Micronesica 24(1): 81–85, 1991

Nervilia jacksoniae nov. sp., a new species of orchidaceae from Guam and Rota

AGNES F. RINEHART

P.O. Box 428 Agana, Guam 96910 U.S.A.

and

F. R. FOSBERG

Botany Department, National Museum of Natural History
Smithsonian Institution Washington, D.C. 20560

Abstract—A new species of Orchidaceae, *Nervilia jacksoniae* from the Mariana Islands of Rota and Guam is described. The plant is small, seasonal, characterized by a reniform, hirtellous leaf and a uniflorous inflorescence with a deeply folded, fimbriate lip.

Introduction

A new species of *Nervilia* Comm. ex Gaud. has been observed on Guam and Rota in the Mariana Islands over the past several years; it has been brought into cultivation and has flowered. Because of its peculiar phenology—separate vegetative and flowering seasons, and very short and usually incomplete anthesis, it has taken some time to demonstrate its full life-cycle. An account of its occurrence, ecology and phenology, a description and specimen citations are presented below, based on the joint observations of Agnes Rinehart and Lynn Raulerson. Plants from Guam have been transplanted, and have flowered and fruited in the Rinehart and Lang gardens in Dededo, Guam.

Because leaves and flowers are not usually found on a single *Nervilia* specimen simultaneously, a collection including several individuals from a single population was designated as type. The population from Rota was selected because it included examples of all stages of growth. Unfortunately it did not include a good open flower. Detailed description of the flower was based on *Raulerson 18135*. The drawing of the lip (Fig. 1) was accomplished by preserving the flower in FAA and later teasing it open under a binocular dissecting microscope. Growth data were based on observations of plants collected in the wild and cultivated on private property in Dededo, Guam between 3 August 1985 and 26 December 1988.

Description

Nervilia jacksoniae Rinehart & Fosberg nov. sp.

Planta terrestris; tubere globoso ad apicem rhizomatoso; unifoliato; folii lamina horizontali, reniformi, subangulata, 7-nervata, supra sparse hirtella, infra gla-

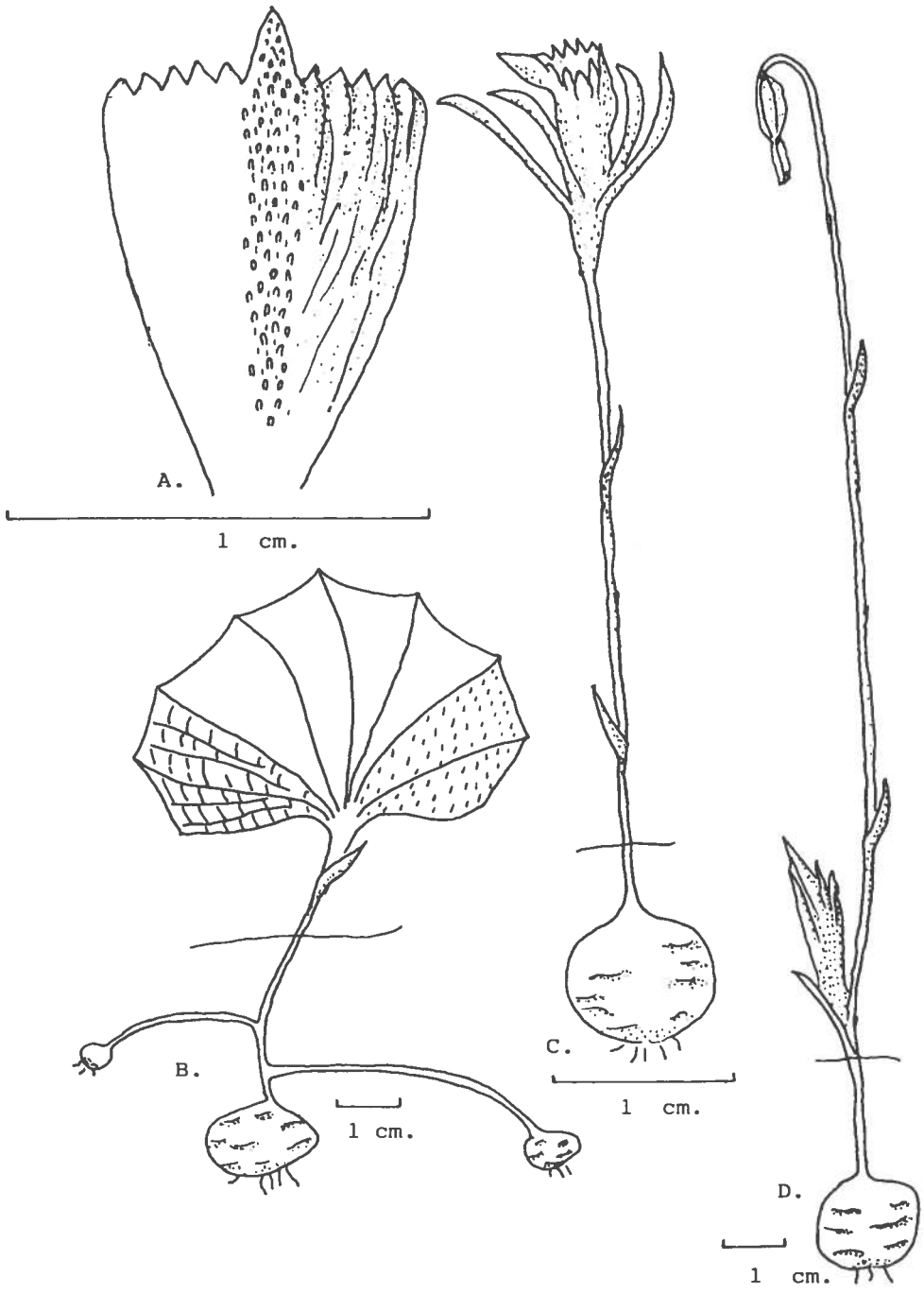


Figure 1. *Nervilia jacksoniae.* A. The lip. B. The leaf with tuber, rhizomes and new tubers. C. The flower. D. The seed capsule and new leaf.

bra, petiolus 3m longo; scapo evoluto solum post folia dilabentace, bibraceato unifloro; flore sub anthesi erecto; tepalis acutis, 10 × 3 mm, pallide viridibus; labello albo, fimbriato, callo viridi piloso papillatoque; anthese duratione 10 00—14 00 horis; capsula ellipsoidea cernua.

A terrestrial herb, bearing leaves and flowers at separate seasons. Tuber subglobose 1–1.5 cm long. During the vegetative stage, rhizomes emerging below ground from the stem above the tuber produce new tubers at their apices. Leaf-stem and petiole short, holding the blade horizontally at about 3 cm or just above the surface of the ground. Leaf single, reniform-cordate to reniform-oval and reaching 3.2 cm from the short V-shaped sinus to the tip, 5.3 cm wide. Upper surface a plain bright green, sparsely hirtellous, underside glabrous and a lighter green, 7-veined, the margin slightly concave between the veins. Flower at the apex of the scape, single, 15 mm across. Tepals pale green 10 × 3 mm. Lip white, fimbriate and deeply folded, with a callus of green hairs and short papillae. Lip not opening widely. Column slender 0.5 cm tall, two pollinia. Flowers open briefly between 1000 and 1400 hours. Scape 4–7 cm long with two sterile bracts, extending to 18 to 20 cm over a period of about 23 days as the seed capsule matures.

Type: Commonwealth of the Northern Mariana Islands: Rota 1.6 km (one mile) north of Songsong Village, back strand about 25 m from the ocean, between the road and the base of the cliff. Elevation < 3 m. Leaves, closed flowers and seed capsules. 8 August 1985. *L. Raulerson & A. Rinehart. Raulerson* 11310. US. Holotype, GUAM isotype with additional specimens preserved in FAA. (GUAM).

Etymology: Named in honor of Edna Jackson, deceased, charter member of the Guam Orchid Society and pioneer collector of Guam orchids.

OTHER SPECIMENS EXAMINED

Rota, Commonwealth of the Northern Mariana Islands:

Hillside forest near large gun on the road to Sabana. Sterile. 7 August 1985 *Raulerson 1184* (GUAM). 1.6 km (one mile) north of Songsong Village, back strand about 25 m from the ocean, between the road and the base of the cliff. Elevation < 3 m. Leaves, closed flowers and seed capsules. 9 August 1986. *Raulerson 13282* (GUAM). Rota, 1.6 km north of Songsong Village, back strand about 25 m from the ocean, between the road and the base of the cliff. Elevation < 3 m. Sterile. 19 December 1988. *Raulerson 19157* (GUAM).

Northern Guam:

Between Wilson Homes and Yigo, on limestone. Sterile. 3 August 1985. *Raulerson 11102* (GUAM). Dededo, woodland west of Ypapao Estates, on limestone. Sterile. 31 August 1985. *Raulerson 11504* (GUAM). Between Wilson Homes and Yigo, sterile specimens collected 3 August 1985 and cultivated A. Rinehart property, Dededo. Flowered in cultivation 27 May 1986. Flower cut and preserved in FAA 28 May 1986. *Raulerson 12792* GUAM. Between Wilson Homes and Yigo, developing seed capsules, no leaves. 17 June 1986 *Raulerson 12797* (GUAM). Between Wilson Homes and Yigo, sterile specimens collected 3 August 1985 and cultivated on John Lang property, Dededo. Flowered in cul-

tivation. Persistent flower and developing seed capsule 27 June 1986. Preserved in FAA *Raulerson 12798* (GUAM). Cliffline forest above Double Reef, NCS. On limestone. Sterile. 31 August 1986. *Raulerson 13609* (GUAM). Hilaan, sandy back strand. Sterile specimens collected 5 November 1988 and cultivated A. Rinehart property, Dededo, Guam. A single tuber which had become separated from its leaf flowered unseasonably 26 December 1988. The flower opened 1130 hours; preserved in FAA 1400 hours 26 December 1988. *Raulerson 18135* (GUAM).

Central Guam:

Ravine forest below Lower Sigua Falls. Clay soil. Sterile. 10 December 1988. *A. Rinehart 894* (GUAM).

Southern Guam:

Limestone forest area of Japanese Overlook, Naval Magazine. Sterile. 19 July 1986 *Raulerson 13053.* (GUAM). Limestone forest area below Mt. Lamlam geologic survey marker. Elevation ca 300 m. Sterile. 6 December 1987. *A. Rinehart 710* (GUAM). Asmafines River, ravine forest above the road on clay soil, sterile. 8 November 1988, *P. Eastlick & M. Mesngon, L. Raulerson* 18066 (GUAM).

Discussion

Nervilia jacksoniae appears to flower seasonally. Growth of the new leaves and underground tubers which produce new leaves is accomplished during the rainy season (Fig. 2). Most leaves start to die during the dry season in January and the plant is dormant until the inflorescence emerges sometime in May through early August. The flower usually opens pointed upward when the scape is 4–5 cm high (Figs. 3–4); it is open less than four hours, bending downward as the flower closes. The scape elongates rapidly to as much as 20 cm over the period of about 23 days required for the seed capsule to mature. As the capsule reaches maturity the new leaf emerges from the stem at ground level.

Colonies on Guam are small. Because flowers are produced during the leafless stage of an individual plant, it is difficult to locate them during the blooming season. In addition, some flowers appear to become fertile without opening fully. One formed a seed capsule after opening only the dorsal sepal. All flowers observed on Guam were on plants collected in the wild and cultivated on properties in the Dededo area. The population of the back strand on Rota is large, and when flowering it has included many immature seed capsules with persistent flowers which could be preserved in FAA and teased apart. No open flowers were found. The first collection was made during a rainy morning; perhaps the rain had an inhibitive effect. Another collection (Raulerson 13282) made during a sunny afternoon of the following year (9 August 1986) may have been too late in the day, or perhaps the population was at the end of the flowering season. The large number of mature leaves in the population might indicate that those individuals flowered much earlier.

Nervilia jacksoniae is not uncommon on Guam; it is found in limestone habitats ranging from the back strand at Hilaan on the northwest coast to ca 300

m in the forests of Mt. Lamlam. It has also been found on clay soil in ravine forests along rivers in central and southern Guam. On Rota it has been collected in two widely separated areas and one can assume that further investigations will reveal more populations. It may have been overlooked during previous botanical searches of the islands for various reasons: the plant is dormant four or more months during the dry season when it is the most pleasant for hikers to investigate the forests. The plant is small and inconspicuous, the leaves resembling the immature leaves of the larger and more common *Nervilia aragoana* Gaud. which inhabits similar areas. Further, it may have been confused with *Nervilia platychila* Schltr., a ravine forest species which also bears hirtellous leaves. Gaudichaud (1826) located a *Nervilia* on Rota which he called *Nervilia ovata* Gaud., but the type specimen has not been found (Fosberg & Sachet, 1987) and his description does not appear to fit this species.

Nervilia jacksoniae may be closely related to *Nervilia crociformis* (Zollinger & Moritzi) Seidenf. of Australia, Papua New Guinea and Indonesia to the Philippines (Lavarack & Gray 1985). The two species are similar in size, shape, and color of the flower. The labellum of *N. crociformis* opens widely; in contrast, the lip of *N. jacksoniae* remains tightly folded. The leaves of *N. crociformis* are glabrous with about 10 veins while the leaves of *N. jacksoniae* are hirtellous with 7 veins.

Acknowledgements

The authors would like to thank John Lang and David Hopper who helped supply growth data. An additional thank you is extended to Lynn Raulerson, curator GUAM Herbarium, for advice, editorial assistance and having a large selection of plants curated and available.

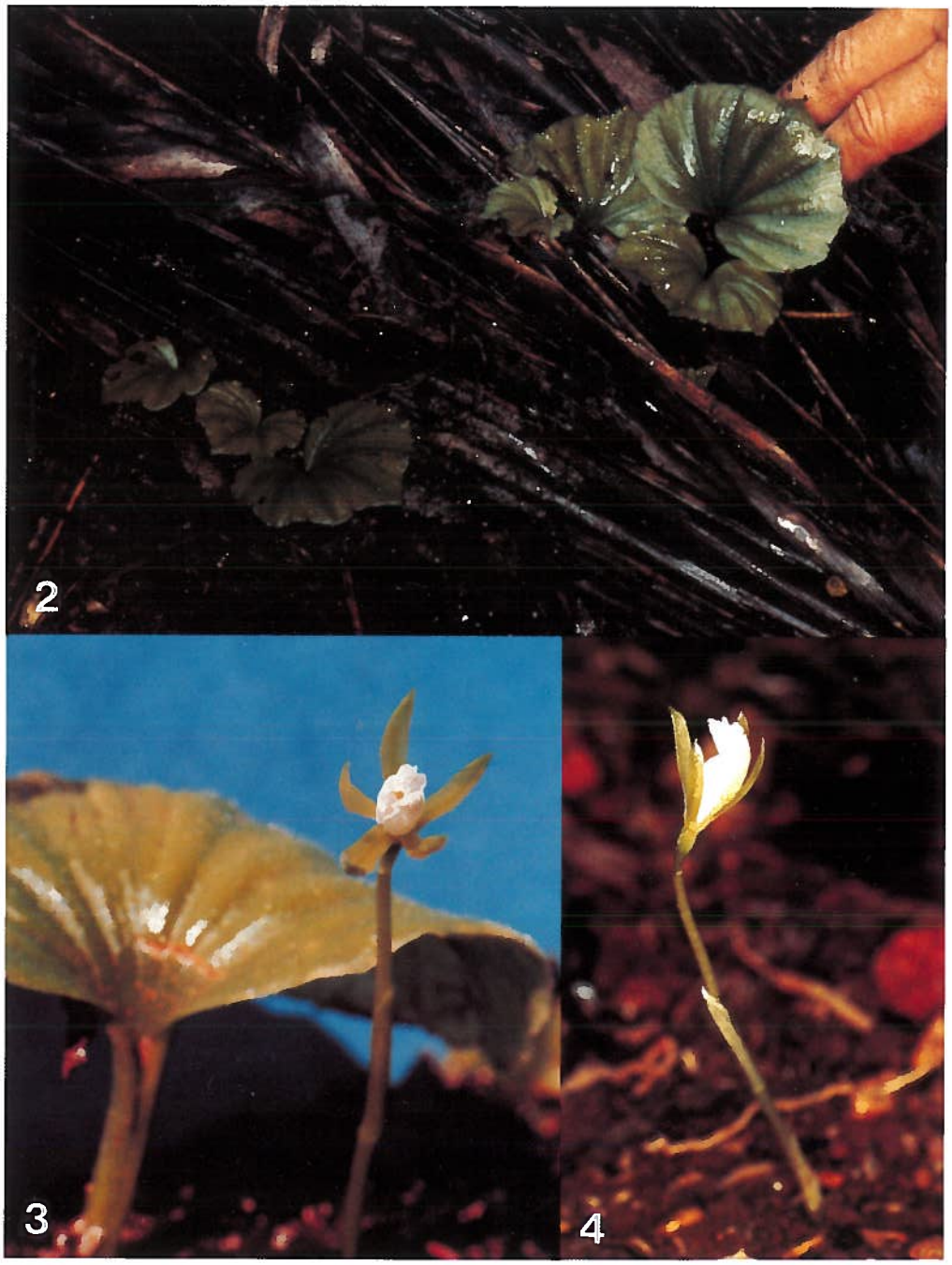
References

Fosberg, F. R. and M. H. Sachet. 1987. Noteworthy Micronesian Plants 5. Micronesica 20: 131–156.

Gaudichaud, C. 1826. Voyage autour du monde . . . sur les corvettes de S. M. l'Uranie et la Physicienne, pendant les années 1817, 1818, 1819 et 1820. Botanique. Paris. Pillet áiné, 522 pp.

Lavarack, P. S. & B. Gray. 1985. Tropical orchids of Australia. Thomas Nelson, Melbourne, Australia. 177 pp.

Received 13 June 1990, revised 6 Jan. 1991.



Rinehart & Fosberg—Plate I. Figure 2. The leaves of *Nervilia jacksoniae* during the rainy season. Figure 3. Apical view of the flower. Figure 4. Side view of the flower.