distribution.** Shrubs; eastern coastal Madagascar (Fianarantsoa, Toamasina).

**Notes.** A *Bojer s.n.* specimen at G-DC (G00311742) has a label that states “Insula Mauritius, M. Bojer 1833,” and is indicated as a type. The only *Bojer* specimen cited in the protologue of *Croton noronhae* (Baillon 1861) is identified as being from Foulpointe, Madagascar, and is cited from P (“h. Mus.”). Although the Geneva specimen appears to be correctly identified as *C. noronhae*, that species is not known from Mauritius. Perhaps it was from a plant native to Madagascar that was cultivated in Mauritius, as was the case with the type of *C. anisatus*.

102. *Croton nudatus* Baill., *Adansonia* 1: 168. 1861, as ‘*nudatum*’

*Oxydectes nudata* (Baill.) Kuntze, *Revis. Gen. Pl.* 2: 612. 1891.

**Type.** Based on *Croton nudatus* Baill.

*Croton boivininganus* var. *brevifolius* Radcl.-Sm., *Gen. Croton Madag. Comoro* 12. 2016.

**Type.** **Madagascar.** Prov. Antsiranana: Fivonandra Antsiranana II, 79 km au Sud d’Antsiranana par route RN6, et 15 km à l’Est de l’ancien chantier du Colas à Marotaolana, Campement à l’Est du village d’Ampantsona, 12°51’20”S, 49°18’10”E, 394–551 m, 3–6 Jun 1997, *O. Andrianantoanina & R. Bezara 1068* (holotype: K!; isotypes: G!, MO!, P [P00433267]!).

*Croton hirsutissimus* Radcl.-Sm., *Gen. Croton Madag. Comoro* 99. 2016.

**Type.** **Madagascar.** Prov. Antsiranana: versant Est du Massif de l’Ankerana (partie S du Massif de Mafokovo, au N de Vohémar), 50-400 m, 17 Dec 1966, *Service Forestier 27363-SF* (holotype: P [P00154439]!).

*Croton menabeensis* var. *furfuraceus* Radcl.-Sm., *Gen. Croton Madag. Comoro* 101. 2016.

**Type.** **Madagascar.** Prov. Mahajanga: Sofia Region, Antsoihy District, Antsatrahana, Bora, 17 Jul 1970, *Service Forestier 30011* (holotype: P [P00154438]!).

**Type.** **Madagascar.** Prov. Antsiranana: Diana Region, Baie de Diego-Suarès, Dec 1848, *L.H. Boivin 2659* (holotype: P [P00389489]!). **Madagascar.** Prov. Antsiranana:
Diana Region, Antsiranana II, Orangea, road going uphill from military checkpoint at entrance to Orangea, 12°14’08”S, 49°21’40”E, 50 m, 25 Oct 2009, B. van Ee, P.E. Berry, K.J. Wurdack, E.A. Haber & H. Razafindraibe 1081 (epitype, designated by Kai-nulainen et al. 2017b, pg. 374: MICH [MICH1517189]!; additional duplicate: TAN).

**Habit and distribution.** Shrubs; northern and western Madagascar (Antsiranana, Mahajanga).

103. *Croton orangeae* Kainul. & P.E.Berry, Candollea 72: 394. 2017

**Type.** MADAGASCAR. Prov. Antsiranana: Diana Region, Ramena, Ankorikakely, Baie des Sakalava, 12°16’40”S, 49°23’01”E, 25 m, 9 Dec 2004, J. Razafitsalama et al. 692 (holo-type: MICH [MICH1517188]!; isotypes: CNARP!, MO!, P [P05484901]!, TAN).

**Habit and distribution.** Shrubs; northern Madagascar (Antsiranana).

104. *Croton plurispicatus* P.E.Berry, Kainul. & B.W. van Ee, Candollea 71: 342. 2016

**Type.** MADAGASCAR. Prov. Toamasina. Alaotra-Mangoro Region: Moramanga District, in primary moist montane forest along road heading south from highway Route Nationale 2 towards Lakato, ca 9.8 km south by line-of-sight from RN 2, 19°03’05”S, 48°21’32”E, 1030-1060 m, 13 Aug 2015, B. van Ee, P.E. Berry & H. Razafindraibe 2198 (holotype: MICH [MICH1513198]!; isotypes: MAPR!, MO!, MICH [MICH1513199]!, P! TAN!).

**Habit and distribution.** Large shrubs or small trees; montane forests of eastern Madagascar (Toamasina).

105. *Croton promunturii* Leandri, Adansonia, sér. 2, 10: 187. 1970

**Type.** MADAGASCAR. Prov. Toliara: Cap Sainte Marie, 1-150 m, 5-7 Mar 1955, H. Humbert & R. Capuron 29220 (lectotype, designated here: P [P00312372]!; isoloectotypes: K [K000422596]!, P [P00389510], P [P00389511])

**Habit and distribution.** Shrubs; southern Madagascar (Toliara).

106. *Croton radiatus* P.E.Berry & Kainul., Candollea 71: 339. 2016 [23 Nov 2016]

_Croton dasgyne_ Radcl.-Sm., Gen. Croton Madag. Comoro 19. 2016 [23 Dec 2016], _syn. nov._

**Type.** MADAGASCAR. Prov. Toamasina: Chutes du Maningory, Lac Alaotra, s.d., Herb. Jard. Bot. Tan. 3769 (S-39) (holotype: P [P00131514]!).
Type. MADAGASCAR. Prov. Toamasina: Alaotra-Mangoro Region, Moramanga District, Commune Ambohibary, Fokontany Ampitambe, forêt Sahaevo, 18°49'59"S, 48°17'47"E, 1118 m, 11 Dec 2006, J. Razanatsoa & T. Marcellin 279 (holotype: MICH [MICH1458525]!; isotypes: MO!, TAN!).

Habit and distribution. Shrubs; eastern montane forests of Madagascar (Toamasina).

107. Croton rakotoniainii Leandri, Adansonia, sér. 2, 13: 295. 1973, as ‘rakotonianii’

Type. MADAGASCAR. Prov. Antsiranana: Ampitambarimena, Antalaha, 14 Mar 1955, Réserves Naturelles de Madagascar (Rakotoniaina) 7057 (lectotype, designated here: P [P00312373]!; isolectotypes: G [G00190674]!, K [K000422597]!, MO [sheet #04861160]), P [P00404493]!, P [P00404494]!).

Habit and distribution. Shrubs; northern Madagascar (Antsiranana).

Notes. The lectotype was annotated in Leandri’s hand as “Croton rakotoniainii”, which is in accord with the collector’s actual surname, so the spelling is corrected here from the variant it was published as.

108. Croton regeneratrix Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 62. 1939

Croton regeneratrix var. perrierianus Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 64. 1939, as ‘perrieriensis’.

Type. MADAGASCAR. Prov. Antananarivo: planté près d’Ambatolampy, provenant de l’Ankaratra, May 1921, H. Perrier de la Bâthie 13769 (lectotype, designated here: P [P00133537]!; isolectotype: P [P00133538]!).

Type. Madagascar. Prov. Fianarantsoa: versant nord du Pic d’Ivohibe, 1200-1400 m, 28 Sep 1926, R. Decary 5708 (lectotype, designated here: P [P00133532]!; isolectotypes: K [K000422586]!, P [P00394468]!).

Habit and distribution. Trees; montane forests of central Madagascar (Antananarivo, Fianarantsoa).

109. Croton sahafariensis Kainul. & P.E.Berry, Candollea 72: 395. 2017

Type. MADAGASCAR. Prov. Antsiranana: Diana Region, Sahafary forest in the Saharaina river basin, road off of RN 6 to the E towards the “red tsingy”, 12°36’19"S, 49°26’23"E, 250 m, 26 Oct 2009, B. van Ee, P.E. Berry, K.J. Wurdack, E.A. Haber, H. Razafindraibe & L.J. Razafitsalama 1089 (holotype: MICH [MICH1517187]!; isotypes: P!, TAN).

Habit and distribution. Shrubs; northern Madagascar (Antsiranana).
110. *Croton sakamaliensis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 54. 1939

*Croton sakamaliensis* var. *microphyllus* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 55. 1939, as ‘*microphylla*’.

Type. MADAGASCAR. Prov. Toliara: vallée de la Manambolo, rive gauche (Bassin du Mandrare) aux environs d’Isomono (confluent de la Sakamalio), Monts Kotoriha et Isomonobe, 400-600 m, Dec.1933-Jan 1934, *H. Humbert* 12826 (lectotype, designated here: P [P00133552]!; isolectotypes: K [K001040361]!, P [P00133551]!, P [P00133553]!).

Type. MADAGASCAR. Prov. Toliara: Vallée de Sakamalio, affluent de la Manambolo (Bassin du Mandrare), 500-800 m, Dec 1933, *H. Humbert* 13322 (lectotype, designated here: P [P00389497]!; isolectotype: P [P00133549]!).

Habit and distribution. Shrubs; southern Madagascar (Toliara).

111. *Croton salviformis* Baill., Bull. Mens. Soc. Linn. Paris 2: 926. 1891

*Croton salviformis* var. *rufopunctatus* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 57. 1939, as ‘*rufopunctata*’.

Type. MADAGASCAR. Prov. Toliara: Atsimo-Andrefana Region, du lac Manampetsa au delta de la Linta (côte Sud-Ouest), au N d’Itampolo, 1-10 m, 24-28 Aug 1928, *H. Humbert* & C.W. *Swingle* 5380 (lectotype, designated here: P [P00133569]!; isolectotype: TAN [TAN000541]!). MADAGASCAR. Prov. Toliara: Atsimo-Andrefana Region, du lac Manampetsa au delta de la Linta, 1-10 m, 17-24 Aug 1928, *H. Humbert* & C.W. *Swingle* 5297 (syntypes: G [G00446401]!, K [K001040367]!, P [P00133567]!, P [P00133568]!).

Type. MADAGASCAR. Prov. Toliara: Anosy Region, Fort-Dauphin, s.d., *G.F. Scott-Elliot* 2990 (holotype: P [P00133566]!, isotype: K [K000422583]!).

Habit and distribution. Shrubs; southern Madagascar (Toliara).

112. *Croton scoriarum* Leandri, Adansonia, sér. 2, 12: 68. 1972

*Croton bathianus* var. *ambatondrazakae* Radcl.-Sm., Gen. Croton Madag. Comoro 114. 2016.

Type. MADAGASCAR. Prov. Toamasina: Menaloha (G-3), Distr. d’Ambatondrazaka, Nov 1937, *G. Cours* 587 (holotype: P [P00127483]!).

Type. MADAGASCAR. Prov. Antsiranana-Mahajanga border: Centre, au lieu dit Analankeboka, à l’Ouest de Bealanana, 20 Nov 1966, *Service Forestier 27107-SF* (lectotype,
designated by Kainulainen et al. 2017b, pg. 398: P [P00706283]!; isolectotypes: K [K000895678]!, P [P00706284]!, TEF [TEF000183])).

**Habit and distribution.** Shrubs or small trees; northern and central Madagascar (Antsiranana, Mahajanga, Toamasina).

113. *Croton stanneus* Baill., Bull. Mens. Soc. Linn. Paris 2: 850. 1890, as ‘*stanneum*’

*Croton perrieri* Leandri, Bull. Mus. Natl. Hist. Nat., sér. 2, 3: 369. 1931.

Type. MADAGASCAR. Prov. Mahajanga: Le Berizoka [Beritsoka], Oct 1897, *H. Perrier de la Bâthie 353* (lectotype, designated by Kainulainen et al. 2017b, pg. 378: P [P00404485]!; isolectotypes: K [K001040360]!, P [P00404484], P [P00404486]!, P [P00404487]!).

*Croton baldauffii* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 55. 1939, as ‘*baldauffi*’.

Type. MADAGASCAR. Prov. Toliara: forêt de Besomaty, entre le Fiherenana et l’Isahena (Mangoky), 750-800 m, Oct 1933, *H. Humbert 11249* (lectotype, designated by Kainulainen et al. 2017b, pg. 378: P [P00301487]!; isolectotype: P [P00127468]!).

*Croton ikopae* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 83. 1939.

Type. MADAGASCAR. Prov. Antananarivo: Analamanga Region, vallée de l’Ikopa, au NW d’Ankazobe, 15 Mar 1930, *R. Decary 7554* (lectotype, designated by Kainulainen et al. 2017b, pg. 378: P [P00154394]!; isolectotypes: K [K001040362]!, P [P00154395]!, P [P00154396]!, P [P00154397]!).

*Croton crocodilorum* var. *platyaster* Radcl.-Sm., Gen. Croton Madag. Comoro 112. 2016.

Type. MADAGASCAR. Prov. Toliara: forêt du Zombitsy, près de Sakaraha, Mar 1960, *M. Keraudren 510* (holotype: P [P00154485]!).

*Croton parvifructus* Radcl.-Sm., Gen. Croton Madag. Comoro 122. 2016.

Type. MADAGASCAR. Prov. Toliara: Forêt de Zombitsy, au NE de Sakaraha (150 km NE Tuléar), 600-800 m, 2 Nov 1960, *J. Leandri & J. Ratoto 3605* (holotype: P [P00132992]!).

*Croton stanneus* var. *hirsutus* Radcl.-Sm., Gen. Croton Madag. Comoro 64. 2016.

Type. MADAGASCAR. Prov. Fianarantsoa. Andranovola, near Lomanosiny, Antambohobe Canton, Ivohibe District, 13 Aug 1967, *Service Forestier 26381* (holotype: P [P00133592]!).

**Type.** MADAGASCAR. “Madag. centr.”, received Nov 1885, *R. Baron 3382* (holotype: K [K001040368]!, isotype: P [P00133580]!).

**Habit and distribution.** Shrubs to small trees; across most of Madagascar (Antananarivo, Antsiranana, Fianarantsoa, Mahajanga, Toamasina, Toliara).

**Notes.** See Kainulainen et al. (2017b) for a discussion on the morphological variation and recircumscription of this widespread species.
114. *Croton submetallicus* Baill., Bull. Mens. Soc. Linn. Paris 2: 966. 1891, as ‘*submetallicum*’

*Croton chapelieri* var. *longepetiolata* Radcl.-Sm., Gen. Croton Madag. Comoro 152. 2016, *syn. nov.*

Type. MADAGASCAR. Prov. Toamasina: W of Vavatenina, Réserve Naturelle Intégrale Zahamena, Amboditamenaka Forest, 17°44’S, 49°00’E, 15–20 Sep 1993, *S. Malcomber B. Rasolondraibe, L.M. Randrianjanaka & J.P. Abraham 2511* (holotype: K!; isotypes: MO [MO-2990285]!, P [P00433109]!).

*Croton fianarantsoae* var. *obovalifolius* Radcl.-Sm., Gen. Croton Madag. Comoro 155. 2016, *syn. nov.*

Type. MADAGASCAR. Prov. Fianarantsoa: W of Ranomafana, 21°16’S, 47°28’E, 8–10 Sep 1992, *S. Malcomber & R. Rakoto 1550* (holotype: K; isotypes: MO, P [P00422460]!).

*Croton nitidulus* var. *acuminatus* Radcl.-Sm., Gen. Croton Madag. Comoro 169. 2016, *syn. nov.*

Type. MADAGASCAR. Prov. Toamasina: Itinéraire de Didy à Brickaville (forêt orientale), reçu Apr 1954, *G. Cours 4871* (lectotype, designated here: P [P00133641]!; isolectotypes: P [P00133639]!; P [P00133640]!; P [P00133642]!).

*Croton nitidulus* var. *cinereus* Radcl.-Sm., Gen. Croton Madag. Comoro 170. 2016, *syn. nov.*

Type. MADAGASCAR. Prov. Toamasina: Ambatovy, 18°51’34”S, 48°18’25”E, 3 Mar 1997, *P. Rakotomalaza et al. 1217* (holotype: K!; isotype: MO!).

*Croton nitidulus* var. *hypopoliotes* Radcl.-Sm., Gen. Croton Madag. Comoro 172. 2016, *syn. nov.*

Type. MADAGASCAR. “Central Madagascar”, received Dec 1883, *R. Baron s.n.* (holotype: K!).

*Croton nitidulus* var. *macrophyllus* Radcl.-Sm., Gen. Croton Madag. Comoro 172. 2016, *syn. nov.*

Type. MADAGASCAR. Prov. Toamasina: Itinéraire de Didy à Brickaville (forêt orientale), s.d., *G. Cours 4660* (lectotype, designated here: P [P00133616]!; isolectotypes: P [P00133615]!, P [P00133617]!).

*Croton submetallicus* var. *tomentosus* Radcl.-Sm., Gen. Croton Madag. Comoro 58. 2016, *syn. nov.*

Type. MADAGASCAR. Prov. Toamasina: forêt de l’Analamazaotra, reçu 3 Dec 1934, *E. Ursch 21* (holotype: P [P00133535]!).

Type. MADAGASCAR. sin. loc., s.d., *R. Baron 5286* (lectotype, designated here: K [K000422582]!; isolectotypes: K [K000422581]!, P [P00133327]!). MADAGASCAR. Prov. Toamasina: Alaotra-Mangoro Region. Forest W of Eulophiella Hotel, south of RN 2 and Andasibe, 18°59’08”S, 48°25’55”E, 900 m, 15 Aug 2015, *B. van Ee, P.E. Berry & H. Razafindraibe 2222* (epitype, designated here: MICH [MICH1514786]!; additional duplicates: G, K, MO, P, TAN, US).
Habit and distribution. Shrubs or trees; eastern montane forests of Madagascar (Fianarantsoa, Toamasina).

Notes. The type of *Croton submetallicus* is deficient for characterizing this species properly; it lacks pistillate flowers, which are very diagnostic. Therefore we are designating an epitype that is well distributed, has photographs in Tropicos®, and is also sampled molecularly. The only other described species name that could be applied here is *C. macrochlamys*, but it has a very poor type specimen, and we are treating it here as a synonym of *C. nitidulus* because of its smaller leaf size.

For *Croton nitidulus* var. *acuminatus*, Radcliffe-Smith (2016) designated *Cours 4871* at P as the holotype, but there are four nearly identical specimens of this collection at P, so we selected one of them here as lectotype. Likewise, for *C. nitidulus* var. *macrophyllus*, Radcliffe-Smith (2016) designated *Cours 4660* at P as the holotype, but since there are three duplicates of that collection there, we selected one of them as the lectotype.

115. *Croton tanalorum* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 38. 1939

Type. MADAGASCAR. Prov. Fianarantsoa: Ifandana (Prov. de Farafangana), 8 Sep 1926, R. Decary 5070 (holotype: P [P00133355]!; isotypes: K [K001044840]!, TAN [TAN000543]!).

Habit and distribution. Shrubs; eastern montane forests of Madagascar (Fianarantsoa).

116. *Croton tardeflorens* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 50. 1939

Type. MADAGASCAR. Prov. Mahajanga: Ménabé, Tsingy du Bemaraha (9th Réserve), Feb 1933, J. Leandri 941 (lectotype, designated here: P [P00133358]!; isolectotypes: K [K001040355]!, P [P00133359]!, P [P00133360]!). MADAGASCAR. Prov. Mahajanga: Boïna, bords du Jabohazo près du Mont Tsitondroina, Dec 1902, H. Perrier de la Bâthie 9799 (syntypes: P [P00133361]!, P [P00133362]!, P [P00133363]!).

Habit and distribution. Shrubs; western Madagascar (Mahajanga).

117. *Croton thouarsianus* Baill., Adansonia 1: 167. 1861, as ‘thuarsianum’

*Oxydectes thouarsiana* (Baill.) Kuntze, Revis. Gen. Pl. 2: 613. 1891.

Type. Based on *Croton thouarsianus* Baill.

*Croton mocquerysii* var. *meridionalis* Radcl.-Sm. Radcl.-Sm., Gen. Croton Madag. Comoro 160. 2016, syn. nov.

Type. MADAGASCAR. Toliara Province: Réserve Naturelle Intégrale # 11, Andohahela, à vicinicity d’Eminminy, 24°40’S, 46°48’E, 13–25 Jan 1993, B. Randriamampionona 77 (holotype: K!; isotypes: MO!, P [P00433050]!).
Croton thouarsianus var. robustior Radcl.-Sm., Gen. Croton Madag. Comoro 183. 2016, syn. nov.
Type. MADAGASCAR. Toliara Province: Préfecture de Fort Dauphin, Forêt d’Analalava, Manantenina, côte Est, 1 Nov 1990, N. Dumetz 1378 (holotype: K!; isotype: MO!).

Type. MADAGASCAR: sin. loc., s.d., L.M.A. Du Petit-Thouars s.n. (lectotype, designated here: P [P00389504]; isolectotype: P [P00389505]).

Habit and distribution. Shrubs; southeastern Madagascar (Toliara).

118. Croton tiliifolius Lam., Encycl. 2: 206. 1786, as ‘tiliaefolium’

Oxydectes tiliifolia (Lam.) Kuntze, Revis. Gen. Pl. 2: 613. 1891.
Type. Based on Croton tiliifolius Lam.

Type. MAURITIUS. collector unknown [likely P. Commerson s.n.] (holotype: P-LA [P00382046]). MAURITIUS. s.d., P. Commerson s.n. (likely original material or isotype: P [P00121778]).

Habit and distribution. Trees; Mauritius.

Notes. Lamarck (1786) stated in his protologue that Croton tiliifolius is found on the islands of Mauritius and Réunion (Isles de France et de Bourbon), but we have no evidence to support its native presence on Réunion. Lamarck (1786) cited a Commerson herbarium specimen from Mauritius, and that corresponds well to the specimen in the general herbarium at P [P00121778], whereas the specimen in the Lamarck Herbarium does not list a collector or locality.

119. Croton toliarensis B.W. van Ee & Kainul., nom. nov.
urn:lsid:ipni.org:names:77167303-1

Croton tranomarensis var. rosmarinifolius Radcl.-Sm., Gen. Croton Madag. Comoro 196. 2016.
Type. MADAGASCAR. Prov. Toliara: 38 km SW of Ampanihy, on road to Androka, 24°50’S, 44°25’E, 5 Feb 1990, PB. Phillipson J.-N. Labat, D. Du Puy & B. Du Puy 3434 (holotype: K! isotypes: DAV!, G!, MO!, P [P00433298]).

Type. Based on Croton tranomarensis var. rosmarinifolius Radcl.-Sm.

Habit and distribution. Shrubs; southern Madagascar (Toliara).

Notes. The specific epithet “rosmarinifolius” is previously occupied in Croton (Croton rosmarinifolius Salisb. (1796), which is itself an illegitimate replacement name for C. cascarilla (L.) L.), hence the new name coined here. In both this species as well as the similar C. chlaeniacomes, the leaf margins often become revolute when the plant
is undergoing drought stress; that is most likely what caused the strongly inrolled margins on the type of *C. tranomarensis* var. *rosmarinifolius*.

120. *Croton trichotomus* Geiseler, *Croton. Monogr.* 50. 1807

*Croton pulchellus* Baill., *Adansonia* 1: 161. 1861, as ‘*pulchellum’*.

Type. *MADAGASCAR*, sin. loc., s.d., *J. Martin s.n.* (holotype: G [G00446399]!; isotype: P [P00133530]!).

*Oxydectes pulchella* (Baill.) Kuntze, *Revis. Gen. Pl.* 2: 612. 1891.

Type. Based on *Croton pulchellus* Baill.

*Oxydectes trichotoma* (Geiseler) Kuntze, *Revis. Gen. Pl.* 2: 613. 1891.

Type. Based on *Croton trichotomus* Geiseler

*Croton trichotomus* var. *pulchellus* (Baill.) Leandri, *Ann. Mus. Colon. Marseille*, sér. 5, 7(1): 50. 1939.

Type. Based on *Croton pulchellus* Baill.

*Croton remotiflorus* Radcl.-Sm., *Gen. Croton Madag. Comoro* 48. 2016, *syn. nov.*

Type. *MADAGASCAR*, Prov. Toliara: Réserve Intégrale # 11, Andohahela, vicinity of Eminiminy, 24°40’S, 46°48’E, 4-24 May 1993, *B. Randriamampionona* 385 (holotype: K!; isotypes: DAV!, G [G00414974]!, MICH!, MO!).

*Croton antanosiensis* var. *ambohibyi* Leandri ex Radcl.-Sm., *Gen. Croton Madag. Comoro* 42. 2016, *syn. nov.*

Type. *MADAGASCAR*, Prov. Antananarivo: Mont Ambohiby, SE de Tsiranoanomandidy, 1600 m, 11-16 Nov 1952, *J. Leandri, R. Capuron & A. Razafindrakoto* 1775 (lectotype, designated here: P [P00154305]!; isolecotypes: P [P00154302]!, P [P00154303]!, P [P00154304]!).

*Croton isomonensis* var. *microcarpus* Radcl.-Sm., *Gen. Croton Madag. Comoro* 50. 2016, *syn. nov.*

Type. *MADAGASCAR*, Prov. Fianarantsoa: Antambohobe Canton, Ivohibe Distr., 6 Mar 1962, *Réserves Naturelles 12150-RN* (holotype: P [P00154428]!).

Type. *MADAGASCAR*. “Madagascar f. maut., N° 38” (lectotype, designated here: P-LA [P00382065]!).

Habit and distribution. Shrubs; mainly an eastern coastal species of Madagascar in Toamasina and Toliara Provinces, as far south as the Fort Dauphin area, but also recorded from Antananarivo and Fianarantsoa Provinces in upland forests (as *C. antanosiensis* var. *ambohibyi* and *C. isomonensis* var. *microcarpus*).

Notes. In the protologue of *Croton trichotomus*, Geiseler (1807) listed two different elements, *C. trichotomus* from Madagascar and *C. punctatus* from the Caribbean. We choose here as lectotype the collection in P-LA that Leandri (1939) attributes to P. Commerson. There is no sheet in P-JU that matches the plant of *C. trichotomus* on the P-LA sheet, but P-JU Catal. 16347 is a mixed collection that bears a label on the left-hand specimen [P00674048] that states, possibly in Geiseler’s hand, [Croton]
“punctatum Jacq.” followed below by “trichotomum Geiseler, Crot. Monogr.” However, this is a completely different plant from the one represented on the P-LA sheet, instead belonging to the Caribbean C. flaves L.

In our view, Croton trichotomus is primarily a littoral species of the eastern coast, but it also occurs in a number of more inland and higher elevation situations, which is an exception among Malagasy Croton species.

For Croton antanosiensis var. ambobihy, Radcliffe-Smith (2016) designated Leandri et al. 1775 at P as the holotype, but since there are four sheets of this number at P, we select one of them as lectotype.

121. Croton tsiampiensis Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 79. 1939

Croton tsiampiensis var. ankaranensis Radcl.-Sm., Gen. Croton Madag. Comoro 110. 2016.
Type. MADAGASCAR. Prov. Antsiranana: Diana Region, Massif de l’Ankarana, 4 Nov 1990, M. Bardot-Vaucoulon 224 (holotype: P00123707!).

Croton tsiampiensis var. macrophyllus Radcl.-Sm., Gen. Croton Madag. Comoro 110. 2016.
Type. MADAGASCAR. Prov. Mahajanga: Reserve Naturelle Bemaraha, Ambodiriana, ca. 9 km E of Antsalova, 18°39’S, 44°43’E, 100–125 m, 13–15 Dec 1990, L. Gillespie 4139 (holotype: K!; isotype: MO).

Croton tsiampiensis var. microphyllus Radcl.-Sm., Gen. Croton Madag. Comoro 111. 2016.
Type. MADAGASCAR. Prov. Antsiranana: Diana Region, P.K. 10 de la route Diego Suarez-Orangea, 13 Dec 1963, Service Forestier 22956 (holotype: P00123706!).

Habit and distribution. Shrubs; northern and western Madagascar (Antsiranana, Mahajanga).

122. Croton ustulatus Radcl.-Sm., Gen. Croton Madag. Comoro 28. 2016

Type. MADAGASCAR. Prov. Toliara: 8-16 km E of Tuléar (Toliara) on road to Tananarive (Antananarivo), 50 m, 7 Feb 1975, T. Croat 30998 (holotype: K!; isotypes: MO!, P [P00433216]!).

Habit and distribution. Shrubs; southwestern Madagascar (Toliara).

123. Croton vaughanii Croizat, Trop. Woods 77: 14. 1944

Type. MAURITIUS. Perrier, near the Mare aux Vacoas, 500 m, 12 May 1938, R.E. Vaughan MAU accession number 863 (holotype: A [A00047560]; isotype: WIS
Habit and distribution. Shrubs; Mauritius.

Notes. Croizat (1944) referenced collector information for characteristics of *C. vaughanii* that are not observable on the holotype at A (“fide collectoris”), and the holotype is accompanied by a copy of field notes referencing that the species drops its leaves in November and December, and that flowering takes place immediately afterward. According to information in the Mauritius Herbarium (MAU) database, in this case “863” is the accession number rather than the collection number. Given this, the sheets at K and MAU with the accession number 863 are not a part of the same gathering as the holotype at A and therefore are not syntypes. Even though Croizat (1944) did not explicitly refer to the “Vaughan 863” collections at K and MAU, we interpret them as being paratypes. Furthermore, the sheet at K labeled with the barcode K000422600 represents material from two gatherings on different dates and should be considered two distinct specimens.

*Croton vaughanii* is listed by the IUCN as Critically Endangered (Strahm 1998), and is known from only a single individual according to information on the label of *Haevermans et al.* 558 (P [P00696110]), making it one of the rarest of all *Croton* species.

124. *Croton vatomandrensis* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 71. 1939

Type. Madagascar. Prov. Toamasina: environs de Vatomandry, près de lagunes, Nov 1921, *H. Perrier de la Bâthie* 14084 (lectotype, designated by Kainulainen et al. 2017a, pg. 39: P [P00248926]!; isolecotypes: P [P00154409]!, P [P00154410]!).

Habit and distribution. Shrubs or small trees; eastern littoral forests of Madagascar (Fianarantsoa, Toamasina).

Incertae Sedis

This section includes 22 taxa described by Radcliffe-Smith (2016) and three by Leandri (1939) for which we have not yet been able to determine if they are worthy of recognition; they will require further evaluation to decide whether they should be considered synonyms of earlier-described taxa, or if in some cases they are actually distinct species rather than mere varieties of existing species.
**Croton ankarensis var. ankarafantsikae** Radcl.-Sm., Gen. Croton Madag. Comoro 139. 2016

**Type.** MADAGASCAR. Prov. Mahajanga: Ampijoroa, Ankarafantsika, 26 Oct 1970, A. Richard 476 (holotype: K!).

**Notes.** It is uncertain what this variety is, but probably does not belong to *Croton ankarensis*.

**Croton bastardii var. bongolavae** Radcl.-Sm., Gen. Croton Madag. Comoro 204. 2016

**Type.** MADAGASCAR. Prov. Mahajanga: Bongolava Hills, Port Bergé, 15°40'S, 47°30'E, 23 Nov 1987, E. Bisset 38 (holotype: K!).

**Notes.** It is uncertain what this is, but it is probably not a member of *Croton bastardii*.

**Croton bemaranus var. parvistipulatus** Radcl.-Sm., Gen. Croton Madag. Comoro 209. 2016

**Type.** MADAGASCAR. Prov. Toliara: 45 km N of Tulear on Morombe road E of junction to Manombo, 23°01'S, 43°36'E, 14 Dec 1988, P.B. Phillipson 2884 (holotype: K!; isotype: MO!).

**Notes.** *Croton bemaranus* is restricted to tsingy habitats in Antsiranana and Mahajanga Provinces and has entire leaves and elongate stipules. This variety does not fit the species at all and requires further study to determine its affinities.

**Croton betiokensis var. haplostylis** Radcl.-Sm., Gen. Croton Madag. Comoro 102. 2016

**Type.** MADAGASCAR. Prov. Fianarantsoa: Ihosy-Ivohibe, 21 Dec 1965, J. Peltier & M. Peltier 5534 (holotype: P [P00154466]!).

**Notes.** This is a very scrappy specimen, making it difficult to determine what it may be. It does not appear to belong to *Croton betiokensis*, which is confined to southern Toliara Province.

**Croton catatii var. schizolepis** Radcl.-Sm., Gen. Croton Madag. Comoro 44. 2016

**Type.** MADAGASCAR. Prov. Toliara: 45 km NE of Morondava on Beroboka road, 20°03'S, 44°37'E, 7/8 Dec 1990, L. Gillespie 4117 (holotype: K!; isotype: MO!).
Notes. This variety has much smaller leaves than typical *Croton catatii* and is only a small shrub, so it is not clear yet whether it fits within another species or if it may represent an undescribed species.

*Croton daphniphylloides* var. *stellatipilus* Radcl.-Sm., Gen. Croton Madag. Comoro 165. 2016

**Type.** Madagascar. Prov. Antsiranana: Marojejy, N of Mandena, 14°29'S, 49°49'E, 22 Apr 1993, A. Randrianasolo 322 (holotype: K!; isotype MO!).

Notes. It is unlikely this belongs to *C. chapelieri* (in which *C. daphniphylloides* is treated here as a synonym); it occurs in the Marojejy Reserve at 500 m elevation and is a 8 m tall tree, whereas *C. chapelieri* is confined to the eastern littoral zone near sea level. It could also be a northern form of *C. submetallicus*, with more acute leaves and lacking the submetallic leaf undersides of that species.

*Croton daphniphylloides* var. *triplinervius* Radcl.-Sm., Gen. Croton Madag. Comoro 165. 2016

**Type.** Madagascar. Prov. Antsiranana: Mt. Anjenabe, vallée inférieure de l’Androranga, affluent de la Bemarivo aux environs d’Antongondriha, 3-7 Nov 1950, H. Humbert & R. Capuron 24021 (holotype: K!; isotypes: MO!, P [P00433396]!).

Notes. Radcliffe-Smith (2016) erroneously cited the type collection number as 24041, which is a *Wielandia*. This may be the same entity as *C. daphniphylloides* var. *stellatipilus*.

*Croton elaeagni* var. *argyrocarpos* Radcl.-Sm., Gen. Croton Madag. Comoro 90. 2016

**Type.** Madagascar. [Prov. Antananarivo?]: environs d’Ambihikely, s.d. [1952-1955], J. Dequaire 27466 (holotype: P [P00154267]!).

Notes. This does not appear to belong to *C. elaeagni*, and its placement is uncertain.

*Croton elaeagni* var. *brevipedicellatus* Radcl.-Sm., Gen. Croton Madag. Comoro 90. 2016

**Type.** Madagascar. [Prov. Antananarivo?]: environs d’Ambihikely, s.d. [1952-1955], J. Dequaire 27460 (holotype: P [P00154282]!).

Notes. This may be the same as the preceding variety.
**Croton fianarantsoae** var. **petiolaris** Radcl.-Sm., Gen. Croton Madag. Comoro 155. 2016

**Type.** MADAGASCAR. Prov. Antsiranana: Andapa, Andrakata, Analamboahangy Marojejy RNI, aux environs de Manenobasy, 14°35'16"S, 49°41'20"E, 1171 m, 18-24 Jan 1995, *F. Rasoavimbahoaka 488* (holotype: MO; isotypes: P [P00433385]!, TAN).

**Notes.** This may correspond to *Croton submetallicus*, but the leaves are acuminate and not submetallic on the undersides, and it occurs well north of the known distribution of that species.

**Croton hovarum** var. **hirsutifructus** Radcl.-Sm., Gen. Croton Madag. Comoro 178. 2016

**Type.** MADAGASCAR. Prov. Toamasina: Valoala Triangulation Point, 17°25'S, 48°15'E, 6 Jan 1945, *A.M. Homolle 2193* (holotype: P [P00133178]!).

**Notes.** This is a fruiting specimen with small pistillate sepals and rusty stellate pubescence that is probably not *C. hovarum*, but it cannot be placed yet in another species.

**Croton ivohibensis** var. **integrifolius** Radcl.-Sm., Gen. Croton Madag. Comoro 149. 2016

**Type.** MADAGASCAR. Prov. Toliara: bassin de réception de la Mananara, affluent du Mandrare, pentes occidentales des montagnes entre l’Andohahela et l’Elakelaka, Mt Apisky au dessus de Mahamava, 800-900 m, Jan-Feb 1934, *H. Humbert 13821* (lectotype, designated here: P [P00133268]!; isolectotypes: P [P00133269]!, P [P00133270]!).

**Notes.** This is likely an undescribed species from the lower end of evergreen forests in southeastern Toliara Province. The pistillate flowers have a very long pedicel, and the calyx is very well developed. It is likely the same as *C. nitidulus* var. *eglandulosus* and *C. thouarsianus* var. *angustifolius* (see below).

**Croton ivohibensis** var. **macrocalyx** Radcl.-Sm., Gen. Croton Madag. Comoro 150. 2016

**Type.** MADAGASCAR. sin. loc., received Jan 1892, *R. Baron 6134* (holotype: K!; isotype: P [P00154509]!).

**Notes.** This could be a form of *Croton hovarum*, but the leaves seem too coarsely serrate for that species, and not knowing where the specimen came from, hinders our ability to place it.
**Croton ivohibensis var. polygynus** Radcl.-Sm., Gen. Croton Madag. Comoro 150. 2016

**Type.** Madagascar. Prov. Toamasina: Lac Alaotra, *Herb. Jard. Bot. Tan.* 3777 (holotype: P [P00133298]!).

**Notes.** This is an interesting specimen that bears some resemblance to *Croton tanalorum*. Additional material is needed to assess this further. Another specimen of it is *Cours 631* (P [P00133297]).

**Croton ivohibensis var. verticillatus** Radcl.-Sm., Gen. Croton Madag. Comoro 151. 2016

**Type.** Madagascar. Prov. Fianarantsoa: Reserve Speciale de Pic d’ Ivohibe, Marovitsika Forest, 22°28’49”S, 46°56’49”E, 850 m, 17 Oct 2000, *P. Hoffmann et al.* 223 (holotype: K; isotype: MO!).

**Notes.** This does not appear to belong to *Croton hovarum* (where we include *C. ivohibensis*), and it needs further study to determine its affinities.

**Croton lapiazicola var. longibracteatus** Leandri, *Ann. Mus. Colon.* Marseille, sér. 5, 7(1): 42. 1939, as ‘longibracteata’

**Type.** Madagascar. Prov. Mahajanga: bassin supérieur du Bemarivo (Boina), 800 m, Sep 1907, *H. Perrier de la Bâthie* 9550 (lectotype, designated here: P [P00133404]!; isolectotypes: P [P00133403]!, P [P00133405]!).

**Notes.** The type is somewhat similar to *Croton ericius*, but the leaves are much narrower and it is less hirsute than that species.

**Croton manampetsae var. lepidotus** Radcl.-Sm., Gen. Croton Madag. Comoro 27. 2016

**Type.** Madagascar. Prov. Toliara: environs de Tuléar (Toliara), 30 km Tulear-Tanararive, Mar 1960, *M. Keraudren* 541 (holotype: P [P00133295]!).

**Notes.** This variety differ from *Croton manampetsae* in that the leaves are mostly alternate (vs. opposite) and in the lepidote indumentum on the abaxial side of the leaves (vs. stellate trichomes). It will likely be described as a distinct species.

**Croton meridionalis var. latifolius** Radcl.-Sm., Gen. Croton Madag. Comoro 193. 2016

**Type.** Madagascar. Prov. Toliara: haute vallée du Mandrare près d’Andetra (Andotsy), 26 Nov 1928, *H. Humbert* 6849 (holotype: G!; isotypes: K, P [P00418562]!).
Notes. This plant is similar to *C. meridionalis*, except that it has considerably wider leaves that are silvery-lepidote on the lower surface and turn dark blackish green on the upper surface when dried. Further study is needed to determine if it should be recognized as a distinct species.

*Croton meridionalis* var. *stipularis* Radcl.-Sm., Gen. Croton Madag. Comoro 194. 2016

Type. MADAGASCAR. Prov. Toliara: 45 km N of Tulear (Toliara) on road to Morombe E of junction to Manombo, 23°01’S, 43°36’E, 14 Dec 1988, *P.B. Phillipson 2885* (holotype: K!; isotypes: DAV!, MO!, P [P00123724]).

Notes. This is likely the same as the preceding variety.

*Croton nitidulus* var. *eglandulosus* Radcl.-Sm., Gen. Croton Madag. Comoro 171. 2016

Type. MADAGASCAR. Prov. Toliara: bassin de réception de la Mananara, affluent du Mandrare, entre Andohahela et Elakelaka, Mt. Apiky au-dessus de Mahamavo, Jan-Feb 1934, *H. Humbert 13848* (lectotype, designated here: P [P00133646]; isolectotypes: G!, P [P00133647]).

Notes. This is probably the same undescribed species as *Croton ivohibensis* var. *integrifolius* and *C. thouarsianus* var. *angustifolius*.

*Croton rubricapitirupis* var. *macrophyllus* Radcl.-Sm., Gen. Croton Madag. Comoro 158. 2016

Type. MADAGASCAR. Prov. Antsiranana: Andapa, pentes occidentales du Massif de Marojejy (Nord-Est), Bassin de la Lokoho, a l’Est d’ Ambalamanasy II, 500-800 m, 28 Nov-6 Dec 1948, *H. Humbert & R. Capuron 22126* (holotype: K; isotypes: P [P00433398], P [P00433399]).

Notes. The type of this variety is a large-leaved shrub with a very large, foliaceous pistillate calyx on a long pedicel. It may represent an undescribed species.

*Croton thouarsianus* var. *angustifolius* Radcl.-Sm., Gen. Croton Madag. Comoro 183. 2016

Type. MADAGASCAR. Toliara Province: NW of Tolanaro, Reserve Naturelle Intégrale # 11 (Andohahela), NW of Eminiminy, beside River Itrotroky, 24°38’S, 46°46’E, 6–13 Feb 1993, *S. Malcomber et al. 2159* (holotype: K!; isotypes: G!, MO).
Notes. This is probably the same undescribed species as *Croton ivohibensis* var. *integrifolius* and *C. nitidulus* var. *eglandulosus*.

*Croton thouarsianus* var. *longifolius* Radcl.-Sm., Gen. Croton Madag. Comoro 183. 2016

**Type.** MADAGASCAR. Prov. Fianarantsoa: Réserve Speciale de Manombo, 23°01'43"S, 47°43'51"E, 26 Oct 2000, P. Hoffmann et al. 270A (holotype: K!; isotypes: BR, G, MO).

**Notes.** This is probably an undescribed species from the inland area of the Manombo Reserve in Fianarantsoa Province close to the coast, but not related to *Croton thouarsianus*.

*Croton tranomarensis* var. *isomoni* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 61. 1939

**Type.** MADAGASCAR. Prov. Toliara: Anosy Region, vallée de la Manombolo, rive droite (basin du Mandrare) aux environs d’Isomono (confluent de la Sakamalio), mont Morohariva, 1000-1200 m, Oct 1933, H. Humbert 13105 (lectotype, designated here: P [P00133393]!; isolectotypes: G [G00446403]!, P [P00133391]!, P [P00133392]!; K [K001040390]!, TAN [TAN000546]).

**Notes.** The leaves of these specimens are too small to conform to *Croton meridionalis*, and Radcliffe-Smith (2016) also expressed doubt that it belonged there but did not know where else to place it.

*Croton tranomarensis* var. *minor* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 61. 1939

**Type.** MADAGASCAR. Prov. Toliara: Anosy Region, Ambovombe, Behara, 9 Jan 1931, R. Decary 8370 (holotype: P [P00133390]!; isotypes: K [K001040391]!, TAN [TAN000545]).

**Notes.** The leaves of the type of this variety are too small to conform to *Croton meridionalis* (for which *C. tranomarensis* is a synonym). Radcliffe-Smith (2016) expressed doubt that it belonged here, but he did not know where else to place it other than to suggest that it may be close to *C. salviformis* (presumably because of the small leaves and venose pistillate sepals). However, the holotype appears to have entirely pistillate inflorescences, suggesting that the plants may be dioecious. If so, it may correspond to an apparently undescribed species that we have also found south of Ranopiso at Mt. Vohitsiandriana in Toliara Province.
“Names” not validly published

*Croton ambobombensis var. lepidotus* Radcl.-Sm., Gen. Croton Madag. Comoro 192. 2016, nom. inval. (Art. 40.7). This designation is not validly published because Radcliffe-Smith (2016) cited both the G specimen and the P specimen (based on the collection: Madagascar. Prov. Toliara: 6 km N de Faux Cap, Apr 1972, *P. Morat* 3952 (G, K, P [P00154467]!) as the holotype, in contravention to Article 40.7 of the ICN (McNeill et al. 2012). Had it been validly published, it would have been placed in the Incertae Sedis section. This collection is of a linear-leaved plant with long virgate stems that lacks the orangeish stellate indumentum and strongly divaricate branching pattern of *C. ambobombensis*.

*Croton arenicola* f. *pubescens* Leandri, Ann. Mus. Colon. Marseille, sér. 5, 7(1): 58. 1939, nom. inval. Protologue lacking Latin description or diagnosis (McNeill et al. 2012; Art. 39.1). = *Croton toliarensis* B.W.van Ee & Kainul.

*Croton leandrii* var. *pubescens* Radcl.-Sm., Gen. Croton Madag. Comoro 188. 2016, nom. inval. (Art. 40.6). Leandri (1939, pg. 58) published "*Croton arenicola* f. *pubescens* Leandri," but as seen in the preceding paragraph, it was not validly published. Radcliffe-Smith (2016, pg. 188) later attempted to transfer it as "*Croton leandrii* var. *pubescens* (Leandri) Radcl.-Sm." Given that the intended basionym is not a validly published name, Radcliffe-Smith's new combination at a different rank is also invalid. Radcliffe-Smith (2016, pg. 188) did include a short diagnosis, which would have qualified as a new name if he had designated a holotype, but since he called the *Decary 9031* (K) specimen the "lectotype," Art. 40.6 is not satisfied for valid publication of that name.

Excluded taxa

*Croton haumanianus* J. Léonard, Bull. Agric. Congo Belge 48: 79. 1957

**Type.** Democratic Republic of the Congo: Yaosuka [Yangambi], 26 Sep 1947, *J. Léonard* 1448 (holotype: BR [BR00000889422]; isotypes: K [K000347428], YBI [YBI159606671]).

**Notes.** *Croton haumanianus* is known from Madagascar from a single collection, *Bosser 17019* (P [P00133154]!, TAN), from the Station d’Essais “Caroline,” Ilaka-Est [Toamasina Province, south of Vatomandry]. According to Schmelzer (2007), *C. haumanianus* is commonly used as a shade plant in coffee and cacao plantations, which is likely the context of this report from Madagascar. No additional information is known as to whether this species has persisted in Madagascar.
**Croton macrostachyus** Hochst. ex Delile, Voy. Abyssinie 3: 158. 1848

*Oxydectes macrostachya* (Hochst. ex Delile) Kuntze, Revis. Gen. Pl. 2: 610. 1891.

Type. Based on *Croton macrostachyus* Hochst. ex Delile

**Type.** [Ethiopia] Abyssinicum: prope Djeladjeranne, 10 Aug 1840, W.P. Schimper 1665 (syntypes: BR [BR0000008252005], K [K000347438], K [K000347439], M [M0110345], M [M0110346], MO [1905790], MPU [MPU007279], P [P00540347], P [P00540348], P [P00540349]; possible isosyntype: MPU [MPU007276]). [Ethiopia]: in regione inferiori septentrionali montis Scholoda, 20 Jun 1837, W.P. Schimper - 196 (syntypes: BR [BR0000008252012], BR [BR0000008367969], HBG [HBG516429], HBG [HBG516430], K [K000347440], MPU [MPU007275], NY [NY00688543], S [S07-16861]).

**Notes.** Radcliffe-Smith (1996) gave the range of *C. macrostachyus* as “throughout tropical Africa from Guinée eastwards to Ethiopia and southwards to Angola and Mozambique; also in Madagascar.” However, unlike for Malawi, Mozambique, Zambia, and Zimbabwe, he did not cite any specific specimens for Madagascar. Gentry 11408 (MO, P [P00433498]) from Ankaratra, Antananarivo Province, Madagascar, was determined by Gentry as *C. macrostachyus*, but it is actually a specimen of the native *C. goudotii* Baill.

**Croton sonorae** Torr., Rep. U.S. Mex. Bound. 2(1): 194. 1859

*Croton furcellatus* Baill., Bull. Mens. Soc. Linn. Paris 2: 967. 1891.

Type. Mexico. Estado Sonora: [Ravines and mesas about] Guaymas, 1887, E.W. Palmer 180 (holotype: P [P00404489]!; isotypes: GH [GH00303156]!, K [K000476756]!, US [00851399]!, US [00851400]!).

Type. Mexico. Estado Sonora: Sierra de Nayos [Nariz], Jul 1855, A.C.V. Schott III. 17 (holotype: NY [NY00246490]!; isotype: F [F0093623F]!).

**Notes.** Due to mislabeled herbarium specimens, Baillon (1891a) described *Croton furcellatus* as coming from Madagascar, thinking that the type specimen had been collected by Scott-Elliot in southern Madagascar. As pointed out by Humbert (1948), Perrier de la Bâthie (1948), and Arènes (1948), a shipment of plants collected in 1887 by Edward Palmer in Mexico was sent from K to P in 1890 and was mislabeled as being Scott-Elliot collections from Madagascar. The only *Croton* among these, # 180, is a collection of *C. sonorae* Torr. from Guaymas, Sonora, Mexico (Watson 1889).
**Croton tiglium** L., Sp. Pl. 2: 1004. 1753

*Kurkas tiglium* (L.) Raf., Sylva Tellur.: 62. 1838.
Type. Based on *Croton tiglium* L.

*Tiglium officinale* Klotzsch, Nov. Actorum Acad. Caes. Leop.-Carol. Nat. Cur. 19 (Suppl. 1): 418. 1843.
Type. Based on *Croton tiglium* L.

*Croton officinalis* (Klotzsch) Alston in H. Trimen, Handb. Fl. Ceylon 64 (Suppl.): 264. 1931, nom. superfl.
Type. Based on *Croton tiglium* L.

*Oxydectes tiglium* (L.) Kuntze, Revis. Gen. Pl. 2: 614. 1891.
Type. Based on *Croton tiglium* L.

**Type.** Sri Lanka. (lectotype, first-step designated by Chakrabarty and Balakrishnan 1997, pg. 72, second-step designated by Philcox 1997, pg. 94: Herb. Hermann 2: 6, No. 343; left-hand specimen BM-SL [BM 000621512!]).

**Notes.** There is an early collection of this species from Madagascar, namely *Boivin s.n.* (G), from the côte orientale de Madagascar, 1846-1852, but it has not been recorded since.

**Lobanilia luteobrunnea** (Baker) Radcl.-Sm., Kew Bull. 44: 338 (1989)

*Croton luteobrunneus* Baker, J. Linn. Soc., Bot. 20: 254. 1883, as ‘*luteo-brunneum*.’
Type. Madagascar. *sin. loc.*, s.d., *R. Baron 1770* (holotype: K [K000431062!]).

**Type.** Based on *Croton luteobrunneus* Baker

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