

THE FLORA OF TAIPINGTAO (ABA ITU ISLAND)

Tseng-Chieng Huang^(1,2), Shing-Fan Huang⁽¹⁾ and Kuo-Cheng Yang⁽¹⁾

ABSTRACT: A Botanical inventory at Taipingtao of South China Sea was carried out the first time during April 19 to 23, 1994. One hundred and ten species are recorded. Eighty one out of 109 species are considered as native vascular plants. Most of them are tropical strand plants which form the coastal forest of the island. Nine species, i.e. *Ochrosia oppositifolia*, *Acalypha boehmerioides*, *Caesalpinia major*, *Triumfetta procumbens*, *Pipturus argenteus*, *Cayratia trifolia*, *Digitaria setigera* var. *calliblepharata*, *Stenotaphrum micranthum* and *Pandanus tectorius*, were not recorded previously in the Flora of Taiwan.

KEYWORDS: Flora, Taipingtao.

INTRODUCTION

Taipingtao (Aba Itu Island), belonging to Kaohsiung City, Taiwan, politically, is situated on Tizard Bank and Reefs of the South China Sea at latitude 10° 22'50"N and longitude 114° 20'30"E about 1,600 kilometers away from Kaohsiung Harbour, Taiwan (Fig. 1). This island is oblong in shape extending from southwest to northeast with the longest length about 1,300 meters and widest width about 400 meters bearing 0.48 square kilometers in area.

The island is an atoll consisting of a tropical reef covered with sandy coral and shell. It is rather flat and low with an elevation of only 4 meters.

According to the meteorological annual report of the Navy during the past five years (Chinese Navy Weather Center, 1989-1993), the weather conditions are as follows: The daily average temperature is 28.5°C. The average wind speed is 3 m/s. It blows softly from the southwest from June to September, but sometimes, influenced by typhoon's outside current, the wind is strong, up to 14 m/s. It blows from the northeast from October to April, and is rarely struck by typhoons when the wind speed may be up to 12 m/s. The average annual humidity is about 83%. It rains in summer and winter. The average annual precipitation is about 1,500 mm, but the range in precipitation is large in the past five years, from 669 mm to 2,144 mm.

The underground water is salty and unusable for drinking.

(1.) Department of Botany, National Taiwan University, Taipei, Taiwan, R. O. China.

(2.) Corresponding author.

A tomb more than one hundred years old indicates that human activities started long ago on this island. A stone tablet made by the Japanese pointed out that Japanese once were present. Now Taiwan's army resides here and puts up constructions which more or less impact the natural vegetation of this island.

To date, no botanical inventory has been undertaken for the flora of this island.

The plants' determination and distribution patterns were determined from the Flora of Taiwan (Li et al. 1975-1979, Huang & Ohahsi, 1993), the Flora of Java (Baker & van den Brink, 1963-1968), An Enumeration of Philippine Flowering Plants (Merrill, 1923-1926), the Flora of Malay Peninsula (Ridley, 1923-1925), and the Flora of Okinawa (Walker, 1976)

The plants are classified into four groups in the order of Fungi, Pteridophytes, Dicotyledons and Monocotyledons. All taxa are listed alphabetically. The field collections were made by Tseng-Chieng Huang, Shing-Fan Huang and Kuo-Cheng Yang during April 19 to 23, 1994. Specimens are deposited in the TAI-Herbarium, Botany Department, National Taiwan University. The vouchers are also listed for each species to make further examination possible later.

Nine species, i.e. *Ochrosia oppositifolia*, *Acalypha boehmerioides*, *Caesalpinia major*, *Triumfetta procumbens*, *Pipturus argenteus*, *Cayratia trifolia*, *Digitaria setigera* var. *calliblepharata*, *Stenotaphrum micranthum*, and *Pandanus tectorius*, do not occur in Taiwan proper and its adjacent islands.

GENERAL VEGETATION (Fig. 1)

The climax vegetation of the island is coastal forest with the trees up to 20 meters high. The main tree components are *Hernandia sonora*, *Terminalia catappa*, *Ochrosia oppositifolia* and *Morinda citrifolia*. Some other less abundant tree species can be found, such as *Pisonia grandis*, *Calophyllum inophyllum*, *Pandanus tectorius*, *Cocos nucifera* and *Barringtonia asiatica*. The second story of the forest is rather scarce owing to the human disturbance. On the main forest floor are *Thuarea involuta*, *Stenotaphrum micranthum*, and *Cyperus javanicus*. Very few woody vine species such as *Caesalpinia bonduc* and *C. major* are amongst the thickets. The main shrubs such as *Scaevola sericea*, *Messerschmidia argentea* and *Guettarda speciosa* forming a brush that fences in the island.

The open beach supports clumps of *Ipomoea pes-carpa* ssp. *brasiliensis*, *Thuarea involuta*, *Wedelia biflora* and *Sesuvium portulacastrum* and by scattered *Chamaesyce atoto*.

Due to human activities, one third of the island has been badly disturbed. The understory shrubs and forest floors are frequently cleared so that some regions become grassland with scattered trees. The scattered trees usually seen are *Morinda citrifolia*, *Scaevola sericea*, *Guettarda speciosa* and *Pipturus argenteus* while the main components of the grassland are *Tridax procumbens*, *Eragrostis amabilis*, *Phyla nodiflora*, *Stachytarpheta urticaefolia*, *Boeharvia diffusa*, *Sida rhombifolia*, *Panicum repens* and *Cyperus rotundus*.

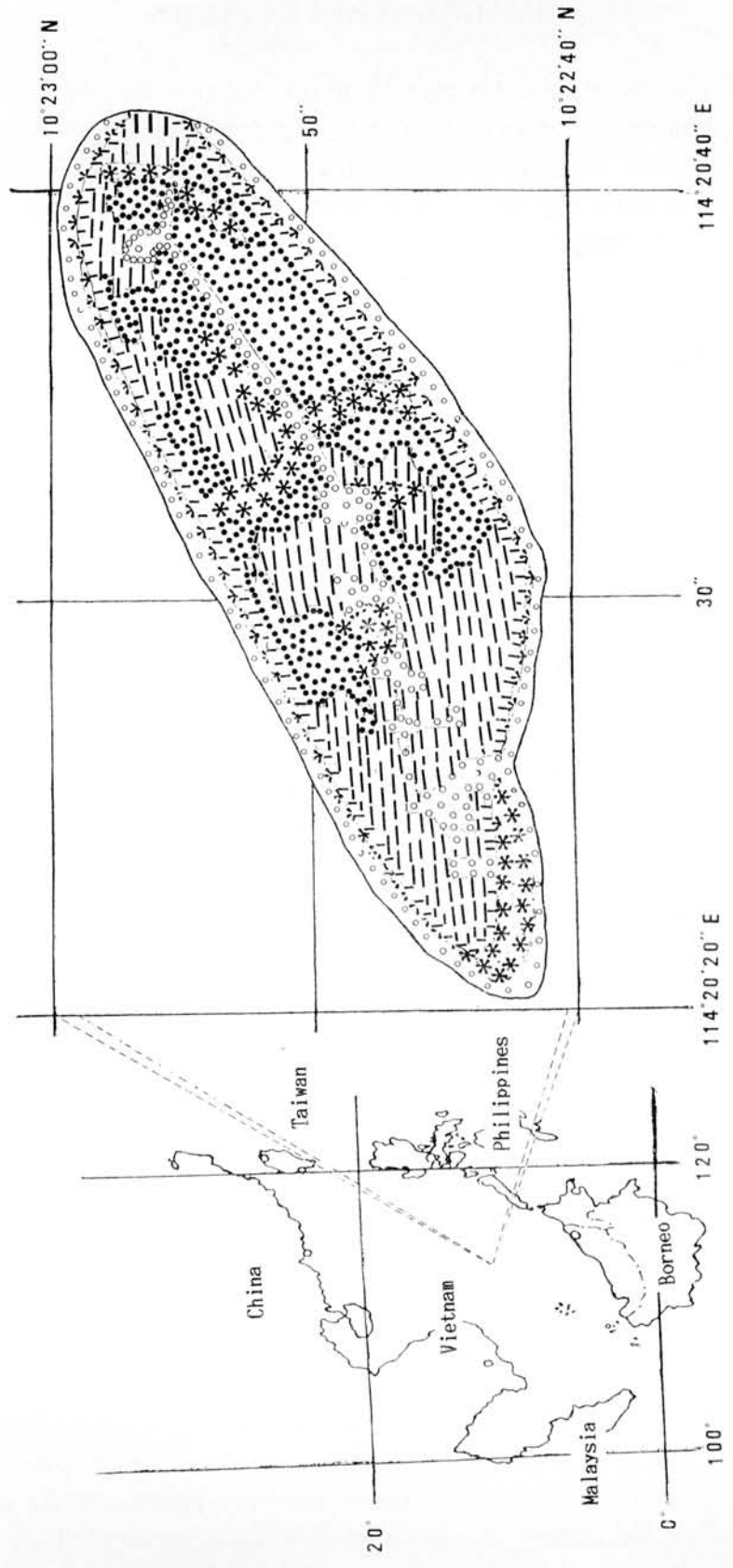


Fig. 1. Vegetation map of Taipingtao.
○ naked area; * grassland; || brush; = scattered trees; ● coastal forest

IMMIGRATION PATTERN

A total of 109 species of vascular plants and one fungous species are recorded (checklist). According to the plant immigration pattern on this island, six kinds of immigrants can roughly be recognized as follows: 1) carried in by oceanic current; 2) carried in by birds; 3) carried in by wind; 4) species naturalized after introduction by man; 5) cultivated species planted by man; and 6) dispersal method unknown or carried by man unintentionally.

Plants dispersed by oceanic currents inhabit coastal area around the world and bear buoyant fruits or seeds such as *Hernandia sonora*, *Terminalia catappa* and *Barringtonia asiatica*. Plants dispersed by birds bear fleshy or sticky fruits such as *Pipturus argenteus*, *Pisonia grandis*. Plants dispersed by wind bear light seeds or spores such as *Psilotum nudum*, *Nephrolepis auriculata* and *Trametes orientalis*. Naturalized plants are those whose native habitats are not in tropical Asia. Plants are cultivated for their fruits or ornamentation. On the whole, 32 species are dispersed by oceanic currents; 6 species by birds; 5 species by wind; 39 species by unknown methods; 13 species are naturalized and 15 species are cultivated. (Table 1)

Table 1: The composition, immigration pattern and habits of vascular plants in Taipingtao.

TAXA		COMPOSITION			IMMIGRATION PATTERN						HABIT			
		FAMILY	GENUS	SPECIES	S	B	W	U	N	C	Tree	Shrub	Vine	Herb
PTERIDOPHYTES	a	2	2	3	0	0	3	0	0	0	0	0	0	0
	b	2	2	3	0	0	3	0	0	0	0	0	0	3
DICOTYLEDONS	a	36	68	82	28	6	1	22	11	14	13	20	12	37
	b	25	45	57	28	6	1	22	0	0	10	10	11	26
MONOCOTYLEDONS	a	7	22	24	4	0	0	17	2	1	2	0	0	22
	b	6	19	21	4	0	0	17	0	0	2	0	0	19
TOTAL	a	45	92	109	32	6	4	39	13	15	15	20	12	62
	b	33	66	81	32	6	4	39	0	0	12	10	11	48

a: total species; b: excluding naturalized and cultivated species.

B: birds; C: cultivated species; N: naturalized species; S: oceanic currents; U: unknown methods; W: wind.

FLORISTIC COMPOSITION

Eighty one species, excluding cultivated and naturalized species, belonging to 66 genera in 33 families are considered to be native plants. Among them, three species are Pteridophytes, 57 species belonging to 45 genera in 25 families are dicotyledons and 21 species belonging to 19 genera in 6 families, including one marine species, are monocotyledons.

The largest family of the vascular plants is the Gramineae (Poaceae) containing 13 species, the second Rubiaceae and Cyperaceae, each containing 4 species. The habits of the vascular plants are summarized as follows: 12 species are trees; 10 species are shrubs; 11 species are vines or lianas; 48 species are herbs. (Table 1)

DISTRIBUTION PATTERNS

The distribution patterns of the vascular plants are classified into 11 patterns, i.e. 1) Subtropical and warm temperate regions of the world, 2) tropics and subtropics of the world; 3) Pantropics; 4) Paleotropics; 5) Tropical Asia, Australia, Pacific islands and Indian islands; 6) Tropical Asia, Africa and Indian islands; 7) Tropical Asia and Africa; 8) Tropical Asia, Australia and Pacific islands; 9) Tropical Asia and Australia; 10) Tropical Asia and Pacific islands; 11) Tropical Asia.

The species are completely tropical but so widely distributed that some may extend to subtropical regions (Table 2). The significant elements are pantropical, paleotropical and from the region of tropical Asia, Australia and the Pacific islands.

Table 2: The distribution patterns of species of vascular plants in Taipingtao.

DISTRIBUTION PATTERN	TAXA AND IMMIGRATION TYPE												TOTAL	
	PTERIDOPHYTES				DICOTYLEDONS				MONOCOTYLEDONS					
	B	S	W	M	B	S	W	M	B	S	W	M		
Subtropical regions								4					4	8
Tropic and subtropics			1										3	4
Pantropics			1				9	8						22
Paleotropics					1	5		4					1	11
Tropical Asia, Australia						5		1					1	7
Pacific Islands and Indian Island														
Tropical Asia, Africa and Pacific Islands										2			1	3
Tropical Asia and Africa								1						1
Tropical Asia, Australia and Pacific Islands					3	5				1				9
Tropical Asia and Australia							1	1					2	4
Tropical Asia and Pacific Island					1	3		1						5
Tropical Asia			1		1			3					2	7
TOTAL			3		6	28	1	22		5			17	81

B: birds; S: oceanic current; M: unknown methods; W: wind

ACKNOWLEDGEMENTS

The botanical expedition was funded by the Council of Agriculture, Executive Yuan, R.O.China. Some specimens of Gramineae and Boraginaceae were determined by Drs J.F. Veldkamp and Ding Hou of the Rijksherbarium, Leiden, the Netherlands. The writers want to express their gratitude to them. They also thank Dr. Tung-Chu Liu of the Provincial Research Institute of Forestry, Taipei, for his determination of the fungus species.

LITERATURE CITED

- Baker, C.A. and R.C.B. van den Brink, 1963-1968. Flora of Java. vol. 1-3. N.V.P.Noordhoff, Groningen, The Netherlands.
- Chinese Navy Weather Center (ed.), 1989-1993. Meteorological Annual Report of Navy. Chinese Navy Weather Center, Taipei.
- Huang, T.C. & H. Ohashi, 1993. Leguminosae. In: T.C.Huang et al. (eds.), Flora of Taiwan 2nd. ed., Bot. Dept. Press, Nat. Taiwan Univ. Taipei. **3**: 160-397.
- Li, H.L., T.S. Liu, T.C. Huang, C.E.DeVol and T. Koyama (eds.), 1975-1979. Flora of Taiwan vol. 1-5. Epoch Publ. Co. Ltd, Taipei, Taiwan.
- Merrill, E.D. 1923-1926. An Enumeration of Philippine Flowering Plants. vol. 1-4. Manila Bureau of Printing.
- Ridley, H.N. 1922-1925. The Flora of the Malay Peninsula. vol. 1-5. L. Reeve & Co. Ltd, London.
- Walker, E.H. 1976. Flora of Okinawa and the Southern Ryukyu islands. Smithsonian Institution Press, Washington, D.C.

CHECK LIST OF PLANTS OF TAIPINGTAO
(* , a preceeding asterisk for plants of non-natives)

FUNGI

POLYPORACEAE

Trametes orientalis (Yasuda) Imazuki 東方木栓菌

Habitat: Epiphyte on decayed trunk of *Hernandia sonora* L.

Distribution: Japan, Continental China, Taiwan, Pacific islands.

Voucher: *T.C.Huang et al. 16508A*

PTERIDOPHYTA

OLEANDRACEAE

Nephrolepis auriculata (L.) Trimen in J. Linn. Soc. Bot. **24**: 152. 1887; DeVol & Kuo in Fl.

Taiwan **1**: 320. *pl. 113*. 1975. 腎蕨

Habitat: Epiphyte on trunk in *Terminalia* forest.

Distribution: Tropical Asia.

Voucher: *T.C.Huang et al. 16477* .

Nephrolepis biserrata (Sw.) Schott, Gen. Fil. *pl. 3*. 1834; DeVol & Kuo in Fl. Taiwan **1**: 322.

1975. 長葉腎蕨

Habitat: Epiphyte on trunk in *Hernandia* forest.

Distribution: Pantropics.

Voucher: *T.C.Huang et al. 16384, 16392*.

PSILOTACEAE

Psilotum nudum (L.) Beauv., Prodr. Fam. Aetheog. 112. 1805; DeVol & Kuo in Fl. Taiwan **1**:

25. *pl. 1*. 1975. 松葉蕨

Habitat: On roots in *Hernandia* and *Terminalia* forests.

Distribution: Tropics and subtropics.

Voucher: *T.C.Huang et al. 16404, 16447*.

DICOTYLEDONS

ACANTHACEAE

- ***Blechum pyramidatum** (Lam.) Urban. in Fedde Rep. **15**: 323. 1918; Hsieh & Huang in Fl. Taiwan **4**: 625. *pl. 1131*. 1978. 賽山藍
Habitat: Semi-open place in forest.
Distribution: Native to tropical America.
Voucher: *T.C.Huang et al. 16351, 16443*.

AIZOACEAE

- Sesuvium portulacastrum** (L.) L., Syst. ed. 10. 1058. 1759; Liu & Chen in Fl. Taiwan **4**: 309. *pl. 307*. 1978. 海馬齒
Habitat: Open beach.
Distribution: Pantropics.
Voucher: *T.C.Huang et al. 16397*.

AMARANTHACEAE

- Achyranthes aspera** L. var. **indica** L., Sp. Pl. 204.-A. 1753; Liu & Kao in Fl. Taiwan **2**: 365. *pl. 335*. 1976. 印度牛膝
Habitat: Open places.
Distribution: Eastern and south eastern Asia.
Voucher: *T.C.Huang et al. 16417, 16436, 16483*.
- ***Amaranthus viridis** L., Sp. Pl. 1405. 1763; Liu & Kao in Fl. Taiwan **2**: 374. 1976. 野莧
Habitat: Open places.
Distribution: Tropical America.
Voucher: *T.C.Huang et al. 16496*.

ANNONACEAE

- ***Annona squamosa** L., Sp. Pl. 537. 1753; Liu et al. Tr. Taiwan rev. ed. 126. 1988. 番荔枝
Habitat: Cultivated for its fruit.
Voucher: *T.C.Huang et al. 16421*.

APOCYNACEAE

***Nerium indicum** Mill., Gard. Dict. ed. 8. no. 2. 1768; Liu *et al.* Tr. Taiwan rev. ed. 713. 1988. 夾竹桃

Habitat: Cultivated as an ornamental.

Voucher: *T.C.Huang et al. 16510.*

Ochrosia oppositifolia (Lam.) K.Schum., in Engl. & Prantl., Pflanzenfam. IV. 2: 156. f. 57, *k-m.* 1895; Walker, Fl. Okinawa Southern Ryuk. Isl. 849. 1976. 海欒欒

Habitat: Common in coastal forest.

Distribution: Tropical Asia, islands of Indian Ocean and Pacific Ocean.

Voucher: *T.C.Huang et al. 16359, 16439, 16450, 16462.*

ARALIACEAE

***Polyscias guilfoylei** (Cogn. & March.) Bailey in Rhodora 18: 153. 1916; Liu *et al.* Tr. Taiwan rev. ed. 295. 1988. 福祿桐.

Habitat: Cultivated as an ornamental.

Voucher: *T.C.Huang et al. 16514.*

BORAGINACEAE

Ehretia resinosa Hance in J. Bot. 18: 299. 1880; Hsiao in Fl. Taiwan 4: 402. 1978.

恆春厚殼樹

Habitat: Open coastal forest.

Distribution: Taiwan, the Philippines.

Voucher: *T.C.Huang et al. 16356.*

Heliotropium indicum L., Sp. Pl. 130. 1753; Hsiao in Fl. Taiwan 4: 403. 1978. 狗尾菜

Habitat: Open place.

Distribution: Tropical Asia, Africa, America.

Voucher: *T.C.Huang et al. 16499.*

Heliotropium ovalifolium Forssk. var. **depressum** (Cham.) Merr. in Philip. J. Sci. Bot. 9: 134. 1914; Merr., Enum. Philip. Flower. Pl. 3: 377. 伏毛天芹菜

Habitat: Open place.

Distribution: Tropical Asia, Africa, Australia and Pacific islands.

Voucher: *T.C.Huang et al. 16491.*

Messerschmidia argentea (L.) Johnston in J. Arnold. Arb. **16**: 164. 1935; Hsiao in Fl.

Taiwan **4**: 404. 1978. 白水木

Habitat: Common tree on open beach.

Distribution: Tropical Asia, Australia, Madagascar, islands of Indian Ocean and Pacific Ocean.

Voucher: *T.C.Huang et al.* 16396.

CARICACEAE

***Carica papaya** L., Sp. Pl. 1036. 1753. 木瓜

Habitat: Cultivated for its fruit.

Voucher: *T.C.Huang et al.* 16445.

CASUARINACEAE

***Casuarina equisetifolia** Forst., Char. Gen. Pl. 104. 1776; Liu *et al.* Tr. Taiwan rev. ed. 359.

1988. 木麻黃

Habitat: Cultivated as an ornamental.

Voucher: *T.C.Huang et al.* 16435.

COMBRETACEAE

Terminalia catappa L., Mant. Pl. **1**: 128. 1767; Li & Lo in Fl. Taiwan 2nd ed. **3**: 935. 1993.

使君子

Habitat: Coastal forest.

Distribution: Tropical Old World.

Voucher: *T.C.Huang et al.* 16442.

COMPOSITAE (ASTERACEAE)

***Bidens pilosa** L., Sp. Pl. 832. 1753; Li in Fl. Taiwan **4**: 804. 1978. 三葉鬼針

Habitat: Open field.

Distribution: Native to North America, now pantropic.

Voucher: *T.C.Huang et al.* 16455.

Eclipta prostrata L., Mant. Pl. **2**: 286. 1771; Li in Fl. Taiwan **4**: 849. *pl.* 1222. 1978. 鯉腸

Habitat: Swampy open place near building.

Distribution: Warmer parts of the world.

Voucher: *T.C.Huang et al.* 16489, 16517.

***Synedrella nodiflora** (L.) Gaert., *Fruct. et Sem.* **2**: 456. *pl.* 171. *f.* 7. 1791; Li in *Fl. Taiwan* **4**: 947. *pl.* 1257. 1978 金箭腰

Habitat: Open field.

Distribution: Native to tropical America.

Voucher: *T.C.Huang et al.* 16429.

***Tridax procumbens** L., *Sp. Pl.* 900. 1753; Li in *Fl. Taiwan* **4**: 953. *pl.* 1260. 1978. 長柄菊

Habitat: Open field.

Distribution: Native to tropical America.

Voucher: *T.C.Huang et al.* 16380.

Vernonia cinerea (L.) Less. in *Linnaea* **4**: 291. 1829; Li in *Fl. Taiwan* **4**: 955. *pl.* 1261. 1978.

一枝香

Habitat: Semi-open field.

Distribution: Tropical Asia, Africa.

Voucher: *T.C.Huang et al.* 16475.

Wedelia biflora (L.) DC. in *Wright, Contr. Bot. Ind.* 18. 1834; Li in *Fl. Taiwan* **4**: 959. 1978.

雙花蟛蜞菊

Habitat: Open beach.

Distribution: Tropical Asia, Australia, islands of Pacific Ocean.

Voucher: *T.C.Huang et al.* 16354.

CONVOLVULACEAE

***Ipomoea aquatica** Forsk., *Fl. Aegypt. Arb.* 44. 1775; Chang in *Fl. Taiwan* **4**: 363. 1978.

空心菜

Habitat: Cultivated as vegetable.

Voucher: *T.C.Huang et al.* 16490.

Ipomoea gracilis R. Br., *Prodr.* 484. 1810; Chang in *Fl. Taiwan* **4**: 366. *pl.* 1042. 1978.

海牽牛

Habitat: Open beach or hanging on coastal trees.

Distribution: Tropical Asia, Madagascar, Australia, islands of Indian Ocean and Pacific Ocean.

Voucher: *T.C.Huang et al.* 16403, 16411, 16493.

Ipomoea obscura (L.) Ker-Gawl. in *Bot. Reg.* **3**: *pl.* 239. 1817; Chang in *Fl. Taiwan* **4**: 369. 1978. 野牽牛

Habitat: Open field near building.
 Distribution: Tropical Asia, Africa, Australia.
 Voucher: *T.C.Huang et al.* 16415.

Ipomoea pes-caprae (L.) Sweet subsp. ***brasiliensis*** (L.) Oostst. in *Blumea* **3**: 533. 1940;
 Chang in *Fl. Taiwan* **4**: 371. *pl.* 1043. 1978. 馬鞍藤
 Habitat: Open beach.
 Distribution: Pantropics.
 Voucher: *T.C.Huang et al.* 16393, 16422.

****Ipomoea triloba*** L., *Sp. Pl.* 161. 1753; Chang in *Fl. Taiwan* **4**: 378. *pl.* 1048. 1978.
 紅花野牽牛
 Habitat: Open field near building.
 Distribution: Native to tropical America.
 Voucher: *T.C.Huang et al.* 16446.

Ipomoea tuba (Schlecht.) G. Don, *Gen. Syst.* **4**: 271. 1838; Chang in *Fl. Taiwan* **4**: 378. 1978.
 圓萼天茄兒
 Habitat: Open beach and hanging on coastal trees.
 Distribution: Tropical Asia, Africa, America, islands of Indian Ocean and Pacific Ocean.
 Voucher: *T.C.Huang et al.* 16360.

CUCURBITACEAE

****Luffa cylindrica*** (L.) Roem., *Fam.* **2**: 64. 1846; Chakravarty, *Monogr. Ind. Cucurbit.* 75.
 1959. 絲瓜
 Habitat: Cultivated as vegetable.
 Voucher: *T.C.Huang et al.* 16468.

EUPHORBIACEAE

Acalypha boehmerioides Miq., *Fl. Ind. Bat. Suppl.* **1**: 459. 1855; Baker & van den Brink in
Fl. Java **1**: 450. 1963. 苧麻葉鐵莧
 Habitat: Open field.
 Distribution: Java, Islands of Pacific Ocean.
 Voucher: *T.C.Huang et al.* 16476.

Acalypha indica L., *Sp. Pl.* 1030. 1753; Hsieh *et al.* in *Fl. Taiwan* 2nd ed. **3**: 421. 1993.
 印度鐵莧

Habitat: Open field.

Distribution: Tropical Asia, Africa, Madagascar and Pacific islands.

Voucher: *T.C.Huang et al.* 16378.

Chamaesyce atoto (Forst. f.) Croizat in Degener, Fl. Hawaii Fam. 190. 1936; Lin *et al.* in Fl. Taiwan 2nd ed. **3**: 433. *pl.* 224. 1993. 濱大戟

Habitat: Common on open beach.

Distribution: Tropical Asia, Australia and Pacific islands.

Voucher: *T.C.Huang et al.* 16374, 16394.

Chamaesyce hirta (L.) Millsp. in Publ. Field Columbian Mus., Bot. Ser. **2**: 303. 1909; Lin *et al.* in Fl. Taiwan 2nd ed. **3**: 436. *pl.* 226. 1993. 大飛揚草

Habitat: Open field.

Distribution: Pantropics.

Voucher: *T.C.Huang et al.* 16381, 16407, 16452.

Chamaesyce prostrata (Ait.) Small, Fl. SE. U.S. 713; 1903; Lin *et al.* in Fl. Taiwan 2nd ed. **3**: 442. *pl.* 231. 1993. 匍匐大戟

Habitat: Open field.

Distribution: Pantropics.

Voucher: *T.C.Huang et al.* 16367, 16495, 16513.

Chamaesyce thymifolia (L.) Millsp. Publ. Field Columbian Mus., Bot. ser. **2**: 412. 1909; Lin *et al.* in Fl. Taiwan 2nd ed. **3**: 448. *pl.* 235. 1993. 小飛揚草

Habitat: Open field.

Distribution: Pantropics.

Voucher: *T.C.Huang et al.* 16382, 16441, 16512.

Flueggea virosa (Roxb. ex Willd.) Voigt, Hort. Suburb. Calcut. 52. 1845; Deng & Wang in Fl. Taiwan 2nd ed. **3**: 472. 1993. 白飯樹

Habitat: Open field near building.

Distribution: Tropical Old World.

Voucher: *T.C.Huang et al.* 16466.

Phyllanthus urinaria L., Sp. Pl. 982. 1753; Deng & Wang in Fl. Taiwan 2nd ed. **3**: 498. *pl.* 260. 1993. 葉下珠

Habitat: Open field.

Distribution: Native to tropical Asia.

Voucher: *T.C.Huang et al.* 16379, 16480.

***Ricinus communis** L., Sp. Pl. 1007. 1753; Hsieh *et al.* in Fl. Taiwan 2nd ed. **3**: 500. 1993. 蓖麻

Habitat: Open field.

Distribution: Native to Africa, now a pantropical weed.

Voucher: *T.C.Huang et al. 16371.*

GOODENIACEAE

Scaevola sericea Vahl, *Symb. Bot.* **2**: 37. 1791; Li in *Fl. Taiwan* **4**: 765. *pl. 1194.* 1978.

草海桐

Habitat: Open beach.

Distribution: Tropical Asia, Australia, Madagascar, islands of Indian Ocean and Pacific Ocean.

Voucher: *T.C.Huang et al. 16353.*

GUTTIFERAE (CLUSIACEAE)

Calophyllum inophyllum L., *Sp. Pl.* 513. 1753; Robson in *Fl. Taiwan* **2**: 621. *pl. 427.* 1976.

瓊崖海棠

Habitat: Coastal forest.

Distribution: Tropical Old World and islands of Indian Ocean and Pacific Ocean.

Voucher: *T.C.Huang et al. 16386, 16418.*

HERNANDIACEAE

Hernandia sonora L., *Sp. Pl.* 981. 1753; Li in *Fl. Taiwan* **2**: 469. *pl. 377.* 1976. 蓮葉桐

Habitat: Common in coastal forest.

Distribution: Tropical Old World and islands of Pacific Ocean.

Voucher: *T.C.Huang et al. 16401.*

LABIATAE (LAMIACEAE)

***Ocimum basilicum** L., *Sp. Pl.* 597. 1753; Huang & Cheng in *Fl. Taiwan* **4**: 491. *pl. 1080.*

1978. 九層塔

Habitat: Cultivated for spice.

Voucher: *T.C.Huang et al. 16467.*

LAURACEAE

- Cassytha filiformis** L., Sp. Pl. 35. 1753; Chang in Fl. Taiwan **2**: 409. 1976. 無根藤
Habitat: Open beach and also hanging on coastal tree.
Distribution: Pantropics.
Voucher: *T.C.Huang et al.* 16387.

LECYTHIDACEAE

- Barringtonia asiatica** (L.) Kurz. in J. Asiat. Soc. Beng. **45**: 131. 1876; Li & Lo in Fl. Taiwan
2nd ed. **3**: 901. *pl.* 449. 1993. 棋盤腳樹
Habitat: Coastal forest.
Distribution: Tropical Asia, Australia, islands of Pacific Ocean and Indian Ocean.
Voucher: *T.C.Huang et al.* 16515.

LEGUMINOSAE (FABACEAE)

- Alysicarpus vaginalis** (L.) DC., Prodr. **2**: 353. 1825; Huang & Ohashi in Fl. Taiwan 2nd ed. **3**:
196. *pl.* 87. 1993. 煉莢豆
Habitat: Open field.
Distribution: Tropical Old World.
Voucher: *T.C.Huang et al.* 16448.
- Caesalpinia bonduc** (L.) Roxb., Fl. Ind. ed. **2**: 362. 1832; Huang & Ohashi in Fl. Taiwan
2nd ed. **3**: 177. *pl.* 80. 1993. 老虎心
Habitat: Open coastal forest.
Distribution: Pantropics.
Voucher: *T.C.Huang et al.* 16412.
- Caesalpinia major** (Medik.) Dandy & Exell in J. Bot. **76**: 180. 1938; Wagner *et al.*, Man.
Flower. Pl. Hawaii **1**: 648. 1990. 蓮實藤
Habitat: Open coastal forest.
Distribution: Pantropics.
Voucher: *T.C.Huang et al.* 16440.
- Canavalia cathartica** Thou. in Desv. J. Bot. **1**: 81. 1813; Huang & Ohashi in Fl. Taiwan 2nd
ed. **3**: 210. 1993. 小果刀豆
Habitat: Open beach and hanging on coastal shrubs.
Distribution: Tropical Old World and islands of Pacific Ocean.
Voucher: *T.C.Huang et al.* 16361, 16390, 16520.

- ***Desmodium scorpiurus** (Sw.) Desv. in J. Bot. **1**: 122. 1813; Huang & Ohashi in Fl. Taiwan 2nd ed. **3**: 265. *pl.* 128. 1993. 蝦尾葉山螞蝗
Habitat: Open garden field.
Distribution: Native to tropical America.
Voucher: *T.C.Huang et al.* 16463.
- Erythrina variegata** L., Stickm. Herb. Amb. 101. 1754; Huang & Ohashi in Fl. Taiwan 2nd ed. **3**: 279. *pl.* 138. 1993. 刺桐
Habitat: Open coastal forest.
Distribution: Tropical Asia and Pacific islands.
Voucher: *T.C.Huang et al.* 16416.
- ***Leucaena leucocephala** (Lam.) de Wit in Taxon **10**: 54. 1961; Huang & Ohashi in Fl. Taiwan 2nd ed. **3**: 171. 1993. 銀合歡
Habitat: Open field.
Distribution: Native to tropical America.
Voucher: *T.C.Huang et al.* 16391, 16458.
- ***Mimosa pudica** L., Sp. Pl. 518. 1753; Huang & Ohashi in Fl. Taiwan 2nd ed. **3**: 172. 1993. 含羞草
Habitat: Open field.
Distribution: Native to tropical America.
Voucher: *T.C.Huang et al.* 16479.
- Senna tora** (L.) Roxb., Fl. Ind. ed. 2. **2**: 340. 1832; Huang & Ohashi in Fl. Taiwan 2nd ed. **3**: 186. 1993. 決明
Habitat: Open field.
Distribution: Pantropics.
Voucher: *T.C.Huang et al.* 16434, 16481.
- Sophora tomentosa** L., Sp. Pl. 373. 1753; Huang & Ohashi in Fl. Taiwan 2nd ed. **3**: 367. *pl.* 191. 1993. 毛苦蔘
Habitat: Open beach.
Distribution: Pantropics.
Voucher: *T.C.Huang et al.* 16424.
- Vigna adenantha** (G.F.Meyer) Marechal et al. in Taxon **27**: 202. 1978; Huang & Ohashi in Fl. Taiwan 2nd ed. **3**: 384. 1993. 腺藥豇豆
Habitat: Open field and hanging on shrub.
Distribution: Pantropics.
Voucher: *T.C.Huang et al.* 16437, 16471.

- Vigna marina** (Burm.) Merr., Interpret. Herb. Amb. 285. 1917; Huang & Ohahsi in Fl. Taiwan 2nd ed. **3**: 385. *pl.* 201. 1993. 濱豇豆
Habitat: Open beach and open field.
Distribution: Pantropics.
Voucher: *T.C.Huang et al.* 16385.

MALVACEAE

- ***Malvastrum coromandelianum** (L.) Garcke in Bonplandia **5**: 297. 1857; Chang in Fl. Taiwan 2nd ed. **3**: 745. *pl.* 374. 1993. 賽葵
Habitat: Open field near building.
Distribution: Native to tropical America.
Voucher: *T.C.Huang et al.* 16365.
- Sida rhombifolia** L., Sp. Pl. 1753; Chang in Fl. Taiwan 2nd. ed. **3**: 748. 1993. 金午時花
Habitat: Epiphytic in open coastal forest and semi-open field.
Distribution: Pantropics.
Voucher: *T.C.Huang et al.* 16355, 16406.
- Sida veronicaefolia** Lam. Encycl. **1**: 5. 1783; Chang in Fl. Taiwan 2nd. ed. **3**: 750. 1993.
澎湖金午時花
Habitat: Open field.
Distribution: Tropical Asia.
Voucher: *T.C.Huang et al.* 16488.

MELIACEAE

- ***Aglaia formosana** Hayata, Icon. Pl. Form. **3**: 52. 1913; Chang in Fl. Taiwan 2nd. ed. **3**: 552. *pl.* 284. 1993. 紅柴
Habitat: Cultivated as an ornamental.
Voucher: *T.C.Huang et al.* 16368.

MORACEAE

- Ficus microcarpa** L. f., Suppl. Sp. Pl. 442. 1781; Liu & Liao in Fl. Taiwan **2**: 139. 1976.
榕樹
Habitat: In the edge of coastal forest near building.
Distribution: Tropical Asia, Australia, New Caledonia.
Voucher: *T.C.Huang et al.* 16438.

MYRTACEAE

- ***Psidium guajava** L., Sp. Pl. 470. 1753; Liu *et al.*, Tr. Taiwan 545. 1988. 番石榴
Habitat: Cultivated for its fruit.
Voucher: *T.C.Huang et al.* 16432.
- ***Syzygium samarangense** (Blume) Merr. & Perry in J. Arn. Arb. **19**: 115. 1938; Liu *et al.*,
Tr. Taiwan 550. 1988. 蓮霧
Habitat: Cultivated for its fruit.
Voucher: *T.C.Huang et al.* 16497.

NYCTAGINACEAE

- Boerhavia diffusa** L., Sp. Pl. **1**: 3. 1753; Liu in Fl. Taiwan **2**: 297. *pl.* 301. 1976. 黃細心
Habitat: Open field.
Distribution: Tropical Asia, Australia and Pacific islands.
Voucher: *T.C.Huang et al.* 16358, 16408, 16486.
- ***Bougainvillea brasiliensis** Raeusch, Nom. ed. 3. 112. 1797; Liu *et al.* Tr. Taiwan 411. rev.
ed. 1988. 九重葛
Habitat: Cultivated as an ornamental.
Voucher: *T.C.Huang et al.* 16469.
- Pisonia grandis** R. Br., Prodr. 422. 1810. 白避霜花
Habitat: Open coastal forest.
Distribution: Tropical Asia, islands of Pacific Ocean.
Voucher: *T.C.Huang et al.* 16413, 16428.

PORTULACACEAE

- Portulaca oleracea** L., Sp. Pl. 445. 1753; Liu & Chen in Fl. Taiwan **2**: 316. *pl.* 310. 1976.
馬齒莧
Habitat: Open field.
Distribution: All warmer areas.
Voucher: *T.C.Huang et al.* 16388, 16430.

RHAMNACEAE

- Colubrina asiatica** (L.) Brongn. in Ann. Sci. Nat. **1**(10): 369 1827; Liu *et al.* in Fl. Taiwan 2nd ed. **3**: 684. *pl.* 353. 1993. 亞洲濱棗
Habitat: Open beach.
Distribution: Old World and islands of Pacific Ocean.
Voucher: *T.C.Huang et al.* 16409.

RUBIACEAE

- Dentella repens** (L.) Forst., Char. Gen. 26. *pl.* 13. 1776; Chao in Fl. Taiwan **4**: 258. 1978.
小牙草
Habitat: Open field.
Distribution: Asia and Australia.
Voucher: *T.C.Huang et al.* 16350.
- Guettarda speciosa** L., Sp. Pl. 991. 1753; Chao in Fl. Taiwan **4**: 269. *pl.* 996. 1978.
葛塔德木
Habitat: Coastal forest.
Distribution: Tropical Asia, Australia and islands of Pacific Ocean.
Voucher: *T.C.Huang et al.* 16357, 16485.
- Hedyotis corymbosa** (L.) Lam., Tabl. Encycl. **1**: 27. 1791; Chao in Fl. Taiwan **4**: 272. 1978.
繖花龍吐珠
Habitat: Open field.
Distribution: Tropical Asia, Africa and America.
Voucher: *T.C.Huang et al.* 16352.
- Morinda citrifolia** L., Sp. Pl. 176. 1753; Chao in Fl. Taiwan **4**: 307. 1978. 檄樹
Habitat: Coastal forest and open beach.
Distribution: Tropical Asia, Australia and islands of Pacific Ocean.
Voucher: *T.C.Huang et al.* 16369, 16420.

RUTACEAE

- ***Citrus grandis** Osbeck, Dagbok. Ostind. Resa. 98. 1756; Liu *et al.*, Tr. Taiwan rev. ed. 639.
1988. 柚子
Habitat: Cultivated for its fruit.
Voucher *T.C.Huang et al.* 16431.

- ***Citrus limon** Burm. f. Fl. Ind. 173. 1768; Liu *et al.* Tr. Taiwan rev. ed. 639. 1988. 檸檬
Habitat: Cultivated for its fruit.
Voucher: *T.C.Huang et al.* 16433.

SOLANACEAE

- ***Capsicum annum** L., Sp. Pl. 188. 1753. 朝天椒
Habitat: Cultivated for spice.
Voucher: *T.C.Huang et al.* 16474.
- ***Physalis angulata** L., Sp. Pl. 183. 1753; Liu & Ou in Fl. Taiwan 4: 535. pl. 1095. 1978.
燈籠草
Habitat: Open field.
Distribution: Native to tropical America.
Voucher: *T.C.Huang et al.* 16395, 16454.
- Solanum nigrum** L., Sp. Pl. 186. 1753; Liu & Ou in Fl. Taiwan 4: 544. 1978. 龍葵
Habitat: Open field.
Distribution: All tropical and temperate regions.
Voucher: *T.C.Huang et al.* 16500, 16504.

TILIACEAE

- Corchorus aestuans** L., Syst. ed. 10. 1079. 1774; Chang in Fl. Taiwan 2nd ed. 3: 724. 1993
繩黃麻
Habitat: Open field.
Distribution: Pantropics.
Voucher: *T.C.Huang et al.* 16364, 16518.
- Triumfetta procumbens** Forst. f., Fl. Ins. Austr. Prodr. 35. 1786. 匍匐垂椏草
Habitat: Open field and beach.
Distribution: Tropical Asia, islands of Pacific Ocean.
Voucher: *T.C.Huang et al.* 16410, 16482.

URTICACEAE

- Pipturus argenteus** (Forst. f.) Wedd. in DC., Prodr. 16: 235. 1869. 銀背落尾麻
Habitat: Open coastal forest.
Distribution: Tropical Asia, Australia and islands of Pacific Ocean.

Voucher: *T.C.Huang et al.* 16372, 16400, 16419.

VERBENACEAE

Phyla nodiflora (L.) Greene in *Pittonia* **4**: 46. 1899; Hsiao in *Fl. Taiwan* **4**: 427. 1978.

過江藤

Habitat: Open field.

Distribution: Warmer regions of the world.

Voucher: *T.C.Huang et al.* 16402, 16423.

Premna obtusifolia R. Brown, *Prodr. Fl. Nov. Holland.* 512. 1810; Hsiao in *Fl. Taiwan* **4**: 428. 1978. 臭娘子

Habitat: Open coastal forest.

Distribution: Tropical Asia, Australia.

Voucher: *T.C.Huang et al.* 16426.

***Stachytarpheta urticaefolia** (Salisb.) Sims., *Bot. Mag. pl.* 1848. 1916. 藍蝶猿尾木

Habitat: Open field.

Distribution: Native to tropical Asia, now pantropics.

Voucher: *T.C.Huang et al.* 16349, 16427.

VITACEAE

Cayratia trifolia (L.) Domin 三葉烏斂梅

Habitat: Edge of coastal forest.

Distribution: Tropical Asia, Australia and islands of Pacific Ocean.

Voucher *T.C.Huang et al.* 16414, 16464.

MONOCOTYLEDONS

ARACEAE

Typhonium divaricatum (L.) Decne. in *Nouv. Ann. Mus. Paris* **31**: 367. 1834; Liu & Huang in *Fl. Taiwan* **5**: 815. *pl.* 1530. 1978. 土半夏

Habitat: Shaded place near building.

Distribution: Eastern Asia, Borneo, Malaysia.

Voucher: *T.C.Huang et al.* 16503.

CYPERACEAE

Cyperus compressus L., Sp. Pl. 46. 1753; Koyama in Fl. Taiwan **5**: 269. 1978. 扁穗莎草

Habitat: Open field.

Distribution: Warm regions of the world.

Voucher: *T.C.Huang et al.* 16376, 16494, 16502.

Cyperus rotundus L., Sp. Pl. 45. 1753; Koyama in Fl. Taiwan **5**: 265. 1978. 香附子

Habitat: Open field beside building.

Distribution: Tropical to temperate regions of the world.

Voucher: *T.C.Huang et al.* 16383.

Fimbristylis cymosa R. Br., Prodr. Fl. Nov. Holl. 228. 1810; Koyama in Fl. Taiwan **5**: 232.

pl. 1327. 1978. 乾溝飄拂草

Habitat: Open field.

Distribution: Tropical and subtropical regions of the world.

Voucher: *T.C.Huang et al.* 16506.

Mariscus javanicus (Houtt.) Merr. & Metcalfe in Lingn. Sci. J. **21**: 4. 1945; Koyama in Fl.

Taiwan **5**: 284. 1978. 羽狀穗磚子苗

Habitat: Open field and coastal forest.

Distribution: Tropical Asia, Africa, Hawaiian Islands.

Voucher: *T.C.Huang et al.* 16366, 16398.

GRAMINEAE (POACEAE)

Brachiaria subquadripara (Trin.) Hitchc. in Lign. Sci. J. **7**: 214. 1931; Hsu in Fl. Taiwan **5**:

533. 1978. 四生臂形草

Habitat: Open field and semi-open field.

Distribution: Pantropics.

Voucher: *T.C.Huang et al.* 16451, 16461, 16473, 16501.

***Cenchrus echinatus** L., Sp. Pl. 1050. 1753; Hsu in Fl. Taiwan **5**: 535. *pl.* 1424. 1978.

疾藜草

Habitat: Open field.

Distribution: Native to tropical America.

Voucher: *T.C.Huang et al.* 16348.

Chloris barbata Sw., Fl. Ind. Occ. **1**: 200. 1797; Hsu in Fl. Taiwan **5**: 462. *pl.* 1396. 1978.

孟仁草

Habitat: Open field.

Distribution: Pantropics.

Voucher: T.C.Huang *et al.* 16377, 16459.

Cynodon dactylon (L.) Pers., Syn. Pl. **1**: 85. 1805; Hsu in Fl. Taiwan **5**: 466. *pl.* 1397. 1978.

狗牙根

Habitat: Open field.

Distribution: All warmer regions of the world.

Voucher: *T.C.Huang et al.* 16465.

Dactyloctenium aegyptium (L.) Beauv., Ess. Agrost. 15. 1812; Hsu in Fl. Taiwan **5**: 471. *pl.*

1399. 1978. 龍爪茅

Habitat: Open field beside building.

Distribution: Pantropics.

Voucher: *T.C.Huang et al.* 16460.

Digitaria setigera R. & S. var. **calliblepharata** (Henr.) Veldk. in Blumea **21**: 36. *fig.* 6a.

1973. 毛短穎馬唐

Habitat: Edge of coastal forest.

Distribution: Tropical Asia.

Voucher: *T.C.Huang et al.* 16478, 16498, 16516.

Digitaria setigera R. & S., Syst. Veg. **2**: 474. 1817. 短穎馬唐

Habitat: Open field.

Distribution: All warmer region of the world.

Voucher: *T.C.Huang et al.* 16444, 16470, 16472.

Eleusine indica (L.) Gaertn., Fruct. **1**: 8. 1789; Hsu in Fl. Taiwan **5**: 475. *pl.* 1401. 1978.

牛筋草

Habitat: Open field.

Distribution: Tropical and subtropical regions of the world.

Voucher: *T.C.Huang et al.* 16389.

Eragrostis amabilis (L.) Wight & Arn. *ex* Nees in Hook. & Arn., Bot. Beechey Voy. 251.

1838; Hsu in Fl. Taiwan **5**: 478. *pl.* 1402. 1978. 鯽魚草

Habitat: Open field.

Distribution: Pantropics.

Voucher: *T.C.Huang et al.* 16370, 16484, 16507.

Panicum repens L., Sp. Pl. ed. 2. 87. 1762; Hsu in Fl. Taiwan **5**: 577. 1978. 舖地黍

Habitat: Open beach.

Distribution: Tropical and subtropical regions of the world.

Voucher: *T.C.Huang et al.* 16373.

***Pennisetum setosum** (Sw.) L. C. Rich. in Pers. Syn. Pl. **1**: 72. 1805; Hsu in Fl. Taiwan **5**: 592. 1978. 牧地狼尾草

Habitat: Open field.

Distribution: Native to tropical America and Africa.

Voucher: *T.C.Huang et al. 16505.*

Sorghum nitidum (Vahl) Pers., Syn. Pl. **1**: 101. 1805; Hsu in Fl. Taiwan **5**: 695. *pl. 1479.* 1978. 光葉高粱

Habitat: Open field.

Distribution: Tropical Asia, Australia.

Voucher: *T.C.Huang et al. 16492.*

Sporobolus diander (Retz.) Beauv., Ess. Agrost. 26, 147, 178. 1812; Hsu in Fl. Taiwan **5**: 501. *pl. 1410.* 1978. 雙蕊鼠尾粟

Habitat: Open field.

Distribution: Tropical Asia, Australia.

Voucher: *T.C.Huang et al. 16425, 16511.*

Stenotaphrum micranthum (Desv.) C. E. Hubb. in Hubb. & Vaughan, Gr. Maurit & Rodr. 73. 1940 窄溝草

Habitat: Coastal forest.

Distribution: Tropical Africa, Asia, Pacific islands.

Voucher: *T.C.Huang et al. 16362, 16405.*

Thuarea involuta (Forst.) R. Br. ex Roem. & Schult., Syst. Veg. **2**: 808. 1817; Hsu in Fl. Taiwan **5**: 612. *pl. 1452.* 1978. 芻蕾草

Habitat: Open beach.

Distribution: Tropical Asia, Australia, Madagascar, islands of Pacific Ocean and Indian Ocean.

Voucher: *T.C.Huang et al. 16363, 16399, 16449.*

HYDROCHARITACEAE

Thalassia hemprichii (Ehrenb.) Aschers. in Petermann's Mitt. **17**: 242. 1871; Yang in Fl. Taiwan **5**: 22. 1978. 泰來藻

Habitat: Submersed in shallow sea water.

Distribution: Tropical Asia, Africa and islands of Pacific Ocean.

Voucher: *T.C.Huang et al. 16508, 16509, 16521.*

MUSACEAE

***Musa sapientum** L., Syst. ed. 10. 1303. 1759. 香蕉

Habitat: Cultivated for its fruit.

Voucher: *T.C.Huang et al.* 16453, 16522.

PALMAE (ARECACEAE)

Cocos nucifera L., Sp. Pl. 1181. 1753. 可可椰子

Habitat: Open beach, also cultivated.

Distribution: Paleotropic.

Voucher: *T.C.Huang et al.* 16456.

PANDANACEAE

Pandanus tectorius Sol. in Parkins J. Voy. H.M.S. Endeav. 46. 1773. 林投

Habitat: Open coastal forest.

Distribution: Tropical Asia, Australia, Pacific islands.

Voucher: *T.C.Huang et al.* 16487, 16519.

太平島植物相

黃增泉, 黃星凡, 楊國禎

摘 要

本文係國內外植物界首次報導太平島植物相。太平島屬於南沙群島中之最大島, 面積約0.46平方公里, 位於菲律賓, 婆羅洲, 及中南半島之間。全島之植被以熱帶海岸林為主, 高大而鬱閉, 主要組成種類有蓮葉桐(*Hernandia sonora*), 欖仁樹(*Terminalia catappa*), 海檸檬(*Ochrosia oppositifolia*), 檄樹(*Morinda citrifolia*), 草海桐(*Goodenia sericea*)及白水木(*Messerschmidia argentea*)等。本島共有109種維管束植物及一種菌菇, 其中82種認為是原生植物, 屬熱帶成份, 大部份靠洋流移入本島。本島共有9種維管束植物不見於台灣本島及其附近小島, 包括海檸檬, 苧麻葉鐵莧(*Acalypha boehmerioides*), 蓮實藤(*Caesalpinia major*), 匍匐垂椏草(*Triumphetta procumbens*), 銀背落尾麻(*Pipturus argenteus*), 三葉烏斂梅(*Cayratia trifolia*), 毛短穎馬唐(*Digitaria setigera* var. *callibleoharata*), 窄溝草(*Stenotaphrum micranthum*), 林投(*Pandanus tectorius*)等。本島植被景況頗類似民國43年前之蘭嶼。本島可成為自然海洋島嶼國家公園之極佳場所。感謝行政院農委會漁業處之經費及交通支援, 而得以完成本文。