

## A CHECK-LIST OF VENEZUELAN MARINE ALGAE

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Knowledge of the marine algae of the western subtropical and tropical Atlantic Ocean is remarkably uneven. Some areas are in general well documented, for instance Florida and the West Indies on the north and Brasil on the south. Only in recent decades have the gaps along the mainland coast begun to be closed, but still inadequately. Far more field work by nationals of the countries facing the Caribbean and Atlantic Ocean is needed. These plants are most important in the ecology of the shallower waters, much of the animal life there largely, if indirectly, being dependent on them. This great potential national resource deserves far more attention than it is being given. This is even more true of the marine phanerogams, *Thalassia*, *Syringodium* and associated genera. Extraordinarily few voucher specimens of these are to be found even in the great herbaria at centers of research. They deserve detailed phytogeographic and ecological study.

It is hard to visualize the flora of any country from scattered text references and specimens dispersed in herbaria. From a compact summation it is easier to begin to expand the knowledge of the flora of a country. I summarized what was then known of the algal distribution along the tropical American coasts some years ago (TAYLOR 1960). So much still needs to be done, and can be done, as has been shown by the studies in Venezuela, that I here offer an expanded list of Venezuelan marine algae as an example, including with my 1960 records several species which correspondents have sent me since my book was written and many others which have appeared in published local lists, such as those of GESSNER (1967), of GANESAN (1969 *et seq.*) and of DÍAZ-PIFERRER (1970).

The Venezuelan mainland and offshore islands may be expected to harbor any species native to the Caribbean and to northern Brasil. The heavy influx of Orinoco river water may prevent free interchange of the marine flora of the Caribbean and of northern Brasil, but the temperate element of more southern Brasil hardly reaches so far north in any case, and the Caribbean types dominate. The reduced salinity lateral to the river mouths would suggest superb vegetations of such genera as tolerate water of reduced salinity, such as *Enteromorpha*, *Batophora*, *Catenella*, *Caloglossa* and *Bostrychia*. Other sections of the Venezuelan coast would have mangrove-type intertidal shore vegetation where these generally would be associated with others restricted to full salinity sea-water. The rocky headlands and reefs would support the floras typical of exposed areas, and the small bays those of sandy and muddy shallows. The relative frequency of towns and villages along the seacoast makes studies of the ecology and species distribution easier than in most tropical countries.

Much more and very critical work still needs to be done, even in Venezuela, to maintain a high standard of algal studies. In very many cases the records should be verified by additional field studies and visits to appropriate collections in North America and Europe. For instance, in the Chlorophyceae, particularly the Codiaceae, many plants are recorded as deepwater species which from past experience in the West Indies are expected to be conspicuous elements of the flora at 1-2 meters' depth, or even occasionally briefly exposed at low water. Plants have been too readily assigned names of European or Pacific types and should have thorough comparative anatomical assessments made.

In this general list of species reported for Venezuela I have made little attempt to verify the determinations except when Venezuelan specimens were in my herbarium. I have omitted a few which have been reported where illustrations show a misidentification has been made, or some other factor seems to me to make this advisable. Those species not included in my 1960 general account of tropical algae are marked with an asterisk (\*); an indication of the source of the record is given. This is sometimes a specimen in my herbarium in which case, where possible, the name of the collector, place and date are given, but sometimes it is to a published record, when the name of the author is given instead of that of the collector, the place of col-

lection (usually the first mentioned if several are given), and the date of publication if that of collection is not available.

I am most grateful to my correspondents who have, over the years, submitted specimens for my consideration, among whom in particular are: Sra. Gisela M. de Falcón, Dr. E. K. Ganeson, Prof. Fritz Gessner, Dr. Tobías Lasser and Profesora Alicia de Parodi. Profesor Paul Silva kindly loaned specimens from the University of California herbarium for comparison.

## CHECK-LIST OF VENEZUELAN MARINE ALGAE<sup>1</sup>

### CHLOROPHYCEAE

#### CHAETOPHORACEAE

- \**Ulva* lens Crouan  
Estado Sucre, Golfo de Cariaco, DÍAZ-PIFERRER 1966

#### GOMONTIAEAE

- \**Gomontia* polyrhiza (Lagerh.) Born. & Flah.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966

#### ULVACEAE

- \**Enteromorpha* chaetomorphoides Børg.  
Estado Sucre, Península de Araya, DÍAZ-PIFERRER 1966
- \**Enteromorpha* clathrata (Roth) J. Ag.  
Estado Sucre, Río Manzanares, DÍAZ-PIFERRER 1966
- \**Enteromorpha* erecta (Lyngb.) J. Ag.  
Estado Sucre, Isla Picuda Grande, DÍAZ-PIFERRER 1966
- Enteromorpha* prolifera (Müll.) J. Ag.
- Enteromorpha* linguata, J. Ag.
- Enteromorpha* flexuosa (Wulf.) J. Ag.

<sup>1</sup>. Where collectors have reported a species from several places only one, usually the first listed, is cited in this paper, and for reasons of economy it is cited in a shortened form.

- \**Enteromorpha intestinalis* (L.) Link  
Estado Anzoátegui, Playa Juan Pédro, DÍAZ-PIFERRER 1966
- \**Enteromorpha linza* (L.) J. Ag.  
Estado Sucre, Golfo de Cariaco, DÍAZ-PIFERRER 1966
- \**Ulva lactuca* L.  
Estado Sucre, Bahía de Mochima, GESSNER 1967  
*Ulva fasciata* Delile

## CLADOPHORACEAE

- Chaetomorpha gracilis* Kütz.
- \**Chaetomorpha brachygona* Harv.  
Estado Sucre, Bahía de Mochima, DÍAZ-PIFERRER 1966
- \**Chaetomorpha linum* (Müll) Kütz.  
Estado Nueva Esparta, Isla Coche, GESSNER 1967
- \**Chaetomorpha crassa* (C. Ag.) Kütz.  
Estado Sucre, Golfo de Cariaco, DÍAZ-PIFERRER 1966
- \**Chaetomorpha aerea* (Dillw.) Kütz.  
Estado Nueva Esparta, Isla Coche, GESSNER 1967  
*Chaetomorpha media* (C. Ag.) Kütz.  
*Chaetomorpha clavata* (C. Ag.) Kütz.
- \**Rhizoclonium hookeri* Kütz.  
Estado Sucre, Islas Caracas, DÍAZ-PIFERRER 1966
- \**Cladophora luteola* Harv.  
Estado Sucre, Bahía de Mochima, DÍAZ-PIFERRER 1966  
*Cladophora delicatula* Mont.
- \**Cladophora fuliginosa* Kütz.  
Estado Sucre, Bahía de Mochima, GESSNER 1967  
*Cladophora fascicularis* (Mert.) Kütz.
- \**Cladophora prolifera* (Roth) Kütz.  
Dependencia Federal, Los Hermanos, DÍAZ-PIFERRER 1966

## DASYCLADACEAE

- \**Batophora oerstedii* J. Ag.  
Estado Miranda, Higuerote, GESSNER 1967
- \**Cymopolia barbata* (L.) Lamx.  
Distrito Federal, Cabo Blanco, SOLMS-LAUBACH, *ex* Gollmer  
*ca.* 1893
- \**Acetabularia calyculus* Quoy & Gaim.  
Estado Sucre, Golfo de Cariaco, DÍAZ-PIFERRER 1966  
*Acetabularia crenulata* Lamx.
- \**Acicularia schenckii* (Möb.) Solms-Laub.  
Estado Sucre, Golfo de Cariaco, DÍAZ-PIFERRER 1966

## VALONIACEAE

- \**Valonia ventricosa* J. Ag.  
Estado Sucre, Bahía de Mochima, GESSNER 1961
- \**Valonia macrophysa* Kütz.  
Estado Nueva Esparta, Isla Coche, DÍAZ-PIFERRER 1966
- \**Valonia ocellata* Howe  
Estado Sucre, Bahía de Mochima, GESSNER 1967  
*Ernodesmis verticillata* (Kütz.) Børg.  
*Siphonocladus tropicus* (Crouan) J. Ag.
- \**Chamaedoris peniculum* (Soland.) Lamx. (*ante* Ell. & Sol., but see  
TAYLOR 1969, footnote p. 147).  
Dependencia Federal, Islas Hermanos, DÍAZ-PIFERRER 1966
- \**Dictyosphaeria vanbosseae* Børg. (Perhaps synonym of *D. versluisii*  
Weber-van Bosse)  
Distrito Federal, Falcón 1960
- \**Dictyosphaeria cavernosa* (Forssk.) Børg.  
Estado Nueva Esparta, Isla Coche, GESSNER 1967  
*Cladophoropsis membranacea* (C. Ag.) Børg.
- \**Boodlea composita* (Harv. & Hook. *fil.*) Brand  
Estado Anzoátegui, Playa El Saco, DÍAZ-PIFERRER 1966  
*Struvea anastomosans* (Harv.) Picc.

- \**Struvea ramosa* Dickie  
Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966
- \**Willeella ordinata* Børg.  
Estado Falcón, Cumarebo, GONZÁLEZ 1968
- \**Anadyomene stellata* (Wulf.) C. Ag.  
Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966

## DERBESACEAE

- \**Derbesia vaucheriaeformis* (Harv.) J. Ag.  
Estado Sucre, Isla Picuda Grande, DÍAZ-PIFERRER 1966

## BRYOPSIDACEAE

- \**Bryopsis hypnoides* Lamx.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966
- \**Bryopsis plumosa* (Huds.) C. Ag.  
Estado Sucre, Bahía de Mochima, GESSNER 1967
- \**Bryopsis pennata* Lamx.  
Estado Nueva Esparta, Isla Tortuga, GESSNER 1967
- \**Bryopsis duchassaingii* J. Ag.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966

## CAULERPACEAE

- \**Caulerpa fastigiata* Mont.  
Estado Sucre, Muelle de Cariaco, GESSNER 1967
- \**Caulerpa vickersiae* Børg., var. *luxurians* Taylor  
Estado Sucre, Golfo de Cariaco, DÍAZ-PIFERRER 1966
- \**Caulerpa pusilla* (Kütz.) J. Ag.  
Dependencia Federal, Isla Blanquilla, DÍAZ-PIFERRER 1966
- Caulerpa verticillata* J. Ag.
- Caulerpa prolifera* (Forssk.) Lamx.  
Although not a new country record, notable specimens collected by Gessner on Isla Coche had blades which, dried, measured 20 cm in length above the leaf stalk.

- Caulerpa mexicana* (Sond.) J. Ag.
- Caulerpa sertularioides* (Gmel.) Howe
- Caulerpa serrulata* (Forssk.) J. Ag. *emend.* Børg.
- \**Caulerpa cupressoides* (West) C. Ag.  
Dependencia Federal, Islas Los Roques, GESSNER 1967
- Caulerpa racemosa* (Forssk.) J. Ag.
- Caulerpa microphysa* (Weber-van Bosse) J. Feldm.

## CODIACEAE

- Boodleopsis pusilla* (Coll.) Taylor, Joly & Bernat.  
Estado Anzoátegui, Isla Chimana del Sur, DÍAZ-PIFERRER 1966
- Avrainvillea longicaulis* (Kütz.) Murr. & Bood.
- \**Avrainvillea nigricans* Dec.  
Estado Sucre, Península de Araya, DÍAZ-PIFERRER 1966
- \**Rhipilia tomentosa* Kütz.  
Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966
- \**Udotea conglutinata* (Soland.) Lamx.  
Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966
- \**Udotea cyathiformis* Decne.  
Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966
- \**Udotea flabellum* (Soland.) Lamx.  
Estado Miranda, Los Totumos, FOLDATS 1960
- \**Penicillus capitatus* Lamk.  
Dependencia Federal, Islas Los Roques, GESSNER 1967
- Halimeda opuntia* (L.) Lamx.
- \**Halimeda tuna* (Soland.) Lamx.  
Estado Nueva Esparta, Isla Cubagua, DÍAZ-PIFERRER 1966
- Halimeda discoidea* Decne.
- \**Halimeda incrassata* (Ellis) Lamx.  
Dependencia Federal, Islas Blanquilla, DÍAZ-PIFERRER 1966
- \**Halimeda favulosa* Howe  
Dependencia Federal, Islas Los Roques, GESSNER 1967
- Codium intertextum* Coll. & Herv.

- \**Codium spongiosum* Harv.  
Distrito Federal, Playa Grande, PARODI 1966
- \**Codium repens* Crouan *in* Vickers  
Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966
- Codium isthmocladum* Vick.
- Codium decorticatum* (Woodw.) Howe  
RODRÍGUEZ (1959) report of the Baja California species  
*C. magnum* Daws. on Isla Margarita probably should have  
referred to this species.
- Codium taylori* Silva

## XANTHOPHYCEAE

## VAUCHERIACEAE

- \**Vaucheria dichotoma* (L.) C. Ag.  
Estado Sucre, Bahía de Mochima, DÍAZ-PIFERRER 1966
- \**Vaucheria bermudensis* Taylor & Bernat.  
Estado Sucre, Islas Caracas, DÍAZ-PIFERRER 1966
- \**Vaucheria piloboloides* Thuret  
Estado Sucre, Bahía de Mochima, DÍAZ-PIFERRER 1966

## PHAEOPHYCEAE

## ECTOCARPACEAE

- \**Pylaiella antillarum* (Grun.) DeToni  
Estado Nueva Esparta, Isla Coche, DÍAZ-PIFERRER 1966
- \**Ectocarpus siliculosus* (Dillw.) Lyngb.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966
- Ectocarpus breviarticulatus* J. Ag.
- \**Ectocarpus variabilis* Vick.  
Estado Sucre, San Luis, DÍAZ-PIFERRER 1966
- \**Ectocarpus elachistaeformis* Heydr.  
Estado Sucre, Cayo Lobos, DÍAZ-PIFERRER 1966

- \**Giffordia mitchellae* (Harv.) Hamel  
Estado Miranda, Los Totumos, FOLDATS 1960
- \**Giffordia irregularis* (Kütz.) Joly (*ante* G. conifera)  
Estado Sucre, Isla Picuda Grande, DÍAZ-PIFERRER 1966
- \**Giffordia rallsiae* (Vick.) Taylor  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966
- Giffordia indica* (Sond.) Papenf. & Chihara (*ante* G. duchassain-  
giana)  
Estado Nueva Esparta, Isla Coche, DÍAZ-PIFERRER 1966

## SPHACELARIACEAE

- Sphacelaria furcigera* Kütz.
- \**Sphacelaria tribuloides* Menegh.  
Estado Sucre, Bahía de Mochima, DÍAZ-PIFERRER 1966
- \**Sphacelaria novae-hollandiae* Sond.  
Estado Aragua, Distrito Mariño, Cepe, PARODI 1965

## TILOPTERIDACEAE

- \**Acinetospora pusilla* (Griff.) Born.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966

## DICTYOTACEAE

- Dilophus guineensis* (Kütz.) J. Ag.
- Dictyota dichotoma* (Huds.) Lamx.
- \**Dictyota linearis* (C. Ag. Grev.)  
Estado Sucre, Golfo Cariaco, DÍAZ-PIFERRER 1966
- \**Dictyota bartayresii* Lamx.  
Dependencia Federal, Islas Los Roques, FOLDATS 1960
- Dictyota volubilis* Kütz.
- \**Dictyota divaricata* Kütz.  
Estado Sucre, Bahía Mochima, GESSNER 1961
- Dictyota cervicornis* Kütz.
- Dictyota ciliolata* Kütz.
- Dictyota jamaicensis* Taylor

- \**Dictyota dentata* Lamx.  
Estado Sucre, Golfo de Cariaco, GESSNER
- \**Spatoglossum schroederi* (Mort.) Kütz.  
Estado Miranda, Higuerote, PARODI 1964
- Dictyopteris justii* Lamx.
- \**Dictyopteris membranacea* (Stackh.) Batt.  
Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966
- Dictyopteris delicatula* Lamx.
- Dictyopteris plagiograma* (Mont.) Vick.
- Dictyopteris hoytii* Taylor
- Lobophora variegata* (Lamx.) Womersl. (*ante* Pocockiella)
- Stypopodium zonale* (Lamx.) Papenf.
- Padina vickersiae* Hoyt
- \**Padina sanctae-crucis* Børg.  
Estado Sucre, Golfo Cariaco, DÍAZ-PIFERRER 1966
- Padina gymnospora* (Kütz.) Vick.

## RALFSIACEAE

- \**Ralfsia expansa* J. Ag.  
Estado Sucre, Golfo Cariaco, GESSNER 1967

## CHORDARIACEAE

- \**Levringea brasiliensis* (Mont.) Joly  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966
- Eudesme zosterae* (J. Ag.) Kylin

## STILOPHORACEAE

- \**Stilophora rhizoides* (Ehrh.) J. Ag.  
Estado Sucre, Península de Araya, DÍAZ-PIFERRER 1966

## SPOROCHNACEAE

- \**Sporochnus bolleanus* Mont.  
Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966

## PUNCTARIACEAE

- Colpomenia sinuosa* (Roth) Derb. & Sol.
- Hydroclathrus clathratus* (Bory) Howe
- Rosenvingea intricata* (J. Ag.) Børg.
- Rosenvingea sanctae-crucis* Børg.
- Chnoospora minima* (Her.) Papenf.

## SARGASSACEAE

- Sargassum filipendula* C. Ag.
- Sargassum acinarium* (L.) C. Ag.
- \**Sargassum bermudense* Grun.  
Estado Sucre, Golfo Cariaco, DÍAZ-PIFERRER 1966
- \**Sargassum furcatum* Kütz.  
Estado Sucre, Bahía de Mochima, DÍAZ-PIFERRER 1966
- \**Sargassum cymosum* C. Ag.  
Estado Sucre, Península de Araya, DÍAZ-PIFERRER 1966
- \**Sargassum rigidulum* Kütz.
- \**Sargassum desfontainsii* (Turn.) C. Ag. Figure 1.  
Estado Sucre, Playa Colorada, PARODI 1965. This is a notable addition to the flora, a most distinctive species, impossible to be confused with any other in our area. The very narrowly linear leaves usually branch extensively, though a variety *subdivisa* Grun. has been described from Trinidad. The plant as found there by Dr. W. D. Richardson is a dense, much-branched form, more so than the plants from Playa Colorada collected by Profesora Parodi (Fig. 1), or those illustrated by Turner (1811, p. 130, pl. 190).
- \**Sargassum stenophyllum* Martius Figure 2  
Estado Falcón, Península de Paraguaná, Playa Adícara, communicated by Sra. Falcón, 1966. This specimen agrees well with Martius' (1833, p. 47) description, the simple entire leaves reaching a length of 5 cm and a dry width of 1 mm. There are no obvious cryptostomata. However, the vesicles are

not apiculate. I see no necessity for reducing it to varietal status under *C. cymosum* C. Ag., as has been suggested.

*Sargassum vulgare* C. Ag.

*Sargassum pteropleuron* Grun.

*Sargassum polyceratium* Mont.

\**Sargassum hystrix* J. Ag.

Estado Sucre, Golfo Cariaco, GESSNER 1967

*Sargassum ramifolium* Kütz.

*Sargassum platycarpum* Mont.

\**Turbinaria tricostrata* Bart.

Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966

\**Turbinaria turbinata* (L.) Kuntze

Dependencia Federal, Islas Los Roques, GESSNER 1967

## R H O D O P H Y C E A E

### BANGIACEAE

\**Asterocytis ramosa* (Thwaites) Gobi

Estado Sucre, Golfo de Cariaco, DÍAZ-PIFERRER 1966

\**Goniotrichum alsidii* (Zanard.) Howe

Estado Sucre, Cumaná, DÍAZ-PIFERRER 1966

\**Erythrocladia subintegra* Rosenv.

Estado Falcón, Península de Paraguaná, Playa Adícara, 1966

*Erythrotrichia vexillaris* (Mont.) Hamel.

Estado Aragua, Punta Maya, PARODI 1965. While this is not a new record for the country, these plants, epiphytic on *Grateloupia*, far exceed the usual in size, since while the vast majority were the familiar tiny plants, linear-lanceolate or at most narrowly strapshaped and truncate, there were many intermediates grading to some which were nearly as broad as long, easily 4 mm in each dimension.

\**Porphyra umbilicalis* (L.) J. Ag. ?

Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966

From the number of stations cited for this plant on Isla Mar-

garita it must be an important element in the intertidal vegetation there, but from the illustration given it is unlikely that the species is correctly assigned. The genus is a difficult one, particularly for the warm-water representatives.

### ACROCHAETIACEAE

\**Kylinia crassipes* (Børg.) Kylin

Estado Sucre, Cumaná, DÍAZ-PIFERRER 1966

\**Acrochaetium sargassi* Børg.

Estado Anzoátegui, Isla Chimana del Sur, DÍAZ-PIFERRER 1966

\**Acrochaetium flexuosum* Vick.

Estado Sucre, Chacopata, Cayo Lobos, DÍAZ-PIFERRER 1966

### HELMINTHOCLADIACEAE

\**Liagoropsis schrammi* (Mazé & Schramm) Dory & Abbott (*ante* Nemalion)

Distrito Federal, Puerto Viejo, DÍAZ-PIFERRER 1966

\**Trichogloea herveyi* Taylor

Distrito Federal, Playa Los Caracas, ADAMES 1966

Except for certain peculiar structures in the cortex, the material agrees with the species to which it is tentatively assigned.

\**Trichogloea requienii* (Mont.) Kütz.

Estado Sucre, Isla Picuda Grande, DÍAZ-PIFERRER 1966

\**Helminthocladia calvadosii* (Lamx.) Setch.

Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966

\**Liagora ceranoides* Lamx.

Dependencia Federal, Islas Los Testigos, DÍAZ-PIFERRER 1966

\**Liagora farinosa* Lamx.

Dependencia Federal, Islas Los Roques, GESSNER 1967

### CHAETANGIACEAE

*Pseudogloiophlaea halliae* (Setch.) Joly (*ante* *Gloiophlaea*)

*Scinaia complanata* (Coll.) Cott.

- \**Galaxaura lapidescens* (Soland.) Lamx.  
Estado Sucre, Península de Araya, DÍAZ-PIFERRER 1966
- \**Galaxaura rugosa* (Soland.) Lamx.  
Estado Miranda, Los Totumos, FOLDATS 1960
- \**Galaxaura flagelliformis* Kjellm.  
Estado Sucre, Golfo de Cariaco, DÍAZ-PIFERRER 1966
- \**Galaxaura subverticillata* Kjellm.  
Estado Sucre, Península de Araya, DÍAZ-PIFERRER 1966
- Galaxaura squalida* Kjellm.  
*Galaxaura cylindrica* (Soland.) Lamx.
- \**Galaxaura frutescens* Kjellm.  
Estado Sucre, Golfo de Cariaco, GESSNER 1967
- \**Galaxaura obtusata* (Soland.) Lamx.  
Estado Sucre, Bahía de Mochima, DÍAZ-PIFERRER 1966
- \**Galaxaura marginata* (Soland.) Lamx.  
Estado Sucre, Bahía Alcabella, GESSNER 1962

## BONNEMAISONIACEAE

*Asparagopsis taxiformis* (Delile) Coll. & Herv.

## GELIDIACEAE

- Gelidiella acerosa* (Forssk.) Feldm. & Hamel
- \**Gelidiopsis gracilis* (Kütz.) Vick.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966
- \**Gelidiopsis intricata* (C. Ag.) Vick.  
Estado Aragua, Bahía Tuja, PARODI 1966
- \**Gelidium pusillum* (Stackh.) LeJolis  
Estado Anzoátegui, Isla Borracha, GESSNER 1967
- \**Gelidium ?corneum* (Huds.) Lamx.  
Estado Nueva Esparta, Isla Margarita, RODRÍGUEZ 1959. See the note on p. 356 in Taylor, 1960.
- Gelidium serrulatum* J. Ag.

- \**Pterocladia bartlettii* Taylor  
Estado Nueva Esparta, Isla Coche, DÍAZ-PIFERRER 1966
- Pterocladia americana* Taylor
- Pterocladia pinnata* (Huds.) Papenf.

## WURDEMANNIACEAE

*Wurdemannia miniata* (Drap.) Feldm. & Hamel

## GLOIOSIPHONIACEAE

- Schimmelmannia plumosa* (Setch.) Abbott Figure 3  
Distrito Federal, Departamento Vargas, Playa Grande, YEPES  
4 v 1964; id., Naiguatá, PARODI 10 x 1967; id., Catia La Mar,  
SEPÚLVEDA 19 i 1968.

This exceedingly beautiful alga is a welcome addition to the Caribbean flora. It belongs to a section of the genus in which the species are very similar in aspect, and until the genus is critically reviewed it seems best to assign to these Venezuelan plants the name of the best-known American species, with an illustration of the first piece to come to my attention. Younger, handsomer plants came to me later. The species has been reported from Japan as well (ABBOT, 1961) and a very similar one, *S. dawsonii* (ACLETO, 1973), from Peru. The Venezuelan plants may be described as follows:

Plants extremely soft, though a little firmer toward the base, bright red, from a small discoid holdfast to at least 26 cm in height, the axis simple, or with few to many indeterminate lateral branches 5-25 cm long. Main axes flat, to 3 mm broad (dried) or somewhat more, marginally bearing abundant determinate pinnate branchlets at first fairly regularly 1-2 mm apart, about 5 mm long, but these by partial denuding of the axes later becoming 5-10 mm apart, to 1.5-2.0 cm long. Branchlets or ramelli of the first and second orders flat, equally bilaterally pinnate, the ultimate ramelli of the third degree compressed, or nearly terete at their tips, 0.7-1.5 mm long, 27-90  $\mu$ m diam. Structure filamentous throughout.

The genus is based on *Sphaerococcus schousboei* J. AGARDH (1841) collected at Tangier, North Africa. While suggested earlier, the genus name *Schimmelmannia* was ascribed to SCHOUSBOE and validated by



KÜTZING (1849) though he incorrectly replaced the species name by *ornata*, knowing that *schousboei* had priority. J. G. AGARDH, however, made the correct combination validly (1851): *Schimmelmannia schousboei* (J. Ag.) J. Ag. This species is even softer and more delicate than the American plants. It is known from Tangier, Sicily and Mediterranean France. *S. bollei* Mont. from the Cape Verde Islands is described as very similar; the fact that it is reported to branch irregularly may not be significant. It has been reported from Guadeloupe, but any record by Schramm and Mazé requires confirmation and I have seen no specimens regarded as this species. *S. frauenfeldii* Grunow (1867) from St. Paul Island in the Southern Indian Ocean bears little resemblance to this genus and as the ultimate ramelli are described as long and capillary it could not be confused with the Venezuelan plants.

*Schimmelmannia* ? *elegans* Baardseth

Distrito Federal, Departamento Vargas, Macuto, PARODI 19 iii 1967; *id.*, ROJAS, 9 iv 1967.

This again is an exceedingly beautiful alga. At first glance its distinctness was not recognized, but on examination at a low magnification the second distribution of the ultimate ramelli became obvious. The species was described (Baardseth 1941) from Tristan da Cunha Island at about 37° 30' S.L. in the Atlantic Ocean, a very great distance from Venezuela. A parallel description from available specimens will show the differences between this and the preceding:

Plants slenderly delicate in aspect and soft, though somewhat firm below, rose-red when young, dull red when older, from a small discoid holdfast to at least 25 cm tall, often several axes from a common base, these simple or with occasional lateral indeterminate branches similar to the main axes and reaching a comparable length. Main axes flat, 0.75-1.50 mm broad, less often to 3 mm, marginally bearing abundant determinate pinnate branchlets or ramelli at irregular intervals of about 1-2 mm. Primary branchlets 3-7 mm long, becoming strongly recurved with age, contracted at the base, a little flattened in the midregion, bearing strong series of secondary ramelli on the upper margin and very few if any below. Ultimate ramelli 1-2 mm long, capillary, perhaps a little compressed.

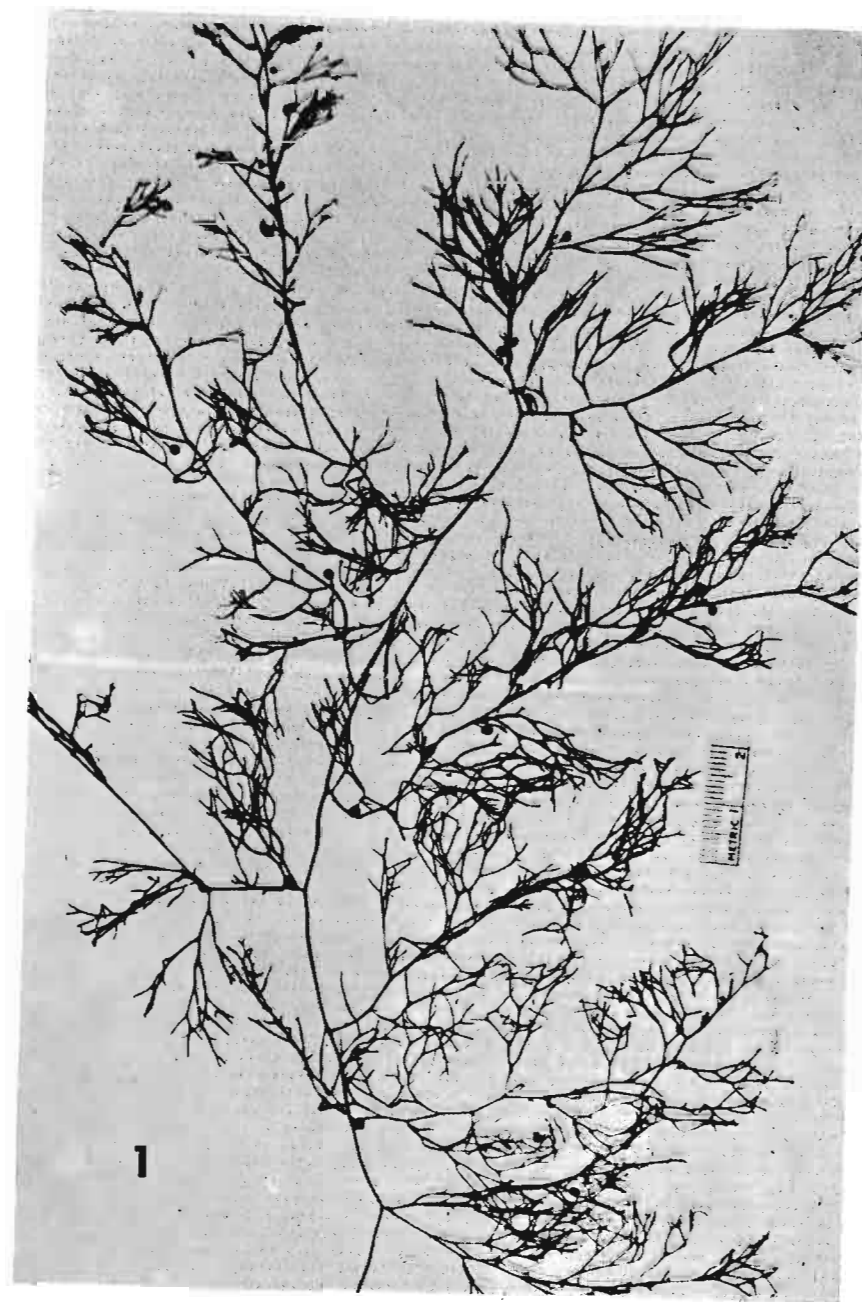


Figure 1. *Sargassum desfontainsii* (Turn.) C. Ag. A large portion of a loosely-branched individual, x 0.8.

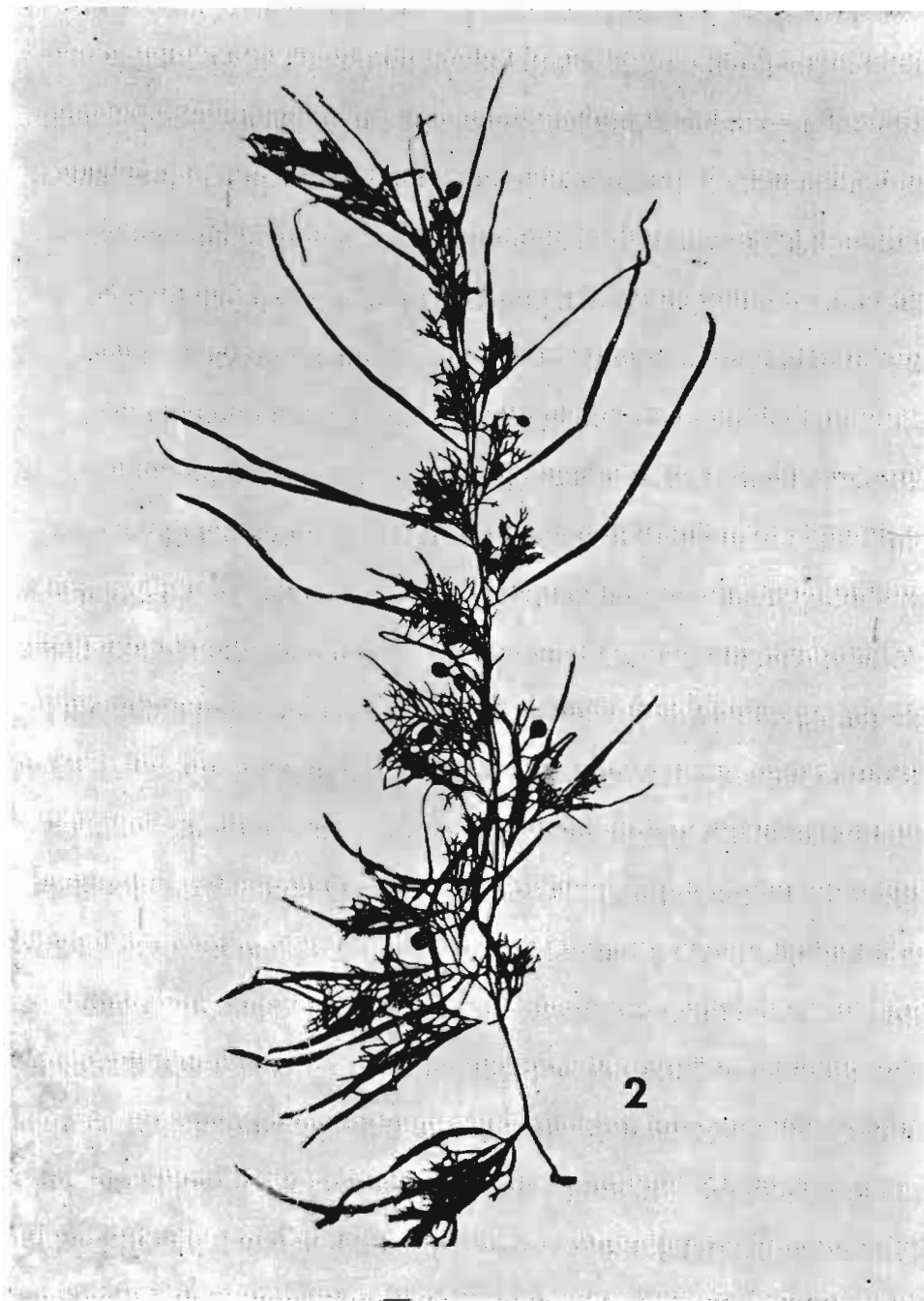


Figure 2. *Sargassum stenophyllum* Martius. - A large fructifying branch, x 0.8.

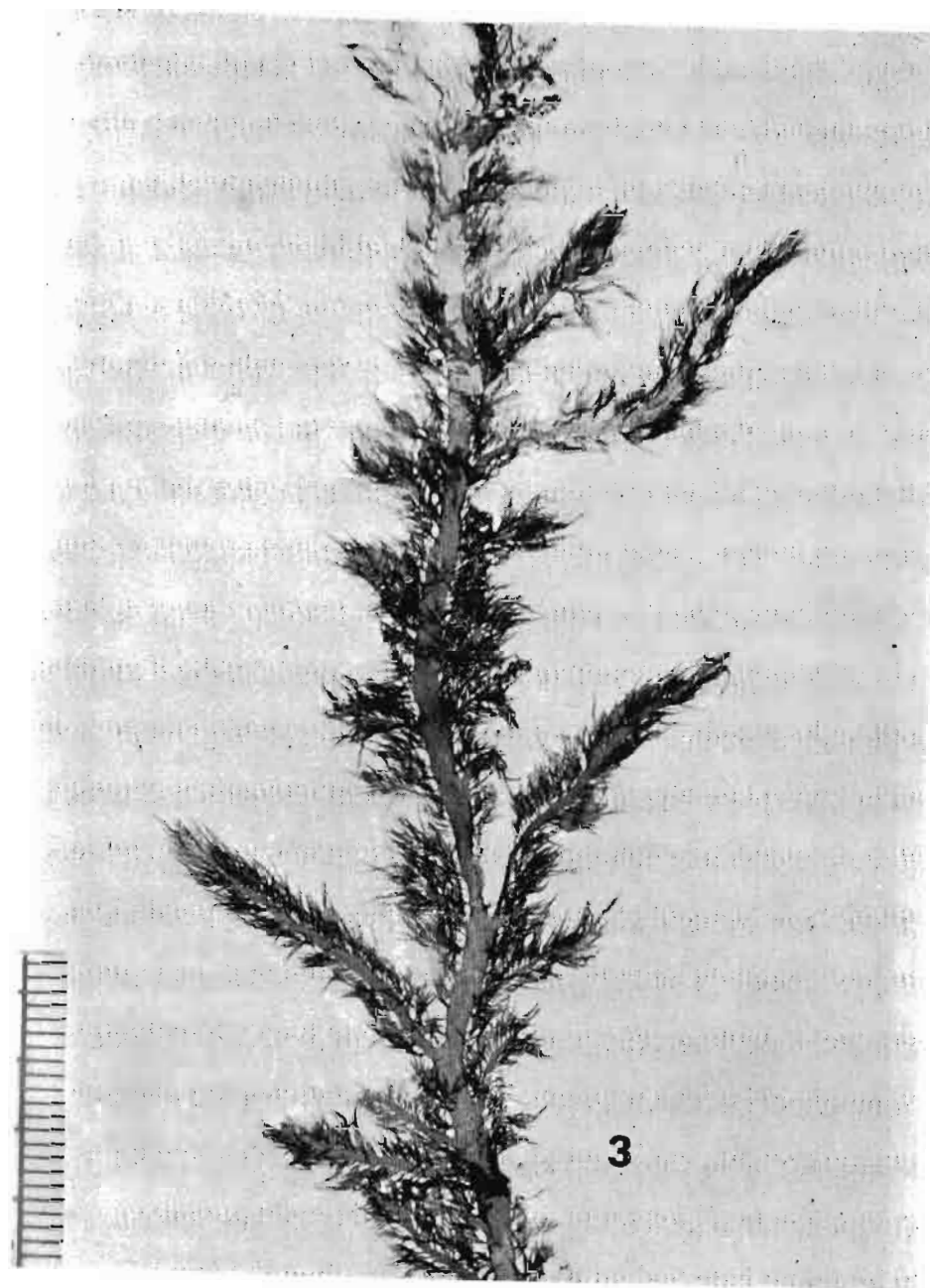


Figure 3. *Schimmelmannia plumosa* (Setch.) Abbott. - A small portion of a major branch, x 1.9.

BAARDSETH (1941) indicates that these plants may reach a length of a meter. His illustration shows a specimen with remarkably regular branching: an authentic specimen was a little less regular, but the secund ramelli were as conspicuous in his as in the Venezuelan material. Close examination of the Tristan da Cunha specimen available and of the closely similar portion of the Venezuelan material with recurved primary ramelli has shown these plants to be cystocarpic, the cystocarps in the Venezuelan material 65-135  $\mu$ m in diameter in somewhat swollen ultimate ramelli. Proliferations on these plants showed little or none of the secund ultimate branching. This causes a strong suspicion that the two types, at least in the Venezuelan material, are simply reproductively different phases, although no tetraspores were noted on the symmetrically pinnate plants or proliferations.

#### RHIZOPHYLLIDACEAE

- \**Ochtodes secundiramea* (Mont.) Howe  
Dependencia Federal, Isla Blanquilla, DÍAZ-PIFERRER 1966

#### HILDENBRANDIACEAE (*ante* Squamariaceae)

- \**Hildenbrandia prototypus* Nardo  
Estado Anzoátegui, Ensenada El Tigrillo, DÍAZ-PIFERRER 1966  
*Conarinia magdae* Weber-van Bosse
- \**Peyssonnelia rubra* (Grev.) J. Ag.  
Estado Sucre, Bahía de Mochima, DÍAZ-PIFERRER 1966

#### CORALLINACEAE

Reports of crustose coralline algae from Venezuela are few, and I do not feel that I understand them well enough to include many of them here.

*Melobesia membranacea* (Esp.) Lamx.

*Fosliella farinosa* (Lamx.) Howe

- \**Lithothamnion occidentale* (Fosl.) Fosl.  
Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966
- \**Amphiroa rigida* Lamx., var. *antillana* Børg.  
Estado Sucre, Golfo de Cariaco, GESSNER 1967

- \* *Amphiroa currae* Ganesan  
Estado Sucre, Carúpano, GANESAN 1969
- \* *Jania capillacea* Harv.  
Estado Sucre, Bahía Mochima, DE RÍOS 1965
- \* *Jania adherens* Lamx.  
Dependencia Federal, Isla de Aves, LASSER 1954
- \* *Jania rubens* (L.) Lamx.  
Estado Sucre, Bahía de Mochima, DÍAZ-PIFERRER 1966
- \* *Jania pumila* Lamx.  
Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966
- \* *Corallina cubensis* (Mont.) Kütz.  
Estado Sucre, Golfo de Cariaco, DÍAZ-PIFERRER 1966
- \* *Corallina subulata* Soland.  
Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966
- \* *Corallina officinalis* L.  
Estado Sucre, Carúpano, GESSNER 1967

## GRATELOUPIACEAE

- \* *Halymenia agardhii* DeToni  
Estado Nueva Esparta, Isla Coche-Norte, GESSNER 1967
- \* *Halymenia floresia* (Clem.) C. Ag.  
Estado Nueva Esparta, Isla Coche-Norte, GESSNER 1967
- \* *Halymenia pseudofloresia* Coll. & Howe  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966
- \* *Halymenia bermudensis* Coll. & Howe  
Estado Nueva Esparta, Isla Coche, DÍAZ-PIFERRER 1966
- \* *Halymenia floridana* J. Ag.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966
- Grateloupia filicina* (Wulf.) C. Ag.
- \* *Grateloupia dichotoma* J. Ag.  
Estado Sucre, Isla Picuda Grande, DÍAZ-PIFERRER 1966
- Grateloupia cuneifolia* J. Ag.
- Grateloupia gibbesii* Harv.

- Cryptonemia crenulata* J. Ag.
- Cryptonemia luxurians* (Mert.) J. Ag.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966

## KALLYMENIACEAE

- \* *Kallymenia perforata* J. Ag.  
Estado Nueva Esparta, Isla Coche, GESSNER 1967

## CHOREOCOLACACEAE

- \* *Gelidiocolax desikachariae* Ganesan  
Estado Nueva Esparta, Isla Margarita, GANESAN 1970

## GRACILARIACEAE

- Gracilaria verrucosa* (Huds.) Papenf.
- Gracilaria debilis* (Forssk.) Børg.
- Gracilaria damaecornis* J. Ag.
- Gracilaria ferox* J. Ag.
- Gracilaria cervicornis* (Turn.) J. Ag.
- \* *Gracilaria domingensis* Sond.  
Estado Nueva Esparta, Isla Coche, GESSNER 1967
- \* *Gracilaria ornata* Aresch.  
Estado Nueva Esparta, Isla Coche, GESSNER 1967
- Gracilaria foliifera* (Forssk.) Børg.
- Gracilaria mammillaris* (Mont.) Howe
- Gracilaria venezuelensis* Taylor
- Gracilaria cuneata* Aresch.
- Gracilaria sjoestedii* Kylin

## PLOCAMIACEAE

- \* *Plocamium brasiliense* (Grev.) Howe & Taylor  
Dependencia Federal, Islas Los Testigos, DÍAZ-PIFERRER 1966

## SOLIERIACEAE

- Solieria tenera* (J. Ag.) Wynne & Taylor (*ante* *Agardhiella tenera* p.p.)

*Neoagardhiella ramosissima* (Harv.) Wynne & Taylor (*ante* *Agardhiella ramosissima*)

\**Eucheuma schrammii* (Crouan) J. Agardh.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966

\**Eucheuma echinocarpum* Aresch.  
Estado Nueva Esparta, DÍAZ-PIFERRER 1966

\**Eucheuma acanthocladum* (Harv.) J. Ag.  
Estado Nueva Esparta, Isla Coche, DÍAZ-PIFERRER 1966

#### RHABDONIACEAE

\**Catenella repens* (Lightf.) Batt.  
Estado Sucre, Bahía de Mochima, DÍAZ-PIFERRER 1966

\**Catenella impudica* (Mont.) J. Ag.  
Estado y sitio desconocido, GESSNER 1967

#### HYPNEACEAE

*Hypnea spinella* (C. Ag.) Kütz.  
*Hypnea cervicornis* J. Ag.

\**Hypnea cornuta* (Lamx.) J. Ag.  
Estado Nueva Esparta, Isla Cubagua, GESSNER 1967  
*Hypnea musciformis* (Wulf.) Lamx.

#### PHYLLOPHORACEAE

\**Gymnogongrus griffithsiae* (Turn.) Mont.  
Estado Nueva Esparta, Isla Cubagua, PARODI 1963

*Gymnogongrus tenuis* (J. Ag.) J. Ag.

\**Gymnogongrus crenulatus* (Turn.) J. Ag., prox.  
Estado Aragua, Chuso, PARODI n.d.

#### GIGARTINACEAE

\**Gigartina acicularis* (Wulf.) Lamx.  
Estado Nueva Esparta, Isla Coche, DÍAZ-PIFERRER 1966  
*Gigartina teedii* (Roth) Lamx.

#### RHODYMENIACEAE

*Weberella peltata* (Taylor) Schneider (*ante* Faucha)

*Chrysomenia ventricosa* (Lamx.) Howe

*Coelarthrum albertisii* (Picc.) Børg.

\**Botryocladia occidentalis* (Bory) Kylin  
Estado Nueva Esparta, Isla Coche-Este, GESSNER 1967

\**Botryocladia papenfussiana* Ganesan  
Estado Sucre, Cumaná, GANESAN 1972

#### CHAMPIACEAE

*Champia parvula* (C. Ag.) Harv.

\**Champia salicornioides* Harv.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966

\**Champia compressa* Harv.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966

#### CERAMIACEAE

\**Crouania attenuata* (Bonnem.) J. Ag.  
Dependencia Federal, Islas Los Testigos, DÍAZ-PIFERRER 1966  
*Wrangelia argus* Mont.

\**Wrangelia penicillata* C. Ag.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966

\**Callithamnion byssoides* Arnott in Hooker  
Dependencia Federal, Isla La Blanquilla, DÍAZ-PIFERRER 1966

\**Haloplegma duperreyi* Mont.  
Estado Nueva Esparta, Isla Coche, DÍAZ-PIFERRER 1966

\**Griffithsia barbata* (Smith) C. Ag. ?  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966  
This record and the next following are not well supported by the illustration, and data are lacking.

\**Griffithsia opuntiioides* J. Agr. ?  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966  
*Griffithsia globulifera* Harv.

- \**Tiffaniella saccorhiza* (Setch. & Gardn.) Doty & Menez  
Estado Nueva Esparta, Isla Margarita, GANESAN 1970
- \**Ceramium fastigiatum* (Roth) Harv.  
Estado Sucre, Isla Venado, DÍAZ-PIFERRER 1966
- Ceramium byssoideum* Harv.
- \**Ceramium strictum* (Kütz.) Harv.  
Estado Sucre, Península de Araya, DÍAZ-PIFERRER 1966
- \**Ceramium tenuissimum* (Lyngb.) J. Ag.  
Estado Sucre, Bahía de Mochima, DÍAZ-PIFERRER 1966
- Ceramium floridanum* J. Ag.
- \**Ceramium nitens* (C. Ag.) J. Ag.  
Dependencia Federal, Islas Los Roques, PARODI 1963
- Centroceras clavulatum* (C. Ag.) Mont.
- \**Spyridia filamentosa* (Wulf.) Harv.  
Estado Miranda, Los Totumos, FOLDATS 1960
- Spyridia clavata* Kütz.
- Spyridia hypnoides* (Bory) Papenf. (*ante* S. aculeata)

## DELESSERIACEAE

- \**Caloglossa leprieurii* (Mont.) J. Ag.  
Estado y sitio desconocido, GESSNER 1967
- Hypoglossum tenuifolium* (Harv.) Kütz.
- \**Taenioma nanum* (Kütz.) Papenf. (*ante* T. perpusillum)  
Estado Sucre, Bahía de Mochima, GANESAN 1964
- Nitophyllum punctatum* (Stackh.) Grev.
- \**Acrosorium uncinatum* (Turn.) Kylin  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966
- \**Hymenena media* (Hoyt) Taylor  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966
- \**Martensia pavonia* (J. Ag.) J. Ag.  
Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966

## DASYACEAE

- Dasya rigidula* (Kütz.) Ardiss.
- \**Dasya corymbifera* J. Ag.  
Estado Nueva Esparta, Isla Coche, GESSNER 1967
- Dasya baillouviana* (Gmel.) Mont. (*ante* D. elegans or D. pedicellata)
- Heterosiphonia wurdemanni* (Bail.) Falk.
- Heterosiphonia gibbesii* (Harv.) Falk.
- \**Dictyurus occidentalis* J. Ag.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966

## RHODOMELACEAE

- \**Falkenbergia hillebrandii* (Born.) Falk.  
Estado Sucre, Península Araya, DÍAZ-PIFERRER 1966
- \**Polysiphonia havanensis* Mont.  
Estado Sucre, Golfo de Cariaco, GESSNER 1967
- Polysiphonia binneyi* Harv.
- Polyphonia ferulacea* Suhr
- Bryocladia thyrsgera* (J. Ag.) Schm.
- Bryocladia cuspidata* (J. Ag.) DeToni
- Bryothamnion triquetrum* (Gmel.) Hove
- \**Bryothamnion seaforthii* (Turn.) Kütz.  
Estado Sucre, Golfo de Cariaco, GESSNER 1967
- \**Digenia simplex* (Wulf.) C. Ag.  
Dependencia Federal, Isla Tortuga, GESSNER 1963
- \**Brongniartella mucronata* (Harv.) Schm.  
Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966
- Lophocladia trichoclados* (Mert.) Schm.
- Murrayella periclados* (C. Ag.) Schm.
- Bostrychia moritziana* (Sond.) J. Ag.
- \**Bostrychia radicans* Mont.  
Estado Sucre, Muelle de Cariaco, GESSNER 1967
- \**Bostrychia rivularis* Harv.  
Estado Zulia, Isla San Carlos, GESSNER 1967

- \**Bostrychia pilulifera* Mont.  
Estado Delta Amacuro, Pedernales, GESSNER 1967
- \**Bostrychia calliptera* Mont.  
Estado Nueva Esparta, Isla Cubagua, GESSNER 1967
- Bostrychia binderi* Harv.  
*Bostrychia tenella* (Vahl) J. Ag.
- \**Dipterosiphonia dendritica* (C. Ag.) Schm.  
Dependencia Federal, Islas Los Hermanos, DÍAZ-PIFERRER 1966
- \**Herposiphonia pecten-veneris* (Harv.) Falk.  
Estado Sucre, Bahía de Mochima, GESSNER 1967
- Amansia multifida* Lamx.
- \**Enantiocladia duperreyi* (C. Ag.) Falk.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966
- Vidalia obtusiloba* (Mert.) J. Ag.  
*Chondria atropurpurea* Harv.  
*Chondria tenuissima* (Good. & Woodw.) C. Ag.
- \**Chondria cnicophylla* (Melv.) DeToni  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966
- \**Chondria littoralis* Harv.  
Dependencia Federal, Isla La Blanquilla, DÍAZ-PIFERRER 1966
- \**Chondria sedifolia* Harv.  
Estado Nueva Esparta, Isla Margarita, DÍAZ-PIFERRER 1966
- \**Chondria dasphylla* (Woodw.) C. Ag.  
Estado Sucre, Golfo de Cariaco, DÍAZ-PIFERRER 1966
- Chondria floridana* (Coll.) Howe
- \**Chondria polyrhiza* Coll. & Herv.  
Estado Nueva Esparta, Isla Cubagua, DÍAZ-PIFERRER 1966
- Acanthophora spicifera* (Vahl) Børg.  
*Laurencia corallopsis* (Mont.) Howe  
*Laurencia papillosa* (Forssk.) Grev.
- \**Laurencia obtusa* (Huds.) Lamx.  
Estado Sucre, Golfo de Cariaco, GESSNER 1967

- \**Laurencia intricata* Lamx.  
Estado Anzoátegui, Isla Chimana Grande, DÍAZ-PIFERRER 1966
- Laurencia scoparia* J. Ag.  
*Laurencia microcladia* Kütz.
- \**Laurencia pinnatifida* (Gmel.) Lamx.  
Dependencia Federal, Isla La Blanquilla, DÍAZ-PIFERRER 1966

#### CITED AND SUPPLEMENTARY LITERATURE

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1973 — Structure and reproduction of *Schimmelmanna dawsonii* sp. nov. (Rhodophyceae, Cryptonemiales). Phycologia 11(1): 5-9, 12 figs.
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- BAARDSETH, E.  
1941 — The Marine algae of Tristan da Cunha. Res. Norwegian Sci. Exped. to Tristan da Cunha 1937-1938. N° 9, 174 pp., 75 figs.
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- GANESAN, E. K. & A. J. LEMUS  
1969 — Notes on Venezuelan marine algae, I, On the occurrence of the Red Algal genus *Taenioma* J. Ag. in Venezuela. Nova Hedwigia 18: 765-767, 5 figs.

## GANESAN, E. K.

- 1970 — A new species of *Gelidiocolax* Gardner (Choreocolacaceae, Rhodophyta) from the Caribbean Sea. Bol. Inst. Oceanogr. Univ. Oriente 9 (1-2): 92-102, 18 figs.
- 1970 — Studies on the marine algal flora of Venezuela II. Two interesting new additions. Bol. Inst. Oceanogr. Univ. Oriente 9(1-2): 103-108, 16 figs.
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## GRUNOW, A.

- 1867 — Reise seiner Majestät Fregatte Novara um die Erde, Botanischer Theil. I. Band. Algen. 104 pp., 11 pl. Vienna.

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- 1972 — *Willeella ordinata* Børgesen 1930 (Chlorophyceae, Cladophorales): first record for America. Journ. Phycol. 8(2): 207-208, 4 figs.

## HOLLENBERG, G. J. &amp; I. A. ABBOTT

- 1966 — Supplement to Smith's Marine Algae of the Monterey Peninsula. 130 pp., 53 figs., Stanford, Calif.

## CHECK-LIST OF VENEZUELAN MARINE ALGAE

Papers concerning Venezuelan marine algae unavailable to me and consequently unknown by me at the time I wrote the Check-list of 1976 include the following. The omission of these is very regrettable. Of course in most cases it has been impossible to verify the identifications.

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Hammer, L. & F. Gessner 1957. La taxonomía de la vegetación marina en la Costa Oriental de Venezuela. Instit. Oceanogr. Univ. de Oriente 5(2): 187-265, 30 pl.

Rios, N. de 1972. Contribución al estudio sistemático de las algas macroscópicas de las costas de Venezuela. Acta Bot. Venezuelica 7(1-4): 219-324, map. 42 pl.

Rodriguez de Rios, N. & A. Gonzalez 1974. Adiciones a la flora de macroalgas marinas de Venezuela. Congreso Venezolana de Botanica. Ediciones del Rectorado, Universidad de Los Andes 1974: 80, 81, 2 pl.



- MARTIUS, K. F. P. von, F. G. ESCHWEILER & C. C. NEES von ESENBECK  
1833 — Algae, Lichenes, Hepaticae exposuerunt. Algae, pp. 1-50, *In*: Martius, K.-F. P. von, Flora Brasiliensis seu enumerario plantarum in Brasilia tam sua sponte quam accedente cultura provenientum..., Pars prior. iv + 390 pp. Folio. Stuttgart.
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1811 — Fuci, sive plantarum fucorum generi a botanicis ascriptarum icones descriptiones et historia. Vol. 3, pp. 148 + 2, 62 pls. London.

## ADDENDUM

NOTE: It is most regrettable that the publication of Sra. Nora R. de Ríos of the Departamento de Botánica, Universidad Central de Venezuela (1972) was not brought to my attention until after this paper had been submitted for publication. While not a long list, nevertheless several species are listed in it which had not found a place in the present paper.