



## Typification of Angiospermae described from the Bonin Islands 2: Archichlamydeae

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### Abstract

We are investigating the type material of taxa described from the Bonin Islands in Japan. Some taxa require typification, because specimens have not been cited in the protologue or cited specimens included multiple collections, or because the citations contained ambiguous locality and/or collector data. In addition, an earlier lectotypification is often inadequate because of an error or lack of specific information. Recently, we designated or reconfirmed the lectotype for 10 taxa of Metachlamydeae at the Botanical Gardens section of TI. Here, the lectotype was newly designated or the type status was reconfirmed for 13 taxa based on the herbarium materials of Archichlamydeae and their related literature.

**Key words:** *Boninia*, *Celtis*, *Distylium*, *Erythrina*, *Hibiscus*, *Melastoma*, *Morus*, nomenclature, *Pisonia*, *Procris*, *Schima*, type

### Introduction

In TI, the herbarium of the University of Tokyo, the “Oceanic Islands Plant Specimen Database” was established to better understand the flora of the islands in Japan (see URL of the database in TI). In the course of inputting data on specimens, we noticed that some taxa described from the Bonin (= Ogasawara) Islands required typification. Because most taxa were described from the mid-19th century to the beginning of the 20th century, no specimens were cited in the protologue, or cited specimens included multiple collections. Toyoda (1981), which is an illustrated field guidebook of flora of the Bonin Islands, made a lectotypification for several taxa, but according to the ICN (McNeill *et al.* 2012), the validity of some of these remains doubtful. Therefore, we are investigating type material for taxa described from the Bonin Islands. As the first step, we designated or reconfirmed the lectotype for 10 taxa of Metachlamydeae at the Botanical Gardens section of TI (Watanabe-Toma *et al.* 2011). Here, for 13 taxa of Archichlamydeae at University Museum section of TI, the lectotype was designated or the type status was reconfirmed with notes on the reason for our decisions.

### Materials and methods

Many candidate types and original material of the names of taxa described from the Bonin Islands are kept at TI, KYO (acronyms according to Thiers 2015), or both, because the initial taxonomic studies of the flora of Bonin were mainly conducted by the botanists of these herbaria. As with our previous typification for Metachlamydeae (Watanabe-Toma *et al.* 2011), we attentively investigated the relevant literature in addition to protologues and type citations in Toyoda (1981). We also checked the label data of candidate types and original material in TI and KYO, and looked for the original handwriting of an author for the taxon on the specimens. In this manuscript, when we needed to cite some sentences from the protologue, we kept the original sentences with double-quotation, even if they included English words that were incorrectly spelled or translated by old-style Japanese pronunciation. Although the names of taxa were checked in The Plant List (2013) and YList (an index of Japanese names and scientific name for Japanese plants; Yonekura & Kajita 2003–2015), we confirmed the original papers and relevant literature.

## Typification and taxonomy

Taxa are arranged by family, following the APG III system (APG III 2009), and the names accepted in an enumeration of the vascular plants of Japan (Yonekura 2012) are shown in bold face. The images of all specimens from the Bonin Islands kept in TI, including the newly designated lectotype and other types, are contained in the database of TI, the University of Tokyo (see URL of the TI database).

## Hamamelidaceae

### *Distylium lepidotum* Nakai (1918: 220)

= *D. racemosum* Hattori, non Siebold & Zuccarini (1908: 26), *nom. nud.*

≡ *D. racemosum* Siebold & Zuccarini (1841: 179) var. *lepidotum* (Nakai) Hatusima (1976: 419), *nom. illeg.* (Art. 41.5 of the ICN)

**Type** (lectotype, designated here):—JAPAN. Bonin: Anijima, 28 July 1905, *H. Hattori s.n.* (TI [01677]!).

**Additional specimens examined**:—JAPAN. Bonin: Chichijima, Ohne-yama, 17 July 1905, *H. Hattori s.n.* (syntype, TI [01657]!); Bonin: Chichijima, Asahi-yama, 23 July 1905, *H. Hattori s.n.* (syntype, TI [01658]!, TI [01660]!); Bonin: Chichijima, Byobu-dani, 19 July 1905, *H. Hattori s.n.* (syntype, TI [01659]!).

**Distribution**:—Japan (endemic to the Bonin Islands).

**Notes**:—In the protologue of *Distylium lepidotum*, Nakai (1918) indicated, “Hab. Bonin: insula Ani-shima (Hirotarô Hattori), insula Chichi-shima (Hirotarô Hattori).” In TI, we found one sheet from Anijima (= Ani-shima) and four sheets from Chichijima (= “Chichi-shima”), which were collected on different days of July 1905 by H. Hattori. These five are regarded as the syntypes based on Nakai’s handwriting of “*Distylium lepidotum* Nakai” on the label. Nakai (1930a) later indicated “Mt. Asahiyama insulae Chichijima (H. Toyoshima—typus florum in Herb. Imp. Univ. Tokyo).” However, this specimen (*H. Toyoshima, s.n.*, TI [01680]), with “florum!” written on the label in Nakai’s handwriting, was collected in 1928 after publication of the protologue. This specimen seems to be regarded as a typical flowering specimen because Hattori’s five specimens are sterile. Walker (1944) cited the information in Nakai (1918) as the type without referring to the specimens, and he did not designate the lectotype. Toyoda (1981) selected the specimen (*H. Hattori, 1905*) in TI as the type, but this is inadequate because of the lack of specific information for identifying the lectotype. Of the five syntypes, we correctly designated the specimen from Anijima (*H. Hattori s.n., 28 July 1905; TI [01677]*) as the lectotype.

## Fabaceae

### *Erythrina variegata* Linnaeus (1754: 10)

**Type** (lectotype designated by Merrill 1917: 276):—[icon] “*Gelala Alba*” in Rumphius, Herb. Amboin. 2: 234, t.77 (1741).

= *Erythrina boninensis* Tuyama (1935: 373)

**Type** (lectotype, designated here):—JAPAN. Bonin: Chichijima, Omura, 14 April 1934, *Z. Toyosima s.n.* (TI [21506]!, isolectotypes TI [21503]!, TI [21504]!, TI [21505]!).

**Additional specimens examined**:—JAPAN. Bonin: Chichijima, Omura, 24 June 1932, *T. Tuyama s.n.* (syntype, TI [21507]!); Bonin: Hahajima, Okimura, 2 August 1905, *H. Hattori s.n.* (paratype, TI [02112]!); Bonin: Hahajima, Okimura, 27 June 1920, *T. Nakai s.n.* (paratype, TI [02110]!, TI [02111]!).

**Distribution**:—Japan (the Bonin Islands and the Ryukyu Islands, indigenous or naturalized), originating in India and the Malay Peninsula.

**Notes**:—In the protologue of *Erythrina boninensis*, Tuyama (1935) simultaneously indicated two specimens in TI as the type, “*Z. Toyosima, Apr. 14. 1934—Typus floris*” and “*T. Tuyama, Jun. 24. 1932—Typus folii*,” which are therefore syntypes (Art. 9.5 of the ICN, McNeill *et al.* 2012). He also cited two additional specimens without designating them as a type, so they are paratypes (see Art. 9.6 Note 5 Ex.6 of the ICN, McNeill *et al.* 2012). In TI, we

found four duplicates of Toyosima's specimen with flowers, and one sheet of Tuyama's specimen without flowers. Of them, one sheet (*Z. Toyosima*, s.n., TI [21504]) was affixed with an annotation label of "holotype of *E. boninensis* Tuyama, by B. A. Krukoff (1971)." However, Krukoff (1972: 136) mentioned that Tuyama's specimen has flowers, and he recognized "*Takasi Tuyama* s.n. (TI) April 14, 1934, from the Island of Bonin, Chichijima, Omura" as the holotype. Later, Krukoff (1974: 432) indicated "Island of Bonin: Chichijima, Omura, *Takasi Tuyama* s.n. (TI—holotype of *E. boninensis*)." Krukoff's recognition for the holotype status is clearly his mistake, because the two specimens cited in the protologue should be treated as the syntypes (Art. 9.5.). However, his description of the content of the specimens (with flowers or not) and the label information (collector and date) were confused between the two syntypes. Thus, Krukoff's recognition is regarded as an error to be corrected in lectotypification. Toyoda (1981) indicated Toyosima's specimen (*Z. Toyosima* s.n., 1934, without locality information) as the type, but he did not consider its duplicates. Of the duplicates, we designated the specimen with Tuyama's handwriting of "Typus floris" (TI [21506]), which is the same as the photo in the protologue, as the lectotype.

## Cannabaceae

### *Celtis boninensis* Koidzumi (1913: 183)

≡ *C. koidzumii* Nakai (1914a: 265), *nom. illeg. superfl.* (Art. 52.1 of the ICN)

**Type** (lectotype, designated here):—JAPAN. Bonin, without date, *K. Kawate* s.n. (TI [00144]!).

**Additional specimens examined**:—JAPAN. Bonin, without date, *K. Kawate* s.n. (TI [00145]!); Bonin: Ototojima, 1 July 1901 (*Meiji 34th*), *N. Kanehara* s.n. (TI [00146]!); Ryukyu: Okinawa, without date, *J. Matsumura* s.n. (TI [00006740]!); Ryukyu: Okinawa, without date, *T. Miyagi* s.n. (TI [00006741]!); Ryukyu: Amami-oshima, without date, *S. Amashima* s.n. (TI [00006742]! TI [00006743]!).

= *Celtis liukiuensis* Nakai (1914a: 265)

**Type** (lectotype, designated here):—JAPAN. Ryukyu: Okinawa, without date, *Matsumura* s.n. (TI [00006740]!).

**Additional specimens examined**:—JAPAN. Ryukyu: Okinawa, without date, *T. Miyagi* s.n. (TI [00006741]!); Ryukyu: Amami-oshima, without date, *S. Amashima* s.n. (TI [00006742]!, TI [00006743]!).

**Distribution**:—Japan (the Bonin Islands and the Ryukyu Islands).

**Notes**:—In the protologue of *Celtis boninensis*, Koidzumi (1913) indicated "Hab. Bonin. Liukiu, incl. Okinawa" but cited no specimens. Nakai (1914a) divided the taxon into two different taxa and renamed both of them with descriptions in Japanese: *C. koidzumii* Nakai for plants in the Bonin Islands and *C. liukiuensis* Nakai for plants in the Ryukyu (= Liukiu) Islands. In it, however, no specimens were cited for the two names. Masamune (1934) described *C. boninensis* in the Flora of Yakushima Island, but did not mention the type specimen. In TI, a total of seven sheets with Koidzumi's handwriting of "*Celtis boninensis* Koidz.," including three from Bonin and four from Ryukyu, should be regarded as the original material of *C. boninensis*. Toyoda (1981) recognized the specimen (*K. Kawate* s.n., 1913, without locality) in TI as the type of *C. boninensis*. Of the original material, we confirmed only two of Kawate's specimens from Bonin: one with mature leaves (TI [00144]) and the other with young leaves and flowers (TI [00145]). Because these specimens lacked a collecting year, the lectotypification in Toyoda (1981) seems to be a correctable error. We designated the former of Kawate's two specimens (Bonin, *K. Kawate* s.n., without date; TI [00144]) as the lectotype, because the diagnosis in the protologue (Koidzumi, 1913) emphasized leaf morphology.

Herein, when Nakai (1914a) published *C. koidzumii* Nakai, he commented in Japanese that the name is a replacement for "*C. boninensis* Koidz. pro parte," which is equivalent to plants in the Bonin Islands. Of the original material of *C. boninensis*, three from the Bonin Islands additionally had "*p.p.*" (= pro parte) and "*Celtis koidzumii* Nakai" written on the label in Nakai's handwriting. The three specimens are also regarded as the original material of *C. koidzumii*. Thus, *C. koidzumii* is a superfluous replacement name for *C. boninensis* (Art. 52.1 of the ICN, McNeill *et al.* 2012).

In addition, Nakai (1914a) published *C. liukiuensis* Nakai for "*C. boninensis* Koidz. pro parte," which is equivalent to plants in the Ryukyu Islands, as a new taxon with a description in Japanese, but he cited no specimens. Later, Hatusima (1971), Masamune (1954), and Walker (1976) listed or described *C. boninensis* Koidzumi in their books on the flora of the Ryukyu Islands, but they did not mention the type specimens. Of the original material of *C. boninensis*, four sheets from the Ryukyu Islands additionally had "*p.p.*" (= pro parte) and "*Celtis liukiuensis* Nakai"

written on the label in Nakai's handwriting. Thus, the specimens were also the original material of *C. liukiensis*, and we designated the specimen with "Regard as *Type*" in old Japanese handwriting (*J. Matsumura s.n.*; TI [00006740]!) as the lectotype.

## Moraceae

### *Morus boninensis* Koidzumi (1917: 38)

**Type** (lectotype, designated here):—JAPAN. Bonin: Chichijima, without date, *s. coll.* (TI [00393]!).

**Additional specimens examined**:—JAPAN. Bonin: Chichijima, Omura, 25 December 1902, *K. Kawate s.n.* (TI [00389]!); Bonin, July 1899 (*Meiji 32th*), *s. coll.* (TI [00390]!); Bonin, July 1912, *Kusano s.n.* (TI [00391]!, TI [00392]!); Bonin: Chichijima, 13 August 1900 (*Meiji 33th*), *s. coll.* (TI [00394]!).

= *Morus boninensis* Koidz. var. *caudatifolia* Hotta (1938: 28)

**Type**:—JAPAN. Bonin: Hahajima, Kuwanoki-yama, 18 November 1936, *S. Ito, S. Imai & K. Hino s.n.* (holotype, SAPS [015172]!).

**Distribution**:—Japan (endemic to Chichijima, Hahajima and Ototojima in the Bonin Islands).

**Notes**:—In the protologue of *Morus boninensis*, Koidzumi (1917) indicated "Hab. Japonia: The Bonin Islands" but cited no specimens. When Hotta (1938) published *M. boninensis* Koidz. var. *caudatifolia* Hotta, he cited several specimens without the type status. Toyoda (1981) recognized the specimen in TI, whose collector and collecting year were unknown, as the type of *Morus boninensis*, but this lectotypification is inadequate because of the lack of specific information. In TI and KYO, we found six and two specimens, respectively, which had the scientific name with "*n. sp.*" on the label written in Koidzumi's handwriting. The six specimens in TI were collected before the publication of the protologue, but the two in KYO were collected in 1921. Thus, the specimens in TI are regarded as the original material. Of them, the one without the collectors and a collecting year (TI [00393]) seems to correspond to the specimen recognized as a type by Toyoda (1981). The specimen with leaves and flowers has the best condition among the six original material, although the label information is insufficient. We regarded this specimen as the lectotype with respect to the typification of Toyoda (1981).

## Urticaceae

### *Procris boninensis* Tuyama (1935: 371)

**Type** (lectotype, designated here):—JAPAN. Bonin: Hahajima, Sekimon-yama, 9 April 1934, *T. Tuyama s.n.* (TI [00518]!, isolectotypes TI [00505]!, TI [00506]!, TI [00507]!, TI [00508]!, TI [00509]!).

**Additional specimens examined**:—JAPAN. Bonin: Hahajima, Sekimon-yama, July 1932, *H. Hara s.n.* (syntype, TI [00513]!); Bonin: Hahajima, Sekimon-yama, 9 August 1905, *H. Hattori s.n.* (paratypes, TI [00496]!, TI [00497]!, TI [00498]!, TI [00499]!, TI [00500]!).

**Distribution**:—Japan (endemic to Hahajima in the Bonin Islands).

**Notes**:—Tuyama (1935) simultaneously designated two specimens in TI as types, "*T. Tuyama*, Apr. 9. 1934" as "typus ♀" and "*H. Hara*, Jul. 1932" as "typus ♂," which are therefore syntypes (Art. 9.5 of the ICN, McNeill *et al.* 2012). He also cited two additional specimens without designating them as a type, and hence they are paratypes (see Art. 9.6 Note 5 Ex.6 of the ICN, McNeill *et al.* 2012). Toyoda (1981) did not designate the lectotype since he cited both "*T. Tuyama*, 1934, ♀" and "*H. Hara*, 1932, ♂" as types. In TI, we found six duplicates of the former specimen and one sheet of the latter. In addition, one female specimen with an old "Typus" stamp (*H. Hara* TI133, 28 June 1932; TI [00517]) was found. Although this specimen was collected by H. Hara in 1932, it is not a type because its collecting month is different from that of Hara's syntype (TI [00513]). Herein, three sheets (TI [00505], [00506], and [00518]) of duplicates of Tuyama's syntype were labeled as *Procris boninensis* Tuyama, but other sheets and Hara's syntype were labeled as *P. laevigata* Blume. Of the former three, we designated the specimen with a Japanese name in Tuyama's

handwriting (TI [00518]), which had already been pressed with an old stamp of “Typus,” as the lectotype. In addition, for two paratypes cited in the protologue, we confirmed five duplicates of “*H. Hattori*, Aug. 9. 1905,” of which one sheet is the same as the photo in the protologue. However, we could not find the other (“*T. Tuyama s.n.*, Aug. 5. 1933”) in TI or other herbaria.

## Melastomataceae

### *Melastoma tetramerum* Hayata (1913: 120)

**Type** (lectotype, designated here):—JAPAN. Bonin: Chichijima, Hatsune-ura, 25 July 1905, *H. Hattori s.n.* (TI [04105]!, isolectotype TI [04108]!).

**Additional specimens examined**:—JAPAN. Bonin: Chichijima, Hatsune, 25 July 1905, *H. Hattori s.n.* (syntypes, TI [04106]!, TI [04107]!, TI [04116]!, TI [04117]!).

**Distribution**:—Japan (endemic to Chichijima in the Bonin Islands).

**Notes**:—Hayata (1913) indicated “Hab. Bonin: Chichijima-Hatsunejima, Juli. 1905, leg H. Hattori.” Toyoda (1981) recognized the specimen (*H. Hattori*, 1905) in TI as the type. We found six sheets that were collected from Chichijima by H. Hattori on 25 July 1905. All of them are regarded as the original material based on Hayata’s handwriting of “*Melastoma tetramerum* Hay.” on the label. However, their localities are not “Hatsunejima” in the protologue but “Hatsune-ura” for two sheets and “Hatsune” for four sheets. The difference in the locality name is probably an error in the protologue. We regarded these original material as the syntypes, which contain duplicates from two different localities. On one (TI [04105]) of the two duplicates from “Hatsune-ura,” a comment of “Very distinct for it tetramerous flowers and its leaves which are much smaller than these of any species of the genus,” which was consistent with a sentence in the protologue, was written in Hayata’s handwriting. We designated the specimen with the comment as the lectotype (see Rec. 9A.3 of the ICN, McNeill *et al.* 2012) and its duplicates (TI [04108]) as the isolectotypes.

## Rutaceae

### *Melicope grisea* (Planchon) T.G.Hartley (2001: 257) var. *grisea*

≡ *Boninia grisea* Planchon in Triana & Planchon (1872: 310)

**Type**:—JAPAN. Bonin, *s.coll.* 56, (holotype, K [K000717467]!, digital image).

= *Boninia glabra* Planchon f. *macrophylla* Nakai (1922: 123)

**Type** (lectotype, designated here):—JAPAN. Bonin: Naka-iwoto, 23 June 1922, *T. Nakai s.n.* (TI [02480]!).

**Additional specimens examined**:—JAPAN. Bonin: Naka-iwoto, 23 June 1920, *T. Nakai s.n.* (TI [02481]!); Bonin: Hahajima, Kitamura, 19 June 1920, *T. Nakai s.n.* (TI [02339]!, TI [02340]!, TI [02341]!); Bonin: Hahajima, 19 June 1920, *T. Nakai s.n.* (TI [02342]!); Bonin: Hahajima, 15 July 1921, *T. Nakai s.n.* (TI [02332]!, TI [02333]!, TI [02334]!, TI [02335]!, TI [02336]!, TI [02337]!); Bonin: Hahajima, 16 July 1921, *T. Nakai s.n.* (TI [02338]!); Bonin: Kita-iwoto, 21 June 1920, *T. Nakai s.n.* (TI [02477]!, TI [02478]!, TI [02479]!).

**Distribution**:—Japan (endemic to the Bonin Islands).

**Notes**:—In the protologue of *Boninia glabra* f. *macrophylla*, Nakai (1922) indicated three localities: “Hab. Bonin: in insula Naka-iwoto ubi haec forma tantum crescit sat vulgaris. (T. Nakai), in insula Hahajima et insula Kita-iwoto cum typica mixta sed potius rara (T. Nakai).” Considering that the protologue was published in November 1922, a total of 16 sheets in TI that were collected by T. Nakai can be regarded as the original material: two specimens from Naka-iwoto (*T. Nakai s.n.*, 23 June 1922 and *T. Nakai s.n.*, 23 June 1920), three duplicates from Kitamura of Hahajima (*T. Nakai s.n.*, 19 June 1920), eight sheets of three different collections from Hahajima (one of *T. Nakai s.n.*, 19 June 1920, six of *T. Nakai s.n.*, 15 July 1921, and one of *T. Nakai s.n.*, 16 July 1921), and three duplicates from Kita-iwoto (*T. Nakai s.n.*, 21 June 1920). Of them, the first two specimens from Naka-iwoto had “var. *macrophylla* Nakai” written on



the label in Nakai's handwriting. In addition, on the label of one (TI [02481]) of the two, someone drew a strikethrough on the species epithet "*glabra*" and "var. *macrophylla* Nakai" and additionally wrote the name "*grisea*." We designated the other sheet without a strikethrough (TI [02480]) as the lectotype.

*Melicope grisea* (Planchon) T.G.Hartley var. *crassifolia* (Nakai) Yonekura (2005: 326)

≡ *Boninia glabra* Planchon var. *crassifolia* Nakai (1922: 124)

≡ *B. crassifolia* Nakai (1928: 5) and Nakai (1930b: 257), *nom. nud.*

≡ *B. grisea* Planchon var. *crassifolia* (Nakai) T.Yamazaki (1989: 276), *nom. nud.*

≡ *B. grisea* Planchon var. *crassifolia* (Nakai) T.Yamaz. ex H.Ohba (1999: 34)

**Type** (lectotype, designated here):—JAPAN. Bonin: Anijima (in Japanese), 13 July 1922, *T. Nakai s.n.* (TI [02446]!).

**Additional specimens examined**:—JAPAN. Bonin: Anijima, 3 July 1921, *T. Nakai s.n.* (syntype, TI [02430]!); Bonin: Anijima (in Japanese), 13 July 1922, *T. Nakai s.n.* (syntype, TI [02445]!).

**Distribution**:—Japan (endemic to Anijima and Chichijima in the Bonin Islands).

**Notes**:—In the protologue of *Boninia glabra* var. *crassifolia*, Nakai (1922) indicated "Hab. Bonin: in silvis Anijima ubi tantum tres inveni (T. Nakai)," which means that he collected plants at only three places on Anijima Island. We regarded Nakai's three specimens in TI, which were collected from Anijima before publication of the protologue (Nov. 1922), as the original material: the first with Nakai's handwriting of "*Boninia crassifolia* Nakai" (*T. Nakai s.n.*, 3 July 1921), the second with his handwriting of "*Boninia glabra* Planchon var. *crassifolia* Nakai" (*T. Nakai s.n.*, 13 July 1922), and the last with his handwriting giving both scientific names (*T. Nakai s.n.*, 13 July 1922). Considering his comment in the protologue, it is thought that the last two specimens collected on the same day came from different plants. Here, we designated the last specimen (TI [02446]), on which were written the names of both the rank of the species and the variety on the label in Nakai's handwriting, as the lectotype.

## Malvaceae

*Hibiscus glaber* Matsumura ex Nakai (1914b: 310)

≡ *H. tiliaceus* Linnaeus var. *glaber* Matsumura (1897: 441), *nom. nud.*

≡ *Paritium glabrum* (Matsum. ex Nakai) Nakai (1936: 99)

≡ *Talipariti glabrum* (Matsum. ex Nakai) Fryxell (2001: 245)

**Type** (lectotype, designated here):—JAPAN. Bonin (= "Ogasawarajima" in roman letters), without date, *s. coll.* (TI [03265]!).

**Additional specimens examined**:—JAPAN. Bonin (= "Ogasawarajima" in Japanese), without date, *s. coll.* (TI [03260]! TI [03261]! TI [03264]!); Bonin, 10 December (without year), *s. coll.* (TI [03259]!); Bonin, 23 August (without year), *s. coll.* (TI [03262]!); Bonin, 26 August (without year), *s. coll.* (TI [03263]!).

= *Hibiscus glaber* Matsum. ex Nakai var. *cordatus* Nakai (1914b: 310)

**Type**:—JAPAN. Bonin: Chichijima, 13 August 1905, *H. Hattori s.n.* (holotype, TI [03266]!).

**Distribution**:—Japan (endemic to the Bonin Islands).

**Notes**:—Matsumura (1897) listed "*Hibiscus tiliaceus* L. var. *glabra* Matsumura var. nov. Hab. In insula Bonin" as a candidate new variety of *H. tiliaceus* without a description or diagnosis. Even though the name was *nomen nudum*, Hattori (1908) and Matsumura (1912) listed the name *H. tiliaceus* L. var. *glabra* Matsumura. After Nakai (1914b) legitimately published it as *H. glaber* Matsumura with the citation of "*Hibiscus tiliaceus*, L. var. *glabra*, Matsumura. ms.," Matsumura (1916) listed it as *H. glaber* Matsumura in the checklist of Japanese plants. Nakai (1936) published *Paritium glabrum* Nakai as a new combination name. Hara (1954) recognized the taxon as *H. glaber* (Matsumura) Matsumura ex Nakai. Herein, the correct citation is *H. glaber* Matsumura ex Nakai. On the other hand, no one had indicated the type or cited the specimens until Toyoda (1981) regarded the specimen in TI, whose collectors and collecting year are unknown, as the type. In TI, we found seven specimens with Matsumura's handwriting of "var. *glabra*," whose collectors and collecting year are unknown, and therefore, we regarded the seven as the original material. Thus, the indication in Toyoda (1981) is inadequate as a lectotypification. Of the original material, four specimens have locality information of "Ogasawarajima" without a collecting date, of which one (TI [03265]) was

written in Roman letters and the others (TI [03260], TI [03261], and TI [03264]) in Japanese. The other three original material have the locality information of “Bonin” and a collecting date (without collecting year). Fryxell (2001) later cited “Ogasawarajima, *Matsumura s.n.*” in TI as the holotype for *H. glaber* Matsumura ex Nakai. However, the use of the term holotype is an error to be corrected to lectotype (Art. 9.9 of the ICN, McNeill *et al.* 2012), and the collector name seems to be a correctable error because we could not find Matsumura’s specimens in TI. We designated the specimen without a collector and a collecting year (TI [03265]), with “Ogasawarajima” written in Roman letters, as the lectotype.

***Hibiscus tiliaceus*** Linnaeus (1753: 694)

≡ *Paritium tiliaceum* (L.) Jussieu in Saint-Hilaire *et al.* (1828: 256)

≡ *Talipariti tiliaceum* (L.) Fryxell (2001: 258)

**Type** (lectotype, designated by Waalkes 1966: 31):—INDIA, Herb. *Hermann* 3: 51. no. 259 (BM).

= *Hibiscus boninensis* Nakai (1914b: 311)

≡ *Paritium boninense* (Nakai) Nakai (1936: 98)

**Type**:—JAPAN. Bonin, Mukojima, 5 August 1905, *H. Hattori s.n.* (holotype, TI [03357]!; isotype, TI [03358]!).

= *Hibiscus tiliaceus* L. var. *heterophyllus* Nakai (1914b: 310)

≡ *Paritium tiliaefolium* (Salisbury 1796: 383) Nakai (1936: 101) var. *heterophyllum* (Nakai) Nakai (1936: 101)

**Type** (lectotype, designated here):—JAPAN. Bonin, 7 March 1879, *s. coll.* (TI [03424]!).

**Additional specimens examined**:—JAPAN. Bonin: Chichijima, Omura, 8 November (without year), *N. Okada s.n.* (TI [03425]!); Bonin, without date, *s. coll.*, “Maxim. No.52” (TI [03426]!).

**Distribution**:—native of tropical regions of the world.

**Notes**:—In the protologue of *Hibiscus tiliaceus* Linnaeus var. *heterophyllus*, Nakai (1914b) strictly cited no specimens. Three specimens, which were labeled as “var. *heterophyllus* Nakai” in Nakai’s handwriting, were found in TI. Of them, the collecting year of two of the specimens is unknown, but they can be considered to have been collected before 1914, the publication year of the protologue, based on the investigation of an old label head of herbarium TI and the handwriting (Murata *et al.* 2012). We regarded the three specimens at TI as the original material, and we designated the specimen with a collecting date of “7 March 1879” (TI [03424]) as the lectotype.

## Nyctaginaceae

***Pisonia umbellifera*** (J.R.Forster & G.Forster) Seemann (1862: 154)

≡ *Ceodes umbellifera* J.R.Forster & G.Forster (1775: 142)

**Type**:—[icon] J.R. Forster & G. Forster, *Characteres Generum Plantarum*, t. 71 (1775, holotype).

= *Pisonia nishimurae* Koidzumi (1919: 120)

≡ *Calpidia nishimurae* (Koidz.) Rehder & E.H.Wilson (1919: 117)

**Type** (lectotype, designated here):—JAPAN. Bonin, without date, *M. Yai s.n.* (TI [00670]!).

**Additional specimens examined**:—JAPAN. Bonin, without date, *S. Nishimura s.n.*, “*Pisonia nishimurai* Koidz.” (syntype, KYO!).

**Distribution**:—Japan (the Bonin Islands and the Ryukyu Islands), Taiwan, Malaysia, Micronesia, Polynesia and Australia.

**Notes**:—In the protologue of *Pisonia nishimurae*, Koidzumi (1919) did not designate the type, but indicated “Distr. Bonin, (leg. M. Yai! S. Niseimura!).” When Rehder and Wilson (1919) moved the taxon under the genus *Calpidia* Thouars (1806: 36), they regarded “*M. Yai* and *S. Nishimura*, ex Koidzumi” as the type. They probably referred to the protologue, but did not confirm the specimen. Their perception of the collector of the type is a correctable error, because we could not find specimens collected by both M. Yai and S. Nishimura. We found one specimen (*M. Yai s.n.*) in TI, which is stamped as “Typus,” and two specimens (*S. Nishimura s.n.*) in KYO, although their collecting date was

unknown. Of them, two specimens with Koidzumi's handwriting of "*Pisonia nishimurai* Koidz." kept in TI and KYO are original material, but one in KYO with his handwriting of "*Calpidia nishimurai* Nakai" is not. In the protologue, Koidzumi (1919) named "Udoki" as a Japanese name of the taxa. Of the two original material, the specimen in TI was labeled "Udoki" in Japanese, but the specimen in KYO was labeled "Udonoki" in Japanese. Therefore, we designated the specimen (*M. Yai* s.n., TI [00670]) as the lectotype and the specimen (*S. Nishimura* s.n., KYO) as the syntype.

## Theaceae

*Schima wallichii* (Candolle 1824: 528) Korthals (1842: 143) subsp. *mertensiana* (Siebold & Zuccarini) Bloembergen (1952: 149)

≡ *Cleyera mertensiana* Siebold & Zuccarini (1841: 154)

≡ *S. mertensiana* (Siebold & Zucc.) Koidzumi (1930: 107)

**Type** (lectotype, designated by Akiyama *et al.* 2014: 211):—JAPAN. Mertens legit in Insel. Bonin, Communicavit Zuccarini ex Mertensii (L2405468).

= *Schima boninensis* Nakai (1918: 222), non Melchior (1925: 139)

**Type** (lectotype, designated here):—JAPAN. Bonin: Chichijima, Asahi-daira, 13 July 1905, *H. Hattori* s.n. (TI [03637]!).

**Additional specimens examined**:—JAPAN. Bonin: Chichijima, Mikazuki-yama, 11 July 1905, *H. Hattori* s.n. (TI [03611]!); Bonin: Chichijima, Asahi-yama, 23 July 1905, *H. Hattori* s.n. (TI [03636]!); Bonin: Chichijima, Mikazuki-yama, without date, *s. coll.* (TI [03639]!).

= *S. boninensis* Melchior (1925: 139), non Nakai (1918: 222), *nom. illeg.* (Art. 53.1 of the ICN)

**Distribution**:—Japan (the Bonin Islands).

**Notes**:—In the protologue of *Schima boninensis*, Nakai (1918) indicated "Hab. Bonin: in insula Chichishima (Hirotarō Hattori, Tomijiro Uchiyama)," and cited "*S. Noronhae*, Reinw. var. *boninensis*, Hayata in Schéd. Herb. Imp. Univ. Tokyo." Later, Bloembergen (1952) indicated "*H. Hattori* (Lit.), *T. Uchiyama* (Lit., type of *Schima boninensis* Nakai)," but he probably did not confirm the specimens because "Lit." means that he checked the literature. In TI, we found three specimens that were collected from Chichijima on different days in July 1905 by H. Hattori. Of them, one (TI [03637]) had "*Schima noronhae* var. *boninensis* H." written on the label in Hayata's handwriting, which is consistent with the citation in the protologue. On the other hand, we could not find Uchiyama's specimens, but we found an anonymous specimen (TI [03639]) without a label but on which "*Schima noronhae* var. *boninensis* H." was directly written in Hayata's handwriting. The specimen, whose collector may be T. Uchiyama, should be an original material along with the three Hattori's specimens. Here, the specimen with Hayata's handwriting (TI [03637]) was designated as the lectotype, because it has the annotation of "*Schima boninensis* Nakai" by T. Nakai in 1918 (Art. 9A.3 of the ICN, McNeill *et al.* 2012).

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