



Cycas taitungensis C.F. Shen, K.D. Hill, C.H. Tsou & C.J. Chen, sp. nov. (Cycadaceae), a new name for the widely known cycad species endemic in Taiwan⁶

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Abstract. The cycad that forms two rather extensive, though highly local, populations in the Taitung region of Taiwan has been identified as *Cycas taiwaniana* Carruth. since its first collection in 1920. This name was proposed in 1893 for a single specimen collected by Swinhoe and labeled as a plant from Taiwan. Our examination of the type collection, however, clearly indicated that the type individual is of a cycad species restricted to Guangdong and some nearby areas, and that this cycad is very different from the cycad native to Taitung, Taiwan. Thus, the mainland species is truly *C. taiwaniana*. It is better called Guangdong cycad, and the species endemic in Taiwan called Taitung cycad, to avoid confusion. The name *C. taiwaniana* is typified and the history of its application is discussed. A new name, *C. taitungensis*, is proposed for the Taitung cycad, with notes on its distribution, ecology, and affinities, and a comparison between it and the Guangdong cycad.

Keywords: Cycad; Cycadaceae; *Cycas* L.; *Cycas taitungensis* sp. nov.; *Cycas taiwaniana* Carruth.; Guangdong cycad; Taitung cycad; Taiwan; Taxonomy.

Introduction

The single genus *Cycas* of the monotypic gymnosperm family Cycadaceae has at least 30 living species distributed in the tropical and subtropical lowlands of the southeastern quarter of Asia and its neighboring areas of Madagascar (and the immediately adjacent continental Africa), N and NE Australia, and SW Pacific (see Dehgan and Yuen, 1983; Schuster, 1932; and the references cited therein). No monographic works have been published for this interesting genus since Schuster's treatment in 1932, which has been justly criticized (Johnson, 1959; Stevenson, 1990) in terms of its academic value.

So far as is known, only one cycad taxon is native to Taiwan, while no less than eight validly-published specific names are applied to the different cycads indig-

enous to mainland China and Hainan. *Cycas taiwaniana*, one of these eight, is claimed to have a geographical range incorporating Taiwan and mainland South China (at least Guangdong and Fujian in this case), as seen in all floristic and revisionary works, except How et al. (1956), published since World War II on both sides of the Taiwan Strait. During independent studies of the identity of the cycad native to Taiwan (Shen and Tsou) and of that of the cycad widely found in Guangdong and Fujian (Hill and Chen), we found that 1) the mainland populations and the Taiwan populations each constitute a coherent and geographically-confined population-group, 2) these two population-groups differ sharply from each other in the expression of nearly every feature taxonomically significant in *Cycas* spp., 3) each of them well deserves specific status, 4) the type collection on which the name *C. taiwaniana* was based was made from an individual typical of the mainland species, and 5) the Taiwan species needs its own specific epithet.

Typification of the name *C. taiwaniana* Carruth.

The species *Cycas taiwaniana* was described by William Carruthers in 1893, based on a single specimen

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⁶ Throughout this paper, Pinyin romanization is used for the mainland localities, whereas the Wade-Gile system is applied to Taiwan localities.

comprising “part of a leaf and three foliar spadices of a *Cycas* from the Island of Formosa ... in the herbarium of Dr. Hance” (now in the BM). He further added: “No more definite information is contained on the label than that the specimens were collected in the island of Formosa by Mr. Swinhoe, and sent to Dr. Hance in the autumn of 1867.” (the foregoing quotations are from Carruthers, 1893: 1–2). Accompanying the description is a line-drawing depicting two very short sections of a compound leaf (each showing one of the two surfaces of a leaf) and a megasporophyll bearing four ovules.

In addition to specimens he sent to Dr. Henry F. Hance (a British consular officer in China from 1844 to 1886), Robert Swinhoe (another British consular officer) had also sent cycad specimens to J. D. Hooker at Kew. The first of them was a single megasporophyll sent from the British Consulate at Xiamen (= Amoy) on Aug 21, 1867, where Swinhoe served as the British representative. It was accompanied by a letter to Hooker in which Swinhoe wrote “Among the [silkworm] cocoons now sent you will find two specimens of an extraordinary leaf. I have worked at it in vain to make out its relations. It looks like a botanical caricature of a *Pelican*. The Chinese call it *Hai-te-Koe* or sea-iron fowl (sea-iron is the name given to the coral submarine trees), and use it to flavour tea. They tell me it is found in fresh-water wells, but it is so rare here that I have not been able to ascertain how it grows, and whether the leaf constitutes the entire plant, ...” (square brackets ours). Swinhoe acquired more complete material later that year, and sent additional specimens to Hance and Hooker.

The holotype of *Cycas taiwaniana* is the sheet labeled “type specimen”, bearing a leaf apex and three megasporophylls with immature ovules, and numbered 14112, most probably in relationship to the Hance herbarium (holo: BM, photo: NSW). Kew holds two sheets of *Cycas taiwaniana* collected by Swinhoe and sent to Hooker, both labeled “isotype”. Of these, the original specimen sent with the letter to Hooker is obviously not part of the same collection as the holotype, judging from its overall morphology, and is thus not an isotype. The second, more complete specimen (photo: NSW), however, appears to include the basal part of the leaf matching the apical section included in the holotype, and can reasonably be accepted as an isotype. These two collections clearly do not conform to the cycad endemic in Taiwan.

Carruthers’ statements concerning the geographical origin of the single specimen he examined are based on the annotation on the sheet, stating “*Cycas*, L. / *circinalis* L. / Ex insula Formosa, / autumn 1867 misit / cl. Swinhoe.” This annotation is not in Swinhoe’s hand, and may have been made by Hance. Consequently, there is no indication from Swinhoe of exactly where any or all of his cycad collections were made.

Thiselton-Dyer (1902) addressed the problem of the origin of these specimens, and cited correspondence to

Kew from British representatives in China. He stated that “Mr. G. Phillips, H.B.M. consul at Takow [= Kaohsiung] and later Swatow [= Shantou] took much trouble to find Swinhoe’s plant. He eventually discovered it in 1883 ‘on the hills 60 miles from Swatow’ and sent specimens to Kew.” (square brackets ours). Phillips himself also wrote to Kew stating that he had never seen the plant in Taiwan, and that it was much sought after as a garden plant on mainland China. Thiselton-Dyer cited specimens collected in the Lofu-Shan on the mainland by Ford as this species, but did not recognize a distinction between the mainland and Taiwan plants.

To avoid confusion, the cycad endemic in Taitung, Taiwan, will be called the ‘Taitung cycad’ whereas the mainland species (*C. taiwaniana*) is called ‘Guangdong cycad’ in the following account.

History of the application of the name *C. taiwaniana* Carruth.

Under the entry *Cycas taiwaniana* in Hayata’s ‘Materials for a Flora of Formosa’ (1911: 308), all he provided is as follows: “HAB. China. I have seen the species in the Herbarium at Hongkong, labelled ‘Kwang-tung, Lofare-shan’. This is very near *C. revoluta* Thunb., but differs from it mainly in the female flowers. So far, we have never seen the plant in Formosa.” No cycads appeared in Hayata’s monumental ‘Icones Plantarum Formosandarum’ (1911–1921, ten volumes) in which 3,737 species and varieties of vascular plants were treated. (It is noted that the total number of species and infraspecific taxa recognized in the six volumes of the multi-authored ‘Flora of Taiwan’, which came out in 1972–1979, is a bit higher, that is, around 4,000.)

As we know, Shunichi Sasaki’s collections made in 1920 (TAI, TAIF; see specimen citations section) from Taitung are the first record of any cycad growing wild in Taiwan. During the half-century period after Swinhoe’s cycad collection in the 1860’s (see above), no taxonomic literature on the flora of Taiwan, except Carruthers (1893), had cited any collection of any cycad from Taiwan, wild or cultivated, other than *C. revoluta*. Robert Swinhoe was among the first to collect in Taiwan. In 1856, 1857, and 1861, he had botanized on three short trips around two Taiwan seaports: Tanshui and Kaohsiung. They are along the northernmost and southwestern coast of Taiwan respectively, and were then two of the most readily accessible biology-collecting regions in Taiwan for a newcomer. Sasaki made his collections somewhere along the river Peinantahsi; it is a section of its upstream ravine that harbors the most extensive natural cycad population in Taiwan. To conclude the tracing of the geographical origin of Swinhoe’s type collection, we can only say that it is unlikely that any foreigner in Swinhoe’s time could travel or had travelled over Taitung — a remote, extensive, and sparsely populated (even nowadays) montane region

occupying almost the entire southeastern quarter of Taiwan — to encounter and collect the Taitung cycad.

Sasaki identified his collections as *C. taiwaniana* on labels most probably because Carruthers had proposed this name for a cycad claimed to have been collected somewhere in Taiwan. Following several successful collecting trips to Taitung in 1923 and 1927, on which abundant materials of the Taitung cycad were obtained, Yoshimatsu Yamamoto (1928) made comprehensive observations on the Taitung cycad. Due to the thoroughness of Yamamoto's work, all later taxonomy-associated works on the cycad native to Taiwan copy Yamamoto in both the details of the distinction between the Taitung cycad and *C. revoluta* as well as the trans-Taiwan Strait distribution of the species *C. taiwaniana* (Kanehira, 1936: 30; Li and Keng, 1954: 27; Liu, 1960: 11; Li, 1975: 496). In this connection, it seems clear that both of these points may well be traced to Hayata (1911).

Early this century some workers on the flora of Guangdong correctly referred the collections of the Guangdong cycad made in Guangdong to *C. taiwaniana*, thus including mainland South China in the natural range of the species *C. taiwaniana*. This opinion is followed by most later plant taxonomists, both in mainland China and in Taiwan. Yamamoto (1928: 7) cited three collections made in mainland China under the name *C. taiwaniana*: "China (?Fokien: Amoy (*Swinhoe*); Kwang-tung: Swatow (*G. Phillips* !), Lofaushan ad 600 ped. alt. (*Ford* !)." without further comment. As we quoted before, Hayata had examined a specimen from Luofushan (= Lo-fare-shan, Lofaushan) in Guangdong Province, which was housed in HK; this is, perhaps, the Ford collection later cited by Yamamoto. If this is the case then it sounds reasonable and possible that it was Ford who first identified his Luofushan cycad collection(s) as *C. taiwaniana*, and that he had thereby influenced the subsequent identification of this sort of non-*revoluta* cycad plants seen in the southernmost coastal provinces of the mainland China as *C. taiwaniana*. On the other hand, Ford had obviously — given that our first two suppositions are correct — influenced Hayata, and in turn Yamamoto, in their recognition of the presence of *C. taiwaniana* in mainland China.

Two highly influential publications on Chinese flora did not follow Ford's tradition. Chen (1947, reprinted in Shanghai in the 1950's, and in Taipei in 1975) did not mention the name *C. taiwaniana* at all in his 'Taxonomy of Chinese Trees'. In 'Flora Guangzhouica' (How et al., 1956: 66) the non-*revoluta* cycad widely cultivated in Guangzhou was identified as *C. pectinata*, rather than *C. taiwaniana*. Even in the preliminary publication (Cheng, Fu, and Cheng, 1975: 59) prepared for the gymnosperm volume of the "Flora Reipublicae Popularis Sinicae" Taiwan was regarded as the sole home of the species *C. taiwaniana*.

In 'Flora Reipublicae Popularis Sinicae', Fu, Cheng, Fu, and Chen (1978: 11) considered that *C. taiwaniana*

is distributed in "... Taiwan, ..., Luofushan of Guangdong, Hainan, and Xiamen of Fujian.", and is cultivated in Taiwan, and "such places of Fujian as Xiamen and Yongtai, and those of Guangdong as Guangzhou and Shantou." (Notes: Xiamen = Amoy, Shantou = Swatow, Fujian = Fokien, Guangdong = Kwang-tung; all translations appearing thereafter are ours.) According to 'Flora Fujianica', *C. taiwaniana* is "Distributed in Taiwan and Guangdong." and is "Often cultivated in Xiamen, Zhangzhou, Guangzhou, and Fuzhou." (Ling and Zhang, 1982: 269). Cheng, Fu, Chu, and Hao (1983: 152) listed Taiwan and Luofushan of Guangdong as the only two habitats of *C. taiwaniana* in the 'Tree Flora of China, Vol. 1.' In the 'Illustrations of Rare and Endangered Plants in Guangdong Province' (Wu and Hu, 1988: 1), *C. taiwaniana* in the wild state was claimed to be "Seen only in Buoluo (Luofushan) within our province." Prof. Ling's most recent research (Ling, 1991: 46-47) on *C. taiwaniana* appeared in the 'Red Book of Chinese Plants, Vol. 1'; he indicated that *C. taiwaniana* is "Distributed in ... Taiwan and such Hainan counties as Lingshuei, Qiongzong, and Baoting.", and is "Cultivated in Guangzhou, Wengyuan, Dinghushan, Luofushan, Haikou, Shantou, Zhangpu, Xiamen, and Fuzhou."

To close this section, a few words may be pertinent. The whole issue discussed here can be attributed largely to two simple facts. First, researchers stationed in Taiwan have little access to the type collections of names long applied to the plants of Taiwan. Second, those working in mainland China have at best a few specimens from Taiwan at their disposal. If this situation is not corrected as soon as possible, the resolution of important taxonomic problems like this will be seriously postponed.

Cycas taitungensis C.F. Shen, K.D. Hill, C.H. Tsou & C.J. Chen, sp. nov. 台東蘇鐵 **Fig. 1**

TYPE: Taiwan, Taitung Hsien (台東縣), Yenping (延平), ca. 121°00' E, 22° 52' N, elev. ca. 500 m, in the Cycad Reserve, 28 Jun 1993, *Chih-Hua Tsou* 825 (holotype: HAST; isotypes: A, BM, IBSC, K, NSW, NY, P, PE, TAI).

Cycas taiwaniana auct. non Carruth., p.p., quod pl. Taiwan.: Yamamoto, Suppl. Ic. Pl. Form. 4: 3, fig. 2 & pls. 1, 2, 4, 1928; Kanehira, Form. Trees, rev. edn.: 30 & pl. 9, 1936; Li & Keng, Taiwania 5: 27 & pl. 1, 1954; Liu, Ill. Nat. Intr. Lign. Pl. Taiwan 1: 11 & fig. 8, 1960; Li, Fl. Taiwan 1: 496 & pl. 170 a, b, 1975.

Cycas revoluta Thunb. var. *taiwaniana* (auct. non Carruth., p.p., quod pl. Taiwan.) J. Schuster, Engler, Pflanzenz. 99(4-1): 84. 1932.

Truncus crassus cylindricus, ad 5 m altus 45 cm in diametro. Folia pinnatisecta, apice emarginatis, petiolo in sectione ovoideo; folioris frondium utrinque (110–)130–170(–200), mediis longioribus (12–)14–17(–20) cm longis (5–)5.5–6.5(–7) mm latis, coriacea lineari-

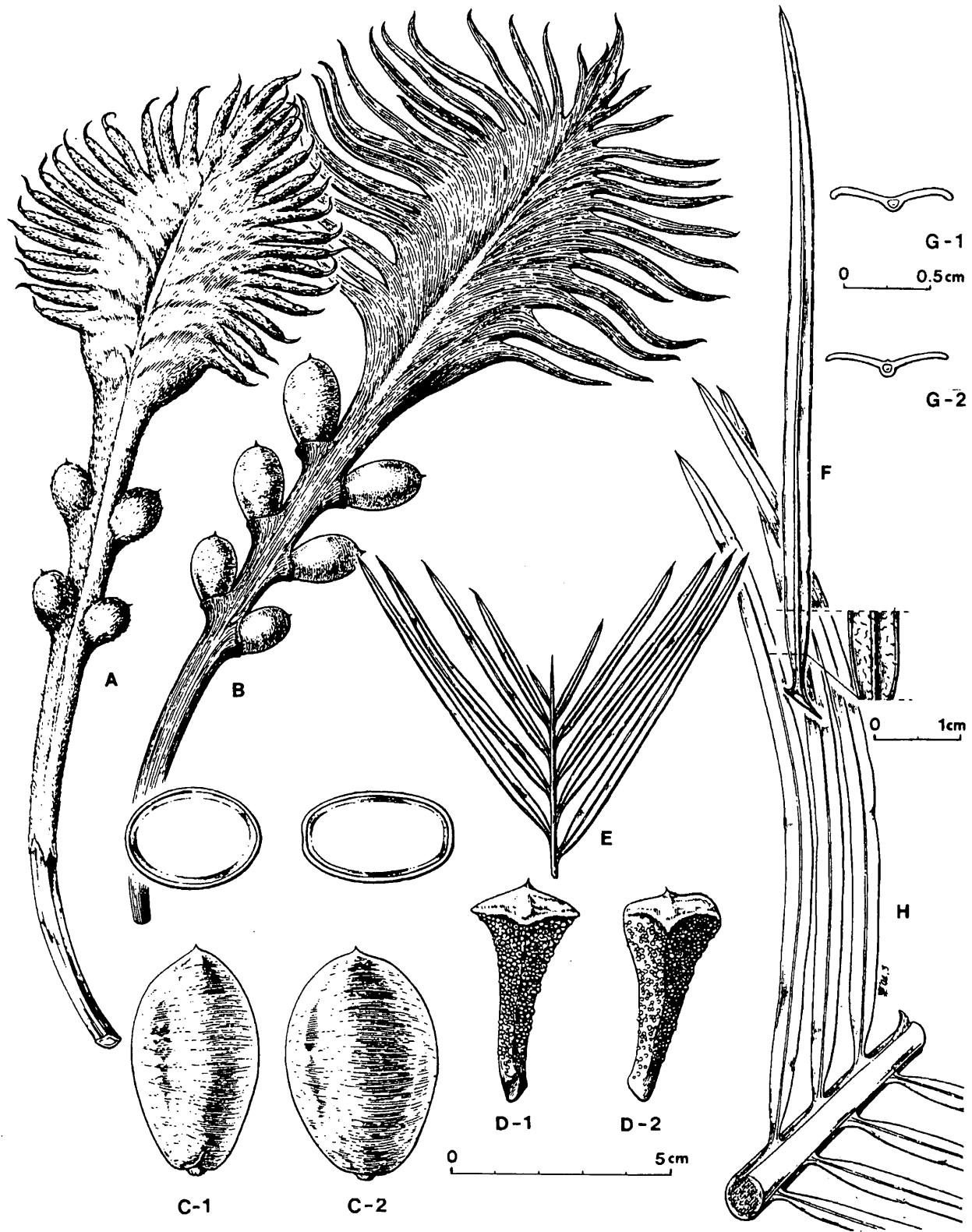


Fig. 1. *Cycas taitungensis* C.F. Shen et al., sp. nov. **A)** a female sporophyll in June; **B)** a female sporophyll in September with slightly enlarged ovules that were not fertilized; **C)** 2 mature seeds and their cross-sectional views, C-1: common type, C-2: rare type; **D)** abaxial view of 2 male sporophylls, D-1 and D-2; **E)** typical apex of a compound leaf; **F)** abaxial view of a leaflet, with an enlargement; **G)** 2 cross-sections of leaflet, G-1 and G-2; **H)** adaxial view of a short section of rachis of a compound leaf.

lanceolata stricta vel leviter falcata ad summum spinoso-acuminata, margine plus minus callosa vel leviter revoluta, nervo subtus prominente elevato supra saepe leviter elevato. Strobilus masculus ovoido-cylindricus 45–55 cm longus. Macrosporophylla lamina terminali sterili maturitate horizontalis elliptica 5.5–7 cm longa 8–11 cm lata, profunde pinnatifida, segmenta utrinque 14–18; partis centralis rhombicis vel late fusiformis; basi in stipitem 5–17 cm longi 4.5–8 mm in diametro; ovulis 1–3 in utroque latere partis superioris stipitis sitis, fulvo-tomentosis. Semina saepe elongato-obovoidea compressa (3.5–)4–4.5(–5) cm longa 2.4–3.3 cm in longi-diametro 1.8–2.5 cm brevi-diametro, aureolino-rubra; strato medio facie irregulariter rugoso.

Trunk to 5 m tall and 45 cm in diameter, sometimes branched. Leaves flushing in February–March, up to 50 leaves in a flush; simply pinnate, linear-oblong to elongated oblong, (1.1–)1.3–1.6(–1.8) m long, (20–)24–30(–37) cm broad, the topmost (1–)3–4(–6) leaflets generally reduced in sequence to approach in length the spine-like (to 1 cm long) and often pungent rachis-apex, and thus forming an emarginate apex of the compound leaf; the spine-bearing rachis-base (10–)15–25(–30) cm long, 6–10 mm in diameter, generally rounded transversely on both surfaces, bearing (5–)7–11(–14) spines along the upper portion of each lateral side; spines 2–3 mm long; leaflets (110–)130–170(–200) on each side of a rachis, closely spaced at the rate of (10–)11–12(–13) leaflets within a distance of 10 cm along a side, lanceolate-linear, straight to slightly falcate, ending in a rigid, pungent point, basally constricted and then decurrent downward to the rachis, thick-coriaceous and hard, margin generally slightly thickened and/or slightly revolute, the median ones (the largest) (12–)14–17(–20) cm long, (5–)5.5–6.5(–7) mm broad, and so aligned to form a 55–65-degree angle with the rachis, when fresh dark green and lustrous above and lighter green and dull below whereas when dry sometimes somewhat discolored and then turning duller above, midvein concolorous with the leaf-surface where it is exposed; in both fresh and dry (and pressed) conditions the midvein slightly elevated or flattened above but consistently and persistently strongly elevated below; lower surface covered with long glandular hairs in flushing stage, often becoming glabrous with age. Male cone ovoid-cylindric, generally 45–55 cm long, when dry and closed 6–7 cm in diameter and when fresh and open 8–10 cm; male sporophylls narrowly obtriangular, the median ones generally 3.5–4.5 cm long, (1.2–)1.4–1.6(–1.8) cm broad and apically cuspidate with the apical extension 1–2.5 mm long. Female sporophylls heavily yellowish-tomentose in pollination stage but sometimes becoming glabrous with age, spade-like; the upper sterile lamina pinnatifid, generally orbicular and smaller in pollination stage and becoming larger and horizontally elliptic when seeds mature, when bearing mature seeds generally 5.5–7 cm long (the projecting apical pinna and the tapering lamina-base not considered) and 8–11 cm broad, with the undivided central portion rhombic to broadly fusiform, 6–7

cm long, 2.5–3.5 cm broad; pinnae 14–18 on each side, the median ones 2.5–4 cm long, the upper ones shorter and gradating to the divisions on the apical pinna, the latter slightly broader than its subjacent pinnae, pinnatifid, generally slightly but definitely projecting outside the geometrized curve connecting the apical points of all lateral pinnae; the stalk of the sporophyll 5–17 cm long with the median ones the longest and the outermost the shortest, subrhombic transversely, 4.5–8 mm in diameter, bearing (1–)2(–3) ovules on each side of its upper portion; ovules densely yellowish-tomentose, generally oblong and compressed, 10–13 mm long. Seeds generally narrowly obovate to narrowly elliptic, sometimes approaching oblong, compressed, (3.5–)4–4.5(–5) cm long, equatorially elliptic to oblong, 2.4–3.3 cm in long diameter, 1.8–2.5 cm in short diameter; generally heavily pruinose, often with remnant hairs; outer seed-coat orange-yellow to orange-red or even reddish when mature, becoming purplish red and shrunken when dry, with diminutive horizontal wrinkles even when fresh; flesh thin, soft, pulpy; stone irregularly to coarsely rugosely sculptured, with a few corky ridges along each of its 2 lateral sides; maturing in September–October of the current year.

Additional Specimens Examined

CHINA. TAIWAN. Taitung Hsien: Peinantahsi, 1920, *S. Sasaki* 2558 (TAIF), 2559 (TAIF), 2560 (TAIF), 2561 (TAIF), 2562 (TAIF), 2563 (TAIF), 2564 (TAIF), *s.n.* (TAI-12505); Yenping, inter Seisui et Matsuyama, 1928, *Y. Yamamoto & Z. Goto* (TAI-12506, 12507); Yenping, inter Seisui et Kaede, 1937, *Y. Yamamoto & K. Mori* YM-58 (TAI-12504); Yenping, Cycad Reserve, 1991, *C. H. Tsou* 420 (HAST-21357), *C. H. Tsou* 422 (HAST-22281), *C. H. Tsou* 569 (HAST-19241-5), *C. H. Tsou* 572 (HAST-19240, 19246-9). Loc. unknown: cult., 1927, *S. Sasaki s.n.* (TAI-12503).

Distribution

The specific epithet *aitungensis* refers to the geographic range of the species. Taitung is a Hsien (county) in SE Taiwan, in which the only two currently known populations of this cycad are located. The first grows along an inland montane ravine (ca. 121° 00' E, 22° 52' N, in Yenping Hsiang, ca. 300 ha), and the second is situated west of the main divide of the Taitung Coastal Range (ca. 121° 15' E, 23° 05' N, in Tunghe Hsiang, ca. 30 ha). In both localities the cycad individuals generally thrive at exposed sites on rocky and steep slopes or well-drained gravel land of ca. (300–)400–800(–950) m in elevation, mixed with other sun-loving and more drought-tolerant plants. For more information about these two populations, see Hsu et al., 1980: 36; Hsu and Lu, 1984: 22–23, 146–147; among others. The Taiwan Cycad Nature Reserve, one of the nine nature reserves established during 1986–1988 by the Committee of Agriculture of the Government of the Republic of China, conserves the

larger population. In 1988, this government agency recognized eleven plants of Taiwan as cherished and rare plants to be protected by law; including the Taitung cycad. In Taiwan, biology-conservation posters always feature the Taitung cycad when only one plant species is to represent the native plant resources to be conserved. Its natural generation is now severely hampered by the overwhelming theft of propagules and seedlings by poachers. The species is now in wide cultivation all over the world.

Discussion

Yamamoto (1928) presented an excellent list of contrasting characteristics between *C. revoluta* and the Taitung cycad when he convincingly argued for the distinctiveness of these two species. Schuster (1932) reduced the name *C. taiwaniana* as a variety of *C. revoluta*. Though he mixed the Taitung cycad and Guangdong cycad in his concept of such a variety *taiwaniana*, his establishment of a monotypic section *Asiorientales* is, however, correct in associating the Taitung cycad with *C. revoluta*. In our opinion, *Cycas taitungensis* is closely related to, but clearly distinct from and on the average slightly more primitive than, *C. revoluta*, whereas *C. taiwaniana* is definitely a member of another species-group that embraces at least *C. szechuanensis* and *C. hainanensis* in addition.

Cycas taitungensis is readily distinguishable from *C. taiwaniana* in many features. The former has leaflets much narrower [(5–)5.5–6.5(–7) mm], clearly shorter [(12–)14–16(–20) mm], with an upper surface shining when fresh but often turning discolored and duller when dry and a somewhat hairy lower surface that is not lustrous even when fresh, bearing a midvein that is concolorous with the leaf-surface on which it is exposed and is slightly elevated to flattened above but strongly elevated and transversely rounded below even when dry; the entirety of the sterile lamina of its female sporophylls is orbicular to horizontally elliptic, and its undivided central portion is rhombic to broadly fusiform in shape; its ovules are tomentose; and its seeds are generally narrowly obovate, upon maturity exhibit peculiar and delicate horizontal wrinkles even when fresh, and with a sclerotesta irregularly grooved. In contrast, the leaflets of the latter are (7–)8–12(–13) mm broad, (15–)18–25(–30) cm long, lustrous on both surfaces regardless of their vitality, bearing a midvein that is persistently yellowish where exposed and is strongly elevated and transversely rounded above even when dry but less elevated below when fresh and becoming somewhat shrunken when dry; the two corresponding parts of the female sporophylls are both generally trullate to broadly ovate in shape; its ovules are glabrous; and its seeds are broadly elliptic to oblong, simply rugose when dry and shrunken, and with a verrucose sclerotesta.

We have examined the following collections of *Cycas taiwaniana* Carruth.: CHINA. FUJIAN. Fuzhou: cult.,

1932, *Ishii s.n.* (TAI-12509, 124??). Xiamen: cult., 1952, *R. C. Lin* 2916 (IBSC-242247). GUANGDONG. Gaoyao: *G. L. Shi* 12204 (IBSC-433106); Guangzhou: cult., 1937, *S. H. Chun* 6937 (IBSC-198536); Pingyuan: 1957, *L. Deng* 4410 (IBSC-288873); Ruyuan: 1983, *P. C. Tam & H. H. Huang* 321 (IBSC-588361); Wengyuan: *S. K. Lau* 2653 (IBSC-280326); 1935, *S. K. Lau* 24847 (IBSC-116170); Xianggang: cult., 1887, *S. C. 45/88* (K). HAINAN. Qiongdong: 1954, *H. Y. Liang* 68119 (IBSC-206327). LOC. UNKNOWN: *Swinhoe s.n & s.d.* (holotype: BM; isotype: K).

Postscript. Hill and Chen completed a manuscript on the taxonomy and morphology of the Chinese native species of *Cycas* in July 1993; it was ready for submission for publication in its revised form in February 1994. A new name was therein proposed for the cycad occurring in Taitung. In 1993, quite independently, Shen and Tsou were exposed to the troublesome issues concerning the taxonomy and nomenclature of the cycad indigenous to Taiwan, when Tsou was working on an ecological investigation of this cycad. After Shen's return to Taiwan from an academic trip to mainland China in December 1993, they reached a similar conclusion to Hill and Chen's. A new name has appeared in their manuscript that was submitted in January 1994 and which deals chiefly with the taxonomy and nomenclature of the Taitung cycad. The two parties were not aware of each other's work until January of this year. They agreed, however, to jointly publish a paper to clarify the long-standing mistakes in the taxonomy of the two cycad species endemic in the immediately neighboring lands separated by the Taiwan Strait. In this paper, Hill and Chen are responsible for the typification of *C. taiwaniana*, Shen and Tsou prepared the description of *C. taitungensis*.

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Cycas taitungensis C.F. Shen, K.D. Hill, C.H. Tsou & C.J. Chen, sp. nov. (蘇鐵科), 特產於台灣之蘇鐵之新種名

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台灣省台東縣境內野生的蘇鐵最早由佐佐木舜一在西元 1920 年採到，一直被本地學者當然認定為 *Cycas taiwaniana* Carruth.，但他們從未查驗過這個名字的模式。這個名字發表於 1893 年，祇基於一張由 R. Swinhoe 所採的標本。十九世紀末葉採於廣東及其鄰近地區的某類蘇鐵標本在本世紀初已普遍被鑑定為 *C. taiwaniana*，中國大陸的植物分類學者現在也幾乎一致同意這個鑑定；但我們發現這類迄未見於台灣的蘇鐵的整體分類特徵與自生於台東的蘇鐵的形貌特色大相逕庭，而且這兩類蘇鐵甚至應分屬於兩個不同的種群。我們於是查驗了 *C. taiwaniana* 的正模式標本 (*R. Swinhoe s.n., s.d. & s.l.*, 現藏 BM, 原屬 Hance herb.)，並且追考了它的採集地點。我們首先發現模式個體很清楚地屬於前述特產於廣東一帶的蘇鐵，因此 *C. taiwaniana* 這個名字指的乃是這個從未在台灣看到過的種；而特產於台東的蘇鐵則還沒有名字，我們於是在本文中為它擬了一個名字：*C. taitungensis* C.F. Shen, K.D. Hill, C.H. Tsou & C.J. Chen, sp. nov.。今後為避免混淆，*C. taiwaniana* 的中文標準名最好叫做廣東蘇鐵，而逕稱 *C. taitungensis* 為台東蘇鐵。對 *C. taiwaniana* 正模式的地理來源的考證則包括下述四項。第一：這張標本上的標籤文字 (*Cycas L. / circinalis L. / Ex insula Formosa, / autumn 1867 misit / cl. Swinhoe*) 的字跡並非 Swinhoe 親筆，而顯然係出於 Hance 之手。第二：Swinhoe 在 1867 年夏／秋曾自廈門英國領事館寄送蘇鐵標本分別給 H.F. Hance 與在 Kew 工作的 J.D. Hooker，後者並曾隨標本收到一封 Swinhoe 的信 (日期為 1867.8.21)，信裡說寄給他的東西裡有 "一種很不尋常的葉子"，當地中國人叫做海鐵鷄，但並非 Swinhoe 親手所採，於採集地點 (甚至省份) 也一字未提。第三：Swinhoe 曾於 1856, 1857, 1861 年三度來台，但僅在淡水及高雄 (二地當時皆設有英國領事館，時 Swinhoe 任職於廈門英國領事館) 一帶短期採集生物標本；而他發表於 1863 年的〈台灣植物目錄〉中並沒有提到他曾經在台灣見到過 "一種很不尋常的葉子"。第四：Swinhoe 歷年在中國所採得的植物標本都寄送英國學者研究，在英國諸大標本館現藏的 Swinhoe 所採的蘇鐵標本中，我們沒有發現任何一張是台東蘇鐵，而廣東蘇鐵則 (除了 BM 的正模式之外) 祇在 K 發現兩張，都沒有地點記錄。最後，我們祇能說 *C. taiwaniana* 的模式地理來源 (省份) 現在已經無法確知，但極不可能是台灣。本文結尾簡略提到台東蘇鐵的分佈狀況，生態環境，譜系關係，以及它與 *C. taiwaniana* 之間的外觀形態比較。

關鍵詞：蘇鐵；蘇鐵屬；蘇鐵科；*Cycas taitungensis* sp. nov.；*Cycas taiwaniana* Carruth.；廣東蘇鐵；台東蘇鐵；台灣；分類學。