

A COLLECTION OF PTERIDOPHYTES FROM THE  
DOMINICAN REPUBLIC

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The vegetation of the islands of the Caribbean has been collected and studied by a host of workers who ultimately recognize in it diverse and difficult problems of speciation and plant distribution. The number of species in each island is high and endemic species have been reported by Urban as representing as much as 43% of the total flora in some islands. In spite of the great number of collectors who have worked in the Caribbean, many critical areas remain to be studied, many genera and many families are poorly known, and the relationships and distribution of the species or of the total flora still present unsolved problems. The much needed flora of the Caribbean islands still awaits a great amount of work.

Perhaps the most important single island in any consideration of the vegetation of the Caribbean area is the island of Hispaniola, occupied by the countries of the Dominican Republic and the Republic of Haiti. Urban, studying the collections of such early workers as Plumier, Türkheim, Eggers, Abbott, Buch, & Fuertes, published numerous papers on the flora of Hispaniola in the series *Symbolae Antillanae*. His work culminated in the *Flora Domingensis* in volume eight and in the *Pteridophyta Domingensis* in volume nine. It was during the process of this study that Urban suggested to Ekman that he visit and collect in Hispaniola. Urban's treatments of the Hispaniolan vegetation were scarcely finished before the critical collecting and field notes of Ekman made those works obsolete. There then followed the series *Plantae Haitienses et Domingenses Novae vel Rariores*, by Urban and collaborators, in which were published new species and records and many critical notes based on the Ekman collections. Thus, at the time of Urban's death, his *Flora Domingensis* was out of date and scarcely of more than reference value due to the large number of new species described in separate papers and unincorporated in a flora.

The Dominican botanist R. N. Moscoso, sensing the need for a complete flora incorporating the known distribution of various species described in the Hispaniolan vegetation, began the compilation of references designed to bring into one publication all of the published records of plants from the island of Hispaniola. Moscoso's work appeared in 1943 as *Catalogus Florae Domin-*



gensis and has proven to be an excellent reference manual for workers on the vegetation of that island. However, Moscoso's work is still but a catalogue of the species, and the basic work of analyzing Urban's numerous species and writing a flora complete with descriptions and keys still remains to be done. It will not be a simple nor an easy task, as a glance at Moscoso's catalogue will show. One hundred species are reported in the genus *Pilea*, thirty-three species in *Calyptranthes*, sixty-two species in *Eugenia*, and sixty-four in *Miconia*, to mention only a few of the difficult genera of the area.

Moscoso's catalogue is entitled "Part I, Spermatophyta." It is hoped that the second part dealing with the Pteridophytes will be published soon and will bring together the literature and references for that group of plants.

It is unfortunate that Christensen did not realize the need for information on distribution when he published the paper entitled "The collection of Pteridophytes made in Hispaniola by E. K. Ekman, 1917 and 1924-30." (Kgl. Sv. Vetenskapsakad. Handl. 3rd series, 16(2): 1-93. 1937.) Christensen reconsidered all the pteridophyte records included by Urban in the latter's Pteridophyta Domingensia (Symbol. Antill. 9: 273-397. 1925), and brought the concepts and the nomenclature up to date. However, he did not repeat the distribution records given by Urban but cited only those collections made by Ekman. Urban recognized 450 species in 1925; Christensen recorded numerous additional species, raising the total number to 645 species of Pteridophytes in Hispaniola. This is in contrast to 285 species of Pteridophytes in Maxon's treatment of the Pteridophyta in Flora of Puerto Rico and the Virgin Islands; 500 species for Jamaica (Maxon, Report Smithsonian Institution, 1920), and 366 species listed by Grisebach for the British Islands.

Many of the species in the large and diverse pteridophyte flora listed by Christensen are based on single collections or limited isolated records. It is my feeling that while the number of taxonomic entities may be nearly correct, the indicated isolation and local occurrence of many of these species in Hispaniola is not sound and that further exploration is needed to determine the true ranges. The island of Hispaniola has four mountain chains running diagonally across it. The land ranges in altitude from 150 feet below sea level at Lake Enriquillo to 10,300 feet at Pico Trujillo. Arid desert areas exist on the north and south coasts, and lush wet rain-forests in the mountainous areas. Roads are few and travel is difficult in many areas.



Large areas have not been explored from the botanical point of view, while others have been visited and revisited until the collections from a few areas far outweigh the representation from other larger areas.

In 1946 my wife and I collected in the Dominican Republic, making a special effort to fill in the gaps between the classic areas of other collectors. We visited briefly the Barahona peninsula, between the town of Enriquillo where Fuertes lived for a time and the town of Pedernales on the Haitian border, practically unknown territory, botanically as well as geographically. We also made a special effort to investigate the southern slopes of the Cordillera Central, particularly north of the town of San Juan de la Maguana. These areas were collected to determine in part the eastern extension of species from the Massif de la Selle in Haiti and the western extension of species previously reported from Constanza and Valle Nuevo. It is clear from the collections made in the latter area, e. g. Sabana Nueva, Piedra del Aguacate and Rio del Oro, that the species previously considered as localized in Valle Nuevo are actually wide-spread through the central range of mountains, and that additional collections and reports are necessary to complete our understanding of the distribution of Hispaniolan plants.

The following list of a collection of pteridophytes made in the Dominican Republic is published with the hope that other similar lists by recent collectors in the Caribbean area will also be published, to facilitate the task before students of the Caribbean flora, that is, the eventual compilation of a manual of the area.

The collections cited below were made by R. A. and E. S. Howard, from Aug. into Nov. 1946. Our work was sponsored in part by gifts from the Society of Fellows and the Arnold Arboretum of Harvard University. The work would not have been possible without the cooperation of the government of the Dominican Republic, and my wife and I are grateful for the support and assistance we received throughout our trip. A companion on many of our trips was Dr. Miquel Canela, whose assistance and companionship we gratefully acknowledge.

I wish to acknowledge my appreciation to Mr. Alfred Copp and other members of a field party of the Aluminum Company of America, for the opportunity of visiting the mountainous terrain north of the town of Pedernales, at the western edge of Barahona peninsula. From Pedernales we travelled by mule on the Pedernales-Duverge trail, through Bucan Polo to the crest area at Aceitial. The geology of this area has been reported in the



Geological Survey Bulletin 953-C, published in 1947, and entitled "Aluminous Lateritic Soil of the Sierra de Bahoruco Area, Dominican Republic, W. I." A report on the vegetation of this limestone area, and particularly the savannah area, is being prepared and will be published later. Through the kindness of Mr. George Hamor of the Barahona Sugar Company, who not only supplied transportation, bed and board, but made a most delightful and stimulating companion, we were able to spend several days in the mountains north and slightly west of Barahona. This area, on the road from Cabral to Polo, is now the site of a new coffee plantation. The mountain tops are covered with either a pine forest or a hardwood forest. Extensive collections were made in the area known as Montienda Nueva (Bull. Torrey Club, **75**: 335-357. 1948). However, much work remains to be done in this fascinating region.

With mules supplied by the Dominican Government at San Juan, we were able to follow the little used trail north to Rio Arriba and through the mountains towards San Jose de las Matas. Ekman followed a portion of this trail and, following in his footsteps, we found the collecting excellent along the Rio Limon at Rio Arriba del Norte (Through the Garden Gate, vol. 3, No. 2, 1948), along the Rio del Oro, at Piedra del Aguacate on the Rio del Oro, and at the crest in the interesting grassy swamps of Sabana Nueva and Sabana Bonita, in the Lomas de la Mediania region. The vegetation of this area proved to be that of the classic area of Valle Nuevo, near Constanza. The natives report that farther to the west in this same area are other similar savannahs, which certainly need visiting and study before the distribution of the high mountain flora could be completely mapped.

During the process of identifying the collections cited in this paper, the author called upon the assistance of the late Mr. C. A. Weatherby. He gave generously of his time and knowledge in the determination of this collection and I will be forever grateful for his interest in my work on the Caribbean flora. A few specimens could not be accurately determined in the collections at the Gray Herbarium or the New York Botanical Garden, and these were sent to Mr. C. V. Morton at Washington. His assistance in identifying these critical specimens is greatly appreciated.

#### AZOLLACEAE

*Azolla caroliniana* Willd. San Juan: San Juan, 8790. Floating plant in roadside ditches, especially abundant near Rio Mijo.



## CERATOPTERIDACEAE

*Ceratopteris deltoidea* Benedict, Higuey: Higuey, 9838. Solitary, large plant floating in the center of a pond crowded with *Cyperus*, *Pistia*, *Eichornia* and *Marsilea*.

## CYATHEACEAE

*Cyathea Abbottii* Maxon, Barahona: Montiadá Nueva, 8545. Small tree fern of dense wooded areas. Trunks usually around 4' tall.

*Cyathea Grevilleana* Mart. Barahona: Montiadá Nueva, 8483. A 25' tree fern with a spiny trunk, growing in dense woods.

*Cyathea Hieronymi* Brause, San Juan: Piedra del Aguacate, 9441. 20' tree fern on dense forested hillsides.

*Cyathea pubescens* Mett. Barahona: Montiadá Nueva, 8563. Small tree fern with trunks reaching 3' in height.

*Lophosoria quadripinnata* (Gmel.) C. Chr. (*Alsophila quadripinnata* (Gmel.) C. Chr.) San Juan: Sabana Nueva, 9164; Piedra del Aguacate, 9393. A common fern along streams at higher altitudes. Fronds become 12' long in some specimens.

## GLEICHENIACEAE

*Dicranopteris bifida* (Willd.) Maxon, Barahona: Montiadá Nueva, 8553; San Juan; Piedra del Aguacate, 9346. Both of these collections were made on open hillside where the plants had ample opportunity to spread. The individual plants seemed to be of indeterminate length and cascaded over other shrubs covering a hillside. Both of these collections consist of plants with woolly tomentose rachises, terminal shoots and under surfaces of the ultimate segments. The material is distinct from any other I have seen and may well represent a new taxonomic entity.

## HYMENOPHYLLACEAE

*Hymenophyllum axillare* Sw. San Juan: Río del Oro, 8991. Terrestrial on bank of the arroyo; Piedra del Aguacate, 9376. Epiphytic plant on shrubs along the creek.

*Hymenophyllum fucoides* Sw. San Juan: Sabana Nueva, 9009. Scattered plants of this species were growing in a solid bank of *Sphagnum meridense* on a wet dripping hillside.

*Trichomanes angustatum* Carm. (*T. tenerum* Spreng.) Barahona: Montiadá Nueva, 8618. The present collection was made of epiphytic plants growing on hardwood shrubs. This species is usually found on trunks of tree ferns.

## MARATTIACEAE

*Marattia Kaulfussii* J. Sm. Barahona: Montiadá Nueva, 8557. Short tree ferns in dense wet woods. Trunks to 3' tall.

## MARSILEACEAE

*Marsilea Berteroi* A. Braun, Monte Cristi: Monte Cristi, 9593. An infrequent plant in roadside ditches, found only in areas of little standing water. This is the first record of this species from the Dominican Republic.



*Marsilea polycarpa* Hook. & Grev. Trujillo: Cuenca near Guerra, 9521. Trailing and floating plants at the edge of small ponds. Seibo: Higüey, 9840. Floating plants in protected lagoons. Usually associated with *Pistia*.

#### OPHIOGLOSSACEAE

*Botrychium cicutarium* (Sw.) Sw. San Juan: Piedra del Aguacate, 9361. Common plant in hardwood thickets in ravines at higher altitudes.

*Botrychium Jenmanii* Underw. San Juan: Sabana Nueva, 9138; Piedra del Aguacate, 9338. Occasional plant of riverbanks or open hillsides in pine woods.

*Ophioglossum nudicaule* L. var. *tenerum* (Mett.) Clausen, Trujillo: Cuenca near Guerra, 9525. A single plant of this species was found at the edge of a small pond near Cuenca. A second trip to the same area found the locality completely submerged and the pond remained enlarged during the following week. *O. ypanemense* of Christensen is synonymous with this entity, according to Clausen (Mem. Torr. Bot. Club, 19 (2): 146-8. 1938).

*Ophioglossum petiolatum* Hook. San Juan: Sabana Nueva, 9061. A common plant, although few of the specimens were fertile, growing in wet grassy savannahs, usually under a growth of *Lycopodium*.

*Ophioglossum palmatum* L. Barahona: Montaña Nueva, 8569. Epiphytic.

#### POLYPODIACEAE

*Adiantopsis Reesii* (Jenm.) C. Chr. Elias Piña: Hondo Valle, 8757. Growing on limestone rock near the cave. This is the first record of this species from the Dominican Republic.

*Adiantum concinnum* H. & B. ex Willd. San Juan: Río Arriba del Norte, 8881. Terrestrial in the arroyo.

*Adiantum cristatum* L. Elias Piña: Hondo Valle, 8746, 8772; Juan Santiago, 9254. Terrestrial along the banks of streams.

*Adiantum fragile* Sw. San Juan: Río Arriba del Norte, 8852. Terrestrial riverbank fern.

*Adiantum melanoleucum* Willd. Barahona: Barahona, 8300. Terrestrial on limestone rock.

*Adiantum latifolium* Lam. Higüey: Higüey, 9724. Epiphyte on the buttress roots of large trees.

*Adiantum petiolatum* Desv. Higüey: Higüey, 9733. Terrestrial.

*Anogramma chaerophylla* (Desv.) Link, San Juan: Sabana Nueva, 9117, 9151. An annual fern growing in abundance on a wet dripping rock face in pine woods.

*Antrophyum Urbani* Brause, Barahona: Montaña Nueva, 8478, 8575. Epiphytic fern in dense woods. Only other record of this species from the Dominican Republic is the collection of Fuertes, 1497B, also from near Barahona.

*Asplenium alatum* H. & B. Barahona: Montaña Nueva, 8481. Terrestrial.



*Asplenium cristatum* Lam. San Juan: Juan Santiago, 9261; Piedra del Aguacate, 9357. Epiphytic fern on large trees in dense hardwood thickets.

*Asplenium dimidiatum* Sw. San Juan: Rio Arriba del Norte, 8817. Terrestrial on riverbank.

*Asplenium formosum* Willd. San Juan: Rio Arriba del Norte, 8816, 8845, 8895. Terrestrial fern on riverbank.

*Asplenium harpeodes* Kunze, San Juan: Piedra del Aguacate, 9402. Epiphyte, in dense woods.

*Asplenium monanthes* L. San Juan: Piedra del Aguacate, 9379. Growing on rocks in the river.

*Asplenium praemorsum* Sw. Elias Piña: Hondo Valle, 8673; San Juan: Sabana Nueva, 9108; Juan Santiago, 9200. Growing as an epiphyte on tree trunks or on rocks in the river.

*Asplenium praemorsum* Sw. var. Elias Piña: Hondo Valle, 8773. This collection has narrow bipinnatifid leaves and, in the field, is quite distinct from the material of *A. praemorsum* cited above. It may agree with the material collected by Ekman, 11760, and cited by Christensen as *A. sp. dub.* (l. c. 55), which I have not seen.

*Asplenium radicans* L. (*Asplenium flabellulatum* Kze.) Barahona: Montiada Nueva, 8487.

*Asplenium radicans* L. (*Asplenium Karstenianum* Klotzsch) Barahona: Montiada Nueva, 8561.

*Asplenium radicans* L. (*Asplenium cyrtopterum* Kunze) Barahona: Montiada Nueva, 8486.

The three collections cited above were made in a dense forest on a hill-top at 4000'. The type of frond cutting represented by collection No. 8487, often called *A. flabellulatum*, was the most common. Collection No. 8561 had the pinnae scarcely lobed, with the lower pinnae slightly auriculate. This collection agrees most closely with the majority of material called *A. radicans* from the continent of S. America. Actually, all intermediate stages of cutting could be found in the field, and it appears that *A. flabellulatum*, *A. Karstenianum*, and *A. cyrtopterum*, are only varieties of *A. radicans*.

*Asplenium resiliens* Kunze, Barahona: Aceitial, north of Pedernales, 8155, 8197. These collections were made in a limestone ravine in pine woods at 4200'.

*Asplenium sarcodes* Maxon, Barahona: Montiada Nueva, 8488, 8535. A terrestrial fern in dense thickets. This is the first record of this species from Hispaniola. It is already known from Porto Rico and Cuba.

*Asplenium serra* Langsd. & Fisch. San Juan: Piedra del Aguacate, 9359. Barahona: Montiada Nueva, 8495, 8541. Epiphytic ferns in hardwood thickets.

*Asplenium Sintenisii* Hieron. San Juan: Piedra del Aguacate, 9358. Barahona: Montiada Nueva, 8598. Terrestrial plant in hardwood thickets.

*Asplenium theciferum* (HBK) Mett. San Juan: Piedra del Aguacate, 9370. Epiphyte on tree ferns.



*Blechnum occidentale* L. San Juan: Juan Santiago, 9291, Piedra del Aguacate, 9354. Barahona: Montiada Nueva, 8494, 8530. Terrestrial plant of hardwood areas.

*Blechnum polypodioides* (Sw.) Kuhn, Barahona: Montiada Nueva, 8489. Climbing epiphytic fern with terminal fertile fronds.

*Blechnum Tuerckheimii* Brause, San Juan: Piedra del Aguacate, 9396. Terrestrial plant of marshy areas, with separate fertile fronds.

*Cheilanthes lendigera* (Cav.) Sw. San Juan: Sabana Nueva, 9115. Found only on one large wet dripping rock, where Ekman also collected it.

*Cheilanthes microphylla* Sw. Monte Cristi: Monti Cristi, 9578. Terrestrial on an elevated coral reef south of town.

*Cheilanthes myriophylla* Desv. San Juan: Rio Arriba del Norte, 8818. Terrestrial.

*Cheilanthes notholaenoides* (Desv.) Maxon (*C. micromera* Link), Barahona: Aceitil north of Pedernales, 8172, 8198. San Juan: Rio Arriba del Norte, 8846a. Terrestrial, usually in pine woods.

*Cystopteris fragilis* (L.) Bernh. San Juan: Sabana Nueva, 9112. A common and beautiful fern, growing on wet dripping cliff faces. Rhizomes extremely fragile.

*Dennstaedtia ordinata* (Klf.) Moore, San Juan: Piedra del Aguacate, 9394. Terrestrial plant at the edges of a marsh on a wet hillside. Simple fronds to 5' long. Previously reported in the Dominican Republic from the Samana Peninsula.

*Didymochlaena truncatula* (Sw.) J. Sm. Barahona: Montiada Nueva, 8571. Terrestrial.

*Diplazium aemulum* Underw. & Maxon, Barahona: Montiada Nueva, 8601. Terrestrial plant. Christensen refers this species to the synonymy of *D. unilobum*. *D. aemulum* has a different characteristic denticulation of the pinnae, and the two plants have quite different aspects in the field.

*Diplazium domingense* Brause, Barahona: Montiada Nueva, 8562, 8576. Terrestrial. Both Christensen and Maxon refer this species to *D. centripetale* (Baker) Maxon. Again the aspect of this plant in the field seems quite different from that of *D. centripetale*. In addition, there is an abundance of scales on the stipes of *D. centripetale* and relatively few scales, located only at the base, on fronds of *D. domingense*.

*Diplazium unilobum* (Poir.) Hieron. San Juan: Piedra del Aguacate, 9355. Terrestrial in hardwood thickets.

*Doryopteris pedata* (L.) Fée, San Juan: Rio Arriba del Norte, 8819, 8897. Higüey: Higüey, 9729. The specimens from Rio Arriba were growing on rocks on a riverbank in a shaded location. The Higüey material came from a wet marshy hardwood thicket where the specimens were growing on shrubby hummocks.

*Dryopteris asplenoides* (Sw.) Kuntze, San Juan: Piedra del Aguacate, 9360. Terrestrial plants found only in river valleys.

*Dryopteris domingensis* (Spr.) Maxon (*D. guadalupensis* (Wikstr.) C. Chr.), San Juan: Juan Santiago, 9259. Plants of wet river bottoms.

*Dryopteris imitata* C. Chr. Barahona: Aceitil, north of Pedernales, 8168.



Previously reported from the north coast of Hispaniola, from areas near Port au Paix, Puerto Plata, and the Samana Peninsula.

*Dryopteris normalis* C. Chr. San Juan: El Cercado, 8670. Macoris: San Pedro de Macoris, 9477. A common fern of riverbanks, roadside cuts or the walls of limestone sinks. The rhizomes are securely fastened in the crevices and the plants are difficult to remove.

*Dryopteris patula* (Sw.) Underw. San Juan: Sabana Nueva, 9109, 9110, 9114. These three collections were made in the same area but from different conditions of exposure and environment. 9109 was collected in a wet dark cave formed by large boulders. The plants are of thin texture and very light in color. 9110 was collected in open pine woods where it was growing on top of boulders in a semi-arid habitat. The fronds of these plants were stiff and coriaceous. 9114 was collected on a wet dripping cliff face and the fronds were weak and soft. All of these plants have the numerous small shining glands characteristic of the species, and are quite distinct from the named varieties.

*Dryopteris physematioides* (Kuhn & Christ) C. Chr. San Juan: Sabana Nueva, 9159. A fern growing in running water or in the matted floating vegetation in the marshy areas.

*Dryopteris reptans* (Gmel.) C. Chr. Barahona: La Salinas, 8390a. A terrestrial plant growing on soil above the salt outcrop. Elias Piña: Hondo Valle, 8762. Terrestrial, in dense woods.

*Dryopteris sancta* (L.) Ktze. Barahona: Aceital, north of Pedernales, 8176. Terrestrial plant on limestone soil in open pine woods. San Juan: Hondo Valle, 8775, 8778; San Juan: Juan Santiago, 9256. These three collections were all made on boulders in creek beds. The collection numbered 8778 was partially climbing and had a rhizome about 12" long.

*Dryopteris serra* (Sw.) Ktze. Barahona: Aceital, north of Pedernales, 8161, 8171. San Juan: Hondo Valle, 8735. Terrestrial plants on dry banks or roadcuts.

*Dryopteris Stübelii* Hieron. San Juan: Piedra del Aguate, 9332. Stout plants of marshy areas on wet hillsides. Fronds to 4' long. Young fronds with slimy glutinous scales. A first record from Hispaniola.

*Dryopteris subtetragona* (Link) Maxon, Higuey: Higuey, 9726. Terrestrial in hardwood thickets.

*Elaphoglossum Fuertesii* Brause, Barahona: Montaña Nueva, 8550. Epiphyte.

*Elaphoglossum leptophyllum* (Fée) Moore, San Juan: Sabana Nueva, 9093. A swamp plant growing in mixed vegetation in deep water.

*Elaphoglossum muscosum* (Sw.) Moore, San Juan: Piedra del Aguacate, 9002. Terrestrial plant on the top or sides of large rocks.

*Elaphoglossum pallidum* (Baker) C. Chr. San Juan: Piedra del Aguacate, 9378. Terrestrial plant of riverbanks.

*Elaphoglossum piloselloides* (Presl) Moore, San Juan: Sabana Nueva, 9038. Terrestrial fern growing on wet dripping rock face in deep shade. The sterile fronds are normally circinnate but the fertile fronds are briefly circinnate and conduplicate, opening to reveal the fertile surface densely



covered with sporangia. The species was collected by Ekman in the same locality.

*Elaphoglossum revolutum* (Liebm.) Moore, San Juan: Sabana Nueva, 9100. Growing on large boulders.

*Elaphoglossum Sellowianum* (Presl) Moore (*E. inaequalifolium* (Jenm.) C. Chr.), Barahona: Montiadra Nueva, 8498. San Juan: Sabana Nueva, 9063. Terrestrial plant growing on large rocks.

*Elaphoglossum tambillense* (Hook.) Moore, San Juan: Sabana Nueva, 9111. Terrestrial fern growing on large rocks. Collected by Ekman in the same locality.

*Hemionitis palmata* L. Higuey: Higuey, 9716. Fern growing on old stump of tree in wet marsh.

*Ithycaulon inaequale* (Kze.) Copel. (*Saccoloma inaequale* (Kze.) Mett.) Barahona: Montiadra Nueva, 8560. A tree fern of wet ravines. Trunks smooth, to 7' tall.

*Nephrolepis hirsutula* (Forst.) Presl, Barahona: Montiadra Nueva, 8473a. A well established terrestrial plant of roadsides, apparently escaped from cultivation.

*Notholaena bonariensis* (Willd.) C. Chr. San Juan: Sabana Nueva, 9172. Extremely abundant, attractive fern, growing on banks of arroyo.

*Notholaena incana* Presl (*Pellaea nivea* (Poir.) Prantl), San Juan: Sabana Nueva, 9113. Attractive fern of wet dripping cliff faces. A second locality in the Dominican Republic of a species ranging from the highlands of Central Mexico, southward to Guatemala. Known previously from Hispaniola by the single collection of Ekman, 13770, from Pico del Valle Nuevo.

*Notholaena trichomanoides* (L.) R. Br. Barahona: La Mina at La Salinas, 8393. A plant growing on pure or decomposed salt rock; Aceitial, north of Pedernales, 8167. Plant of limestone rocks. San Juan: Rio Arriba del Norte, 8815, 8854. Arid bank of arroyo.

*Odontosoria aculeata* (L.) J. Sm. Barahona: Aceitial, north of Pedernales, 8177. Plant of clear areas in pine woods at 4200'. San Juan: Sabana Nueva, 9145; Piedra del Aguacate, 9412.

*Odontosoria uncinella* (Kze.) Fée, Barahona: Montiadra Nueva, 8551.

*Pellaea ovata* (Desv.) Weatherby (*P. flexuosa* (Kaulf.) Link), San Juan: Rio Arriba del Norte, 8823. A very attractive fern with tan stems and pale green fronds. Plant extremely fragile. Common on the very edge of the arroyo bank.

*Pellaea ternifolia* (Cav.) Link, San Juan: Sabana Nueva, 9137. A fern of unusual appearance with iridescent and brittle stems, growing in great abundance on a gravel, well drained bank of the Rio Sabana Nueva, in full exposure.

*Pityrogramma calomelanos* (L.) Link, Barahona: Montiadra Nueva, 8475. Trujillo: Cuenca, 9956. Seibo: Higuey, 9710. These collections were made of plants growing on dry roadside banks.

*Pityrogramma tartarea* (Cav.) Maxon, Barahona: Montiadra Nueva, 8474. Dry exposed roadside banks.



*Plagiogyria semicordata* (Presl) Christ, San Juan: Sabana Nueva, 9123. Plant of wet swampy places. Fertile fronds separate.

*Polybotrya cervina* (L.) Kaulf. Barahona: Montiadá Nueva, 8538. Terrestrial plant with separate fertile and sterile fronds.

*Polypodium angustifolium* L. San Juan: Río Arriba del Norte, 8838, 8937. Epiphytic, semi-climbing fern.

*Polypodium angustifolium* var. *amphostenon* (Kze.) Hieron. San Juan: Sabana Nueva, 9013. This wide-leaved variety was growing on rocks in the river, where it was flooded periodically. Its habit and habitat are quite in contrast to the species which usually grows as an epiphyte, with a climbing form on tree trunks.

*Polypodium apiculatum* Kze. Barahona: Montiadá Nueva, 8565. Epiphyte.

*Polypodium astrolepis* Liebm. San Juan: Río Arriba, 8827. Epiphyte.

*Polypodium aureum* (L.) var. *areolatum* H. & B. Barahona: Barahona, 8459; Montiadá Nueva, 8532.

*Polypodium crassifolium* L. Barahona: Barahona, 8457; Montiadá Nueva, 8537. Epiphyte.

*Polypodium heterophyllum* L. Barahona: Aceitil, north of Pedernales, 8263; Azua: Peralta, 9195; Río Arriba del Norte, 8871. Epiphyte.

*Polypodium lanceolatum* L. Barahona: Montiadá Nueva, 8435, 8531. San Juan: Sabana Nueva, 9029. Epiphyte.

*Polypodium lasiopus* Klotzsch, San Juan: Sabana Nueva, 9107. Found only on rocks.

*Polypodium loriceum* L. Barahona: Montiadá Nueva, 8522, 8555. Epiphytic fern with characteristic bright green rhizomes.

*Polypodium lycopodioides* L. Barahona: Montiadá Nueva, 8607. Higüey: Higüey, 9821. Epiphyte.

*Polypodium pectinatum* L. Barahona: Montiadá Nueva, 8431. San Juan: Hondo Valle, 8753; Juan Santiago, 9288. Tree trunk epiphyte.

*Polypodium piloselloides* L. Higüey: Higüey, 9732. Epiphyte.

*Polypodium polypodioides* (L.) Watt, Higüey: Higüey, 9820. Epiphyte.

*Polypodium squamatum* L. Barahona: Barahona, 8460; Montiadá Nueva, 8501, 8523. Epiphyte.

*Polypodium thyssanolepis* A. Braun, San Juan: Río Arriba del Norte, 8833. Epiphyte.

*Polypodium vulpinum* Lindman, Barahona: Montiadá Nueva, 8548. Epiphyte.

*Polystichum adiantiforme* (Forst.) J. Sm. Barahona: Barahona, 8463. Epiphyte.

*Polystichum echinatum* (Gmel.) C. Chr. Barahona: Aceitil, north of Pedernales, 8157, 8176. Elías Piña: Hondo Valle, 8764; San Juan: Juan Santiago, 9297. Terrestrial fern on limestone rocks, usually near streams.

*Pteris longifolia* L. Barahona: Montiadá Nueva, 8585. Terrestrial fern on gravel roadbank.

*Pteris longifolia* var. *decrescens* C. Chr. Barahona: Aceitil, north of Pedernales, 8161. Terrestrial plant of pine woods on limestone soil.



The type of this variety was collected at Badeau on Massif du Selle. The present collection is an extension of the range eastward in the same chain, and is the first collection from the Dominican Republic.

*Pteris podophylla* Sw. San Juan: Piedra del Aguacate, 9397. These specimens were collected at the edges of a marsh formed at the foot of a wet dripping hillside. The palmately compound fronds stood 4' tall. Fertile fronds are separate and were infrequent in a large stand of sterile fronds. This is the first record of the species from the Dominican Republic.

*Pteridium aquilinum* (L.) Kuhn var. *arachnoideum* (Kaulf.) Brade, San Juan: Sabana Nueva, 9163. A common fern forming dense stands on open pine hillsides at higher altitudes. Seems to form where the pine woods have been cut or destroyed by fire. The stands often become 8' tall, with a definite canopy formed and a characteristic shade flora occurring below the canopy.

*Pteridium aquilinum* (L.) Kuhn var. *caudatum* (L.) Sadeb. Barahona: Aceitial, north of Pedernales, 8227; Barahona 8449; Elias Piña: Hondo Valle, 8684; San Juan: Rio Arriba del Norte, 8957. A more common variety found at lower altitudes but usually in the pine belt. Plants usually short and individuals partly separate, rarely forming dense or tall stands.

*Rhipidopteris peltata* (Sw.) Schott, Barahona: Montiada Nueva, 8542. Terrestrial or epiphytic on fallen and usually partially decayed logs, in wet dense areas of hardwood.

*Sphenomeris clavata* (L.) Maxon (*Stenoloma clavatum* (L.) Fée), Barahona: Aceitial, 8169. San Juan: Rio Arriba del Norte, 8949. The collection from Aceitial was made in a dry limestone ravine, on steep walls in shaded locations. The Rio Arriba collection was made in a shaded ravine but the plants grew in a large mass at water level.

*Tectaria heracleifolia* (Willd.) Underw. San Juan: Rio Arriba del Norte, 8907, 8941. Common fern growing on rocks in the river.

*Trismeria trifoliata* (L.) Diels, Elias Piña: Hondo Valle, 8725. A strikingly handsome fern, growing in coarse gravel along the edges of the river. Plants reached 4' in height.

*Vittaria filifolia* Fée, Barahona: Montiada Nueva, 8507. Epiphyte.

*Vittaria remota* Fée, Barahona: Montiada Nueva, 8549. Epiphyte.

#### SCHIZAEACEAE

*Anemia adiantifolia* (L.) Sw. Azua: Peralta, 9177; Elias Piña: Hondo Valle, 8687; San Juan: Juan Santiago, 9281. These three collections were made from plants growing on overhanging limestone rock; from occasional plants on the bank of a river; and from plants on a dry pine covered hilltop, respectively.

*Anemia hirsuta* (L.) Sw. San Juan: Rio Arriba del Norte, 8820.

*Anemia phyllitidis* (L.) Sw. Elias Piña: Hondo Valle, 8679, 8750. Terrestrial plants of riverbanks.

*Anemia Underwoodiana* Maxon, San Juan: Juan Santiago, 9255. This plant was very common on open hillsides, usually growing near cracks or small caves. Unfortunately, the plants seem to be preferred by the paper



wasps which build nests in great numbers on the ferns. It soon became a standard and wise procedure for collectors to approach this species with considerable caution.

*Lygodium venustum* Sw. Trujillo: Bayaguana, 9950. Uncommon plant of open grassy savannahs.

#### EQUISETACEAE

*Equisetum giganteum* L. San Juan: El Cercado, 8664; Elias Piña: Hondo Valle, 8690; San Juan: Sabana Nueva, 9096. While all three of these collections were made of plants growing in wet places, the plants themselves showed varied habits. The El Cercado specimens were growing along a river in dense shrubs. The plants approached 20' in height. The Hondo Valle plants were in open areas, especially sandbars in the small creeks, and grew in dense masses usually 5-7' tall. The Sabana Nueva plants were collected at an altitude of 6,500' and only a few isolated plants were found in the open grassy marsh or savannah. These plants rarely reached a height of 4' and most specimens were 12-18" tall.

#### PSILOTACEAE

*Psilotum nudum* (L.) Griseb. Elias Piña: Hondo Valle, 8763; San Juan: Rio Arriba del Norte, 8882. The plants from Hondo Valle were epiphytic on the bases of shrubs. The Rio Arriba material was collected from the leaf duff in an open flood plain near the river.

#### LYCOPODIACEAE

*Lycopodium cernuum* L. San Juan: Sabana Nueva, 9130. Hanging plant of eroded riverbank.

*Lycopodium clavatum* L. San Juan: Sabana Nueva, 9010. Growing in a mat of *Sphagnum meridense*, on a wet hillside.

*Lycopodium complanatum* L. var. *tropicum* Spring, San Juan: Sabana Nueva, 9064.

*Lycopodium reflexum* Lam. San Juan: Sabana Nueva, 9033. Trailing plant of open grassy swale.

*Lycopodium taxifolium* Sw. Barahona: Montiada Nueva, 8496, 8515. San Juan: Sabana Nueva, 9044; Piedra del Aguacate, 9371. Epiphytic hanging plants from trees or rocks.

#### SELAGINELLACEAE

*Selaginella Leonardii* Schmidt, Barahona: Aceitial, north of Pedernales, 8173. A plant climbing on limestone walls of a ravine in pine woods at 4200'.

*Selaginella Meyerhoffii* Hieron. San Juan: Juan Santiago, 9213. Infrequent plant of creek banks.

*Selaginella Plumieri* Hieron. San Juan: Sabana Nueva, 9147. Plant of mossy cliff under a small waterfall; Piedra del Aguacate, 9325. Epiphytic on trunk of tree fern.

*Selaginella stolonifera* (Sw.) Spring, Azua: Peralta, 9176. Trujillo: Bayaguana, 9513. Extremely abundant plants covering sides of road cut and dominating ground cover below shrubs.





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