

Motozi TAGAWA\*: **Polypodioid ferns collected by Prof.  
T. Tuyama in northern Thailand and adjoining Laos**

田川基二：タイ国北部とラオスで津山教授が採集したウラボシ科

The collection here dealt with was mostly gathered by Prof. T. Tuyama in northern Thailand and adjoining Laos and partly by the members of the Osaka City University Biological Expedition to Southeast Asia 1957-1958 (abbreviated as OGUBE at the head of individual specimen number) in northern Thailand and was sent to me for identification by Prof. T. Tuyama. Ferns from Thailand are rather poorly represented in herbaria, and this land forms a blank between well known Burma and Indo-China and exceedingly well explored Malaya. The following list may, therefore, be of some value, including some comments on several first records for Thailand and Laos. The principal papers on the fern flora of Thailand and adjoining Burma, Indo-China and Malaya, which I quote in the enumeration below with the following abbreviations, are as follows:

Christ (1901): Christ, H. 1901. Pteridophyta in Schmidt, Flora of Koh Chang. Bot. Tidssk. **24**: 47-59.

G. Chr. (1931): Christensen, G. 1931. Asiatic Pteridophyta collected by Joseph F. Rock 1920-1924. Pteridophyta from northern Siam. Contr. U.S. Nat. Herb. **26**: 329-335.

Tard. et G. Chr. (1941): Tardieu-Blot et G. Christensen. 1941. Polypodioidées in Lecomte, Fl. Génér. Indo-Chine **7-2**: 446-538.

Dickason (1946): Dickason, F. G. 1946. The ferns of Burma. Ohio Journ. Sci. **46**: 109-141.

Holt. (1954): Holttum, R.E. 1954. A revised flora of Malaya. **2**.

Holt. (1961): Holttum, R.E. 1961. Filicinae in Larsen et al., Studies in the flora of Thailand. Dansk Bot. Ark. **20**: 11-35.

I express my hearty thanks to Prof. T. Tuyama who allows me an opportunity to examine such an interesting collection.

1. **Polypodium amoenum** Wall. ex Mett. in Abhandl. Senckenb. Naturforsch. Ges. **2**: 80 (1857). Type from Nepal; G. Chr. (1931), 333; Tard. et G. Chr. (1941), 536; Dickason (1946), 126.

THAILAND: On the bark of trees, alt ca. 1,000 m., Doi Loi Bian, near Ban

\* Department of Botany, Faculty of Science, University of Kyoto. 京都大学理学部植物学教室。

Pasui, southeast of Mae Hongson, *T. Tuyama T-58245*, 18. III. 1958.

Himalayas through Burma and China to Taiwan, also in Tonkin, Laos, Annam, and in northern Thailand.

2. **Pleopeltis scolopendrium** (Don) Alston et Bonner in *Candollea* 15: 207 (1956)—*Polypodium scolopendrium* Ham. ex Don, *Prodr. Fl. Nepal.* 1 (1825). Type from Nepal.—*Lepisorus excavatus* (Bory ex Willd.) Ching var. *scolopendrium* (Don) Ching in *Bull. Fan Mem. Inst. Biol.* 4: 69 (1933); Tard. et G. Chr. (1941), 456; Dickason (1946), 126.—*Polypodium excavatum* auct. non Willd.: G. Chr. (1931), 334.

THAILAND: Doi Suthep, east of Chien Mai, *T. Tuyama T-57404 bis*, 6. XII. 1957.

Himalayas and Tibet through Yunnan and Burma to Thailand, Laos and Annam.

3. **Pleopeltis nuda** Hook. *Exot. Fl.* 1: t. 63 (1823). Type from Nepal; Sledge in *Bull. Brit. Mus. Bot.* 2: 135. f. 1 (1960).—*Lepisorus nudus* (Hook.) Ching in *Bull. Fan Mem. Inst. Biol.* 4: 83 (1933); Holtt. (1961), 19.

THAILAND: Doi Chieng Daw, west of Chieng Daw, *T. Tuyama T-57365*, 8. XII. 1957; Doi Suthep, east of Chieng Mai, *T. Tuyama T-57404*, 6. XII. 1957. Ceylon and South India, Himalayas to Yunnan and Thailand.

In this species the position of sori is rather variable as stated by Sledge (l.c.). In our examples sori are medial, but in Zimmermann 1239 from Nepal in KYO they are inframedial.

4. **Neochelopteris normalis** (Don) Tagawa in *Journ. Jap. Bot.* 27: 217 (1952).—*Polypodium normale* Don, *Prodr. Fl. Nepal.* 1 (1825). Type from Nepal.—*Microsorium normale* (Don) Ching in *Bull. Fan Mem. Inst. Biol.* 4: 299 (1933); Tard. et G. Chr. (1941), 479; Dickason (1946), 27; Holtt. (1954), 175.

LAOS: Under the *Castanopsis* forest, alt. ca. 2,000 m., Mt. Phou San, 12 km north of Ban Hang, northeast of Phongsavanh, *T. Tuyama L-57225* and *L-57227*, 3. XII. 1957.

Northeast India to South China and southward to Sumatra and Malaya. First record for Laos.

5. **Pyrrosia lanceolata** (L.) Farwell in *Am. Midland Naturalist* 12: 245 (1931); Ching in *Bull. Chinese Bot. Soc.* 1: 70 (1935); Tard. et G. Chr. (1941), 515.—*Acrostichum lanceolatum* L. *Sp. Pl.* 2: 1067 (1753). Type from Ceylon.—*Cyclphorus lanceolatus* (L.) Alston in *Journ. Bot.* 69: 102 (1931); Dickason

(1946), 129.

THAILAND: Creeping on the trunk of a large tree in the temple ground, Wat Ghieng Daw, Ghieng Daw, T. Tuyama, T-57398, 9. XII. 1957; Mae Hoi, T. Tuyama, on the rocks of river bed, up the famous waterfall, 'Mae Klan', OGUBE No. 229-56, 26. II. 1958.

Ceylon and India generally to Burma, Indo-China and Yunnan.

6. **Pyrrhosia mollis** (Kunze) Ching in Bull. Chinese Bot. Soc. **1**: 53 (1935); Tard. et C. Chr. (1941), 506; Sledge in Bull. Brit. Mus. Bot. **2**: 134 (1960).—*Niphobolus mollis* Kunze in Bot. Zeit. **6**: 121 (1848). Type from Java.—*Cyclophorus mollis* (Kunze) Pr. Epim. Bot. 131 (1849); Dickason (1946), 129.

THAILAND: On the trunk of tree, Doi Suthep, east of Ghieng Mai, T. Tuyama T-57401, 6. XII. 1957.

South India, Himalayas to southwest China, Hainan and Indo-China, also in the Philippines and Java. Possibly first record for Thailand.

Beddome (Handb. 331) includes the Malay Peninsula in the distribution of this species, but Holttum does not mention its occurrence there.

7. **Pyrrhosia heteractis** (Kuhn) Ching in Bull. Chinese Bot. Soc. **1**: 57 (1935).—*Polypodium heteractis* Mett. ex Kuhn in Linnaea **36**: 140 (1869). Type from Sikkim.—*Cyclophorus heteractis* (Kuhn) C. Chr. Ind. Fil. 199 (1905); Dickason (1946), 129.

THAILAND: Muong Khu to Hoet That, alt. ca. 800 m., H. Ogawa, K. Yoda & T. Tuyama, OGUBE No. 218-49, 18. II. 1958.

First record for Thailand. Hitherto known from Sikkim, Bhutan, Assam, upper Burma, southeast Tibet (Ludlow, Sherriff & Elliot 12120!), and Yunnan.

8. **Microsorium punctatum** (L.) Copel. in Univ. Calif. Publ. Bot. **16**: 111 (1929); Tard. et C. Chr. (1941), 483; Dickason (1946), 128; Holtt. (1954), 179; Holtt. (1961), 20.—*Acrostichum punctatum* L. Sp. Pl. ed. 2. **2**: 1524 (1763). Type from South China.—*Polypodium punctatum* (L.) Sw. in Schrad. Journ. Bot. **1800-2**: 21 (1801) non Thunb. 1784: Christ (1901), 50.

THAILAND: Near Wat Ghieng Daw, Ghieng Daw, T. Tuyama T-57395, 9. XII. 1957, in cultivation?

Widely distributed throughout the Old World Tropics.

9. **Microsorium superficiale** (Bl.) Ching in Bull. Fan Mem. Inst. Biol. **4**: 299 (1933); Tard. et C. Chr. (1941), 480; Dickason (1946), 128.—*Folypodium superficiale* Bl. Enum. Pl. Jav. 123 (1828). Type collections from Java and

Moluccas.

LAOS: Mt. Phou San, on the bark of *Castanopsis*, ca. 2,000 m. alt. 12 km north of Ban Hang, northeast of Phongsavanh, *T. Tuyama L-57202* and *L-57205*, 31. XII. 1957.

India to South China, southward to Malaysia. First records for Laos.

10. **Leptochilus decurrens** Bl. Enum. Pl. Jav. 206 (1828). Type from Java; Tard. et G. Chr. (1941), 502; Dickason (1946), 128; Holtt. (1954), 165. f. 74; Sledge in Ann. & Mag. Nat. Hist. Ser. 12. 9: 867 (1956).—*Anapausia decurrens* (Bl.) Pr. Epim. Bot. 186 (1849); Copel. Fern Fl. Philip. 3: 488 (1960).—*Paraleptochilus decurrens* (Bl.) Copel. Gen. Fil. 198 (1947).

THAILAND: Hoet That to Wang Thao in the thicket of valley, alt. ca. 1,300 m., H. Ogawa, K. Yoda & T. Tuyama, OGUBE No. 219-4, 19. II. 1958; Doi Loi Bian, near Ban Pasui, southeast of Mae Hongson, under the tropical thicket, *T. Tuyama T-58236*, *T-28237* and *T-58810*, 18. III. 1958; Ban Pasui, under the dense rocky mixed tropical forest along a stream, east of Mae Hongson, *T. Tuyama T-58114*, 23. III. 1958.

India to South China and Taiwan, southward to Malaysia.

11. **Colysis pentaphylla** (Bak.) Ching in Bull. Fan Mem. Inst. Biol. 4: 332 (1933); Ic. Fil. Sin. 4: pl. 199 (1937).—*Gymogramma pentaphylla* Bak. in Kew Bull. 1898: 233. Type from Yunnan.

THAILAND: Doi Inthanon, abundant between alt. 1,300 and 2,600 m., H. Ogawa & K. Yoda OGUBE No. 110-36, -81 et -115, 10. I. 1958.

LAOS: Under the *Castanopsis* forest, alt. ca. 2,000 m., Mt. Phon San, 12 km north of Ban Hang, northeast of Phongsavanh, *T. Tuyama L-57224*, 3. XII. 1957.

First records for both Laos and Thailand. Hitherto known only from Yunnan.

12. **Aglaomorpha coronans** (Mett.) Copel. Univ. Calif. Publ. Bot. 16: 117 (1929); Tard. et G. Chr. (1941), 488. f. 57; Holtt. (1961), 21.—*Polypodium coronans* Wall. ex Mett. in Abhandl. Senckenb. Naturforsch. Ges. 2: 121 (1857). Type from Nepal.—*Pseudodrynaria coronans* (Mett.) Ching, Sunyatsenia 5: 262 (1940); Ic. Fil. Sin. 5: pl. 201 (1958); Najar, Ferns of India, No. 2, 20 (1961).

THAILAND: Mek Sad to Tak, H. Ogawa, K. Yoda & T. Tuyama OGUBE No. 206, 6. II. 1958; Ban Pasui, east of Mae Hongson, *T. Tuyama s.n.*, 15. III. 1958.

Himalayas to South China, Taiwan and Okinawa, southward to Cochin-China; also reported by Beddome (Handb. 339) from Tenasserim and the Malay

Peninsula, but neither Holttum nor Dickason mention its occurrence there.

13. **Drynaria bonii** Christ in Not. System. **1**: 186 (1910). Syntypes from Tonkin, Cochinchina and Kweichow: Tard. et G. Chr. (1941), 517. f. 61; Holtt. (1961), 20.

THAILAND: Mae Hoi, epiphytic on the tree, river bed, up the 'Mae Klan' Fall, OGUBE *T. Tuyama*, No. 226-57, 26. II. 1958.

Thailand, Indo-China, and Kweichow.

14. **Drynaria propinqua** (Mett.) J. Sm. apud Bedd. Ferns Brit. Ind. **2**: t. 160 (1866); G. Chr. (1931), 334; Tard. et G. Chr. (1941), 521; Dickason (1946), 128; Holtt. (1961), 20; Najar, Ferns of India, No. 2, 9 (1961).—*Polypodium propinquum* Wall. ex Mett. in Abhandl. Senckenb. Naturforsch. Ges. **2**: 120. t. 3, f. 50 (1857). Type from Nepal.

THAILAND: Epiphytic on the tree trunk, Doi Suthep, east of Chieng Mai, *T. Tuyama T-57181* and *T-57403*, 6. XII. 1957.

Northern India and Burma to South China, also reported from Java, but dubious. Beddome (Handb. 341) cites the Malay Peninsula for one of the localities of this species, but Holttum does not refer to its occurrence there.

15. **Drynaria parishii** (Bedd.) Bedd. Ferns Brit. India Suppl. 24 (1876); Tard. et G. Chr. (1941), 520.—*Pleopeltis parishii* Bedd. Ferns Brit. India **1**: t. 125. (1866), Type from Moulmein.

THAILAND: On the bark of tree, Doi Suthep, east of Chieng Mai, *T. Tuyama T-57411*, 5. XII. 1957.

First record for Thailand. Hitherto known from Moulmein and Annam.

In his Handbook (341) Beddome marged this species with *D. propinqua* and was followed by subsequent authors, but Tardieu & Christensen recognized again its distinctiveness. *D. parishii* may be distinguished from *D. propinqua* by such rather weak features as its much smaller fronds with obtuse and rather distinctly crenate-serrate pinnæ in 5-7 pairs and the more deeply sunk sori forming a prominent pustule on the upper surface. *D. parishii* is certainly a near relative or merely an ecotype of *D. propinqua*, but more field observations may be needed before its status can be decided.

16. **Drynaria fortunei** (Mett.) J. Sm. in Seemann, Bot. Voy. Herald 425 (1857); Tard. et G. Chr. (1941), 518.—*Polypodium fortunei* Kunze ex Mett. in Abhandl. Senckenb. Naturforsch. Ges. **2**: 121. t. 3, f. 42-45 (1857). Type from China (possibly from Ghusan).

THAILAND: On the trunk of trees, Doi Suthep, east of Chiang Mai, *T. Tuyama* T-57400 (bearing nest-leaves only), T-57407, T-57408, T-57409, T-57410, 6. XII. 1957.

First records for Thailand. Hitherto known from Yangtze Valley and southward, Taiwan, Tonkin, and Laos.

17. ***Drynaria rigidula*** (Sw.) Bedd. Ferns Brit. Ind. 2: t. 314 (1869): Tard. et. G. Chr. (1941), 521; Holtt. (1954), 183; Holtt. (1961), 20; Tindale in Anderson, Fl. New South Wales No. 210. 31 (1961).—*Polypodium rigidulum* Sw. in Schrad. Journ. Bot. 1800-2: 26 (1801). Type from Java.

LAOS: Phou Khao Khoai (or 'Rita ville'), northeast of Ventiane, *T. Tuyama* L-57041, 22. XII. 1957.

From Indo-China and the Philippines south to tropical Polynesia and Australia, but not yet found in Burma and India.

18. ***Crypsinus griffithianus*** (Hook.) Copel. Gen. Fil. 206 (1947).—*Polypodium griffithianum* Hook. Ic. Pl. t. 951 (1854). Type collections from Bhutan and Mishmi.—*Phymatodes griffithiana* (Hook.) Ghing in Contr. Inst. Bot. Nat. Acad. Peiping 2: 71 (1933); Tard. et G. Chr. (1941), 4723; Dickason (1946), 127.

THAILAND: On the bark of tree, alt. ca. 800 m., Hoet That to Muong Khu, H. Ogawa, K. Yoda & T. Tuyama OCUBE No. 216-98, 16. II. 1958.

Himalayas and Burma to Southwest China, Tonkin and Annam. First record for Thailand.

19. ***Crypsinus rhynchophyllus*** (Hook.) Copel. Gen. Fil. 206 (1947); Holtt. (1961), 21.—*Polypodium rhynchophyllum* Hook. Ic. Pl. t. 954 (1854). Type from Assam; G. Chr. (1931), 334.—*Phymatodes rhynchophylla* (Hook.) Ghing in Contr. Inst. Bot. Nat. Acad. Peiping 2: 69 (1933); Tard. et G. Chr. (1941), 471; Dickason (1946), 127.

THAILAND: Doi Inthauon, alt. ca. 1,300-1,500 m. H. Ogawa & K. Yoda OCUBE No. 110-116, 10. I. 1958.

LAOS: On the bark of tree, in *Castanopsis* forest, Mt. Phou San, 12 km north of Ban Hang, northeast of Phongsavanh, *T. uyama* L-57646, 31. XII. 1957.

From Assam to Southwest China, also in Tonkin, Annam and Thailand. First record for Laos.

20. ***Arthromeris amplexifolia*** (Christ) Ghing in Contr. Inst. Bot. Nat. Acad. Peiping 2: 94 (1933); Tard. et. G. Chr. (1941), 487. f. 56.—*Polypodium amplexifolium* Christ in Journ. de Bot. II. 1: 269 (1908). Type from Annam.

THAILAND: On the bark of tree, Doi Ghieng Dam, west of Chieng Dam, from Hoet that ('Hill factory' alt. 900 m.) upwards, *T. Tuyama T-57281*, 8. XII. 1957.

First record for Thailand. Hitherto known from Laos and Annam.

### 摘 要

津山尚教授がタイ・ラオスで1957年12月—1958年4月の間に採集したウラボシ科を研究した。この間、同氏は1958年1月22日—3月2日まで大阪市立大学東南アジア学術調査隊の植物班に客員として行動を共にし、同班の植物生態学者小川房人、依田恭二両氏と共に採集した（この標本はOCUBEと表示）。この小著で11属20種を同定した。タイおよびその周辺部は言わばシダフロラ研究の空白地帯で、東南アジアに広い分布域を有する種でも記録がないものが多い。ここでタイ・ラオスへの新分布がそれぞれ6種、3種あった。*Colysis pentaphylla* は今まで雲南省のみで知られていたが、今回タイ・ラオスで発見された。また古くBeddomeによってマレー半島などに分布することが示されている種が、Holttum, Dickasonの最近の研究で無視されている点を指摘した。2, 3の種については形態上の差異点、種のmaintainabilityについてノートした。

### ○高等植物分布資料 (26) Materials for the distribution of vascular plants in Japan (26)

○ヒメマツバボタン *Portulaca pilosa* L. (一名ケツメグサ) は群馬県館林地方に雑草として見出される草で、1963年8月26日に採集した。草状はマツバボタンによく似ているが、花の直径が8~10 mm、葉が扁平で葉脈が明瞭なこと、種子が光沢ある黒色で鈍頭の突起を密布していることなどで容易に区別できる。なお国立科学博物館には島田弥市氏が熊本市で1954年9月16日に、風見房雄氏が1958年8月22日に東京都大森で採集した標本があった。私の標本は大井次三郎博士に同定していただいたので、ここに感謝する。(田中肇)

○キバナシヨウキラン *Yuania amagiensis* Nakai et F. Maekawa は伊豆や関東の西南部の山地と九州の山地とにだけ知られていたが、その中間には知られていなかった。奈良市の唐沢耕司氏から大台ヶ原山の北方の山続きで、五万分の一地図の八幡平とある所の少し上方600 m内外の林地で採集せられ、その液漬の花と写真をめぐまれた。あってもよいはずではあるが珍しいものなので記録にとどめておきたい。

なお、本誌8月号240頁にハゴロモグサ属の一種 *Alchemilla arvensis* (Scop.) Linn. を報告したが、古く昭和14(1939)年、前川文夫博士によって場所も同じく長崎市にあることを本誌15: 464にすでにノミノハゴロモグサの名で報告されているので訂正しておきたい。(大井次三郎)