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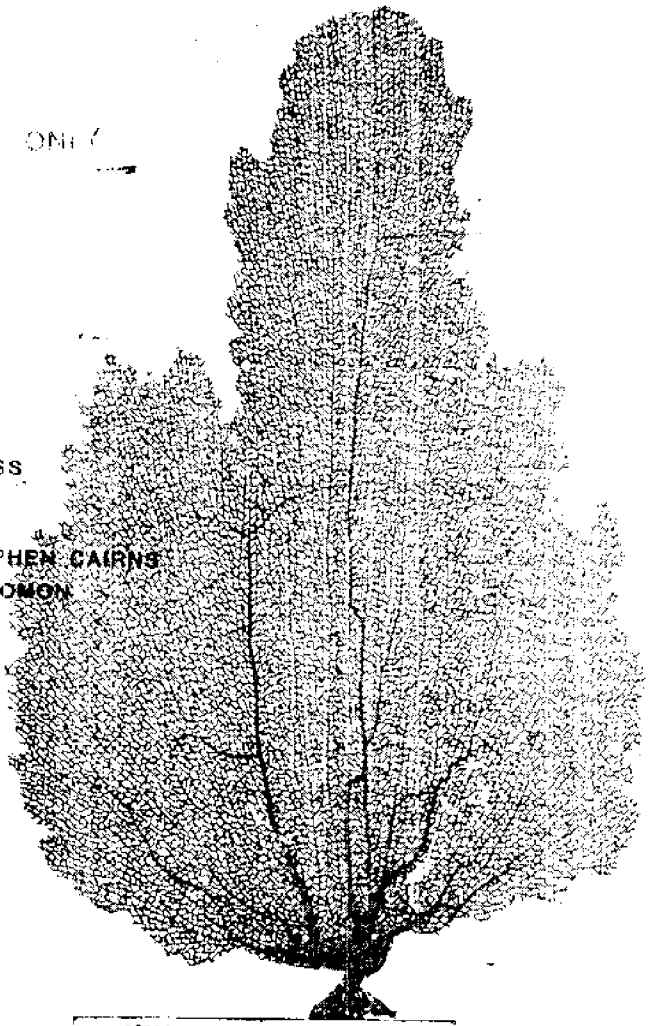
**GUIDE TO THE COMMONER
SHALLOW-WATER GORGONIANS
(SEA WHIPS, SEA FEATHERS AND SEA FANS)
OF FLORIDA, THE GULF OF MEXICO,
AND THE CARIBBEAN REGION**

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STEPHEN CAIRNS

EDITED BY GILBERT VOSS

**PHOTOGRAPHS BY STEPHEN CAIRNS
DRAWINGS BY JANET GOMON**



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SEA GRANT FIELD GUIDE SERIES
NUMBER 8
MARCH 1977

762

MIAM-HI-77-00103

Sea Grant Field Guide Series # 6

Guide to the Commoner Shallow-water Gorgonians (Sea Whips, Sea Feathers and Sea Fans) of Florida, the Gulf of Mexico, and the Caribbean Region.

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Photographs by Stephen Cairns
Drawings by Janet Gomon

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University of Miami Sea Grant Program (NOAA Sea Grant No. 04-5-158-14)
Miami, Florida 1976

The University of Miami's Sea Grant Program is a part of the National Sea Grant Program, which is administered by the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce.

Library of Congress Catalogue Number: 77-75980

University of Miami Sea Grant Program
P. O. Box 249178
Coral Gables, Florida 33124
1976

Foreword

The University of Miami Sea Grant Field Guide Series is published to make available to the commercial and sports fishermen, the general public, and fisheries and conservation personnel easily usable, non-technical, well-illustrated guides for the identification of the marine life of the area. Every means has been used to avoid technical terms where possible. When these must be used to avoid confusion, they are carefully explained and often illustrated. Glossaries are included when necessary.

But the guides go further than just identification. Where such knowledge is available, information is given on geographical distribution, depth distribution, abundance, time of spawning, present utilization, means of harvesting, and mariculture methods, besides other useful information.

The format is uniform in the series for greater ease of use. Actual photographs are used where possible but when greater clarity is required, drawings are used. In general we have attempted to illustrate each species, but, in cases where two or more species are very similar, this is noted, a single illustration is used, and distinguishing characters are given in the text.

The principle used in selection of species has been not whether the species are now commercially exploited, but whether the animal or plant is of sufficient size and occurs in large enough numbers to make it potentially capable of exploitation. In some cases, species are included that are known to be harmful or poisonous. This is done to draw attention to their presence and to avoid their mistaken use as food.

The Sea Grant office, University of Miami, will appreciate comments from users of this series for the betterment of the guides, for the inclusion of future printings of species possibly overlooked by the compilers, and especially for suggestions concerning other groups of organisms for which guides are desired. Your comments are solicited.

To Users of the Guide Series

The purpose of field guides is to make possible identification of animals or plants in the field without the need for other reference works, dictionaries, microscopes, or dissecting equipment. Most field guides fall short of these objectives mainly because of the use of unexplained technical terms and references to characters not discernible to the naked eye.

In this guide we have attempted to use terms in general use; where a technical word is necessary, it is explained at its first use and is illustrated in the introduction. Characters are used that are visible to anyone having normal vision, or in special cases, by use of a simple hand lens or magnifying glass.

We suggest that users first read the introduction in order to find the scope of the guide-area covered, kind of species included, characters used, and to familiarize themselves with the words used in the descriptions and keys.

There are two ways to use this guide. One is to simply thumb through the pages looking at the illustrations until one is found that matches the specimen in front of the reader. When this or a series of species illustrations is found, the descriptions should then be read in search of further identifying remarks paying attention to the notes on distribution, depth of capture, and type of bottom. If all of these fit reasonably well, it is likely that your specimen belongs to that species.

The second method is to use the key first, and when a reasonable match is found, turn to the page number given in the key and follow the procedure as described in the paragraph above. In using the key, one must be aware that species not covered in this guide may apparently be identified by the key. This is why it is essential that, when a specimen is identified by the key, the illustrations and descriptions must be used also. If the name given in the key does not correspond to the species illustration and description, either your use of the key was wrong and another alternative is correct or the species is not considered to be potentially valuable and is not included in this guide. If key illustration, and description agree, you may reasonably expect that your identification is correct.

When using the keys, always be sure to read both alternatives and choose the one most fitting your specimen before going to the next set of choices. In closely related species, each choice will be somewhat fitting to your specimen, but only one will fit it correctly.

Finally, do not expect your specimen to be exactly like the illustration, especially as to position of bands, ridges, shape, and other characteristics. No two human beings are exactly alike; marine species have similar ranges of differences between individuals.

If at last you are unable to identify your specimen from this guide, but you are certain that it belongs to the group included in it, your final recourse is to bring or send it to a specialist for identification.

Frederick M. Bayer

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University of Miami

Guide to the
Commoner Shallow-water Gorgonians
(Sea Whips, Sea Feathers, and Sea Fans)
of
Florida, the Gulf of Mexico,
and the Caribbean Region

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Introduction

Gorgonians are common and conspicuous members of the reef fauna of the West Indies and are easily recognized as "sea fans" and "sea whips." However, they are often mistaken for plants because of their permanent attachment to the substrate, bushy colony form, and passive mode of existence (their branches move only because of currents or wave action). Gorgonians are closely related to sea pens (Pennatulacea) and alcyonarians and fall within the same class (Anthozoa) that includes corals and anemones. All of these groups, plus the jellyfishes, fire corals (Millepora), and hydroids, are united in the animal phylum Coelenterata.

There are about 170 species of gorgonians in the West Indian Province, an area which includes Bermuda, the Bahamas, the Antilles, south Florida and the Caribbean Islands. Of these, 100 are restricted to depths greater than 50 meters (164 feet) and only about 50 of the remaining 70 species are reef dwellers. This guide treats only 27 species and is directed primarily at those very shallow-water species that could be encountered without the use of SCUBA. (Only two species are included that would not be seen by conventional snorkeling.) This guide does not treat or illustrate every species that occurs in shallow water, but it does include the most common and abundant species. By referring to the comparison sections one should be able to identify approximately 90 percent of all gorgonians collected in shallow water.

The most important and reliable character used to identify gorgonian species is the shape and distribution of their spicules. Spicules are extremely small (0.05-1.0mm = 1/400-1/20 inch) calcareous structures of various shapes, which are present in great numbers in the outer tissue (rind) and which give the gorgonian form and support. Obviously, without a microscope they are useless for field identification. The nature of the axis is also important at the familial level but necessitates collecting, drying, and often microscope examination of a branch. Without using these two important characters, one must resort to less reliable and often more variable characters or a combination of characters which are visible to the unaided eye and recognizable in the field. Such characters are: the shape and size of the colony, its branching pattern, the length, shape, and diameter of the end branches, the size, shape, and spacing of the apertures, the exsertness (projection) of the calyx, if any, the color of the colony alive and when dried, and any other unique characters present in particular species. All of these characters can be determined without the use of a microscope, although a hand lens and ruler are very useful.

Sometimes it will be necessary to collect the colony and dry it in order to see some of these characters. Often it is enough to collect only a small part of the colony. Whatever the case, one should keep in mind that there is a Florida State law limiting the collection of corals and sea fans.

Senate Bill No. 629

Any person may take or possess specimens of the species sea fans (Gorgonia flabellum) and (Gorgonia ventalina) or the hard or stony corals or fire coral (Scleractinia or Millepora), except that it is unlawful for any person to take, attempt to take, or otherwise destroy an aggregate wet weight of the specimens, weighed in air, of more than 5 pounds, or to possess fresh, uncleaned or uncured specimens in an aggregate weight of more than 5 pounds, or to sell or attempt to sell any of the specimens described, unless it can be shown by certified invoice that the specimens were imported from a foreign country. This section shall not apply to specimens taken for scientific or educational purposes when the taking is approved and permitted by the department. It is unlawful to take coral from, or possess it in, the John Pennekamp Coral Reef State Park. The provisions of S592.17 shall be in addition to the provisions of this section.

Gorgonians are very important in the ecological balance of the reef ecosystem. They have numerous interactions with other animals, including: functioning as a holdfast for hermit crabs, brittlestars and crinoids; a substrate for incrusting fire coral (Millepora); a host for parasitic copepods, barnacles, and symbiotic zooxanthellae; a food source for snails of the genus Cyphoma and Simnia; and a refuge for fish and shrimp that mimic the gorgonians in shape or color. Additionally, gorgonians contribute significantly to the general reef build-up, adding over a ton of limestone per acre per year, in the form of spicules, to a reef habitat (Bayer, 1961: 320). The economic importance of gorgonians is far less than their ecological role. A very important drug (prostaglandin) was recently found in great quantities in Plexaura homomalla, which triggered intensive research on this species, culminating in a symposium. But now this drug can be synthesized by drug companies and there is no longer a demand for this natural gorgonian source. The only other commercial use of gorgonians is as souvenirs; the sea fans and sea plumes are frequently sold in coral and shell shops. They are of no food value to man.

Key to Identification

1. Colonies spreading over the bottom in the form of leathery or rubbery expansions or incrusting other gorgonians Erythropodium polyanthes

1. Colonies standing erect: either unbranched (Key Fig. 2), bushy (Key Fig. 3), pinnately branched (Key Fig. 4), candelabrum-shaped (Key Fig. 5), or fanlike (Key Fig. 6) 2

2. Branching close, interconnected, forming a netlike fan in a single plane 3

2. Branching otherwise 5

3. Branches are round or slightly flattened in the plane of the fan (Key Fig. 7) Gorgonia ventalina

3. Branches are flattened at right angles to the plane of the fan (Key Fig. 8) 4

4. Fans without short, free branchlets springing from the flat sides Gorgonia-flabellum forma-flabellum

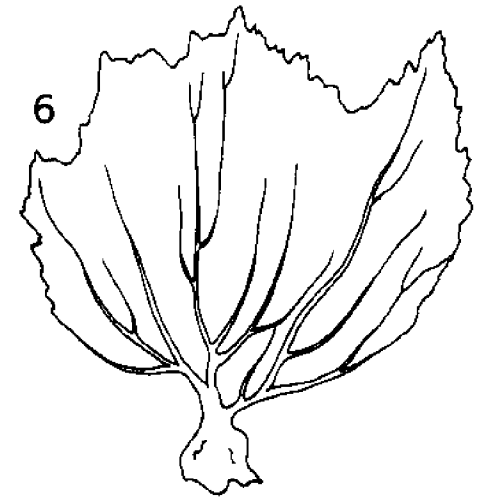
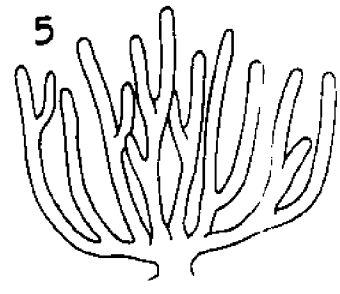
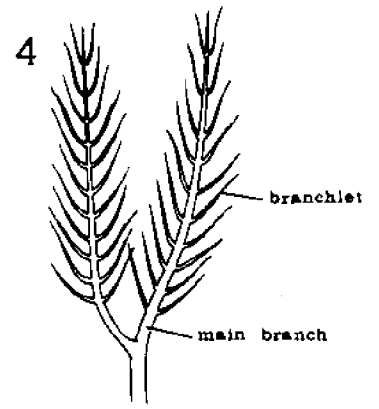
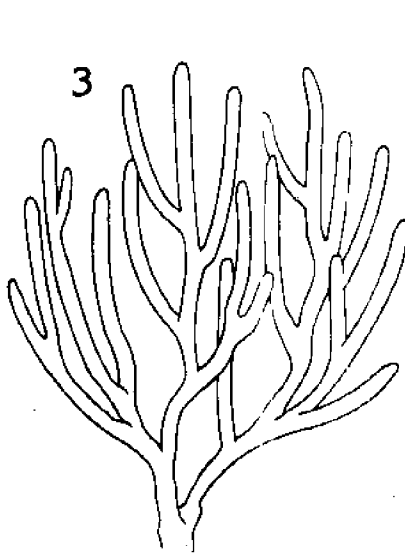
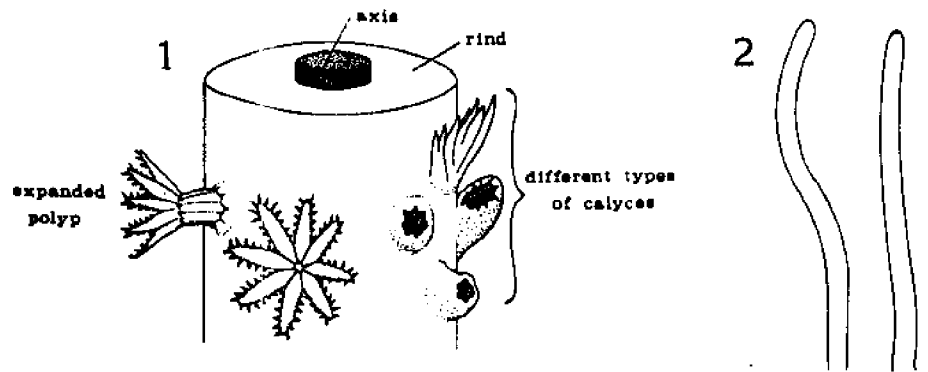
4. Fans with short, free branchlets springing from the flat sides Gorgonia-flabellum forma-occatoria

5. Colonies unbranched; all stems originate from a common basal expansion Briareum-asbestinum

5. Colonies bushy, pinnately branched or candelabrum-shaped 6

6. Colonies pinnately branched in the form of a plume or cluster of plumes (Key Fig. 4) 7

6. Colonies bushy or candelabrum-shaped 10



Key Figures 1 - 6

- 7. Branchlets (Key Fig. 4) stiff, arising from all sides of the main branch; calyces close set and arranged all around the branches and branchlets Muriceopsis-flavida

- 7. Branchlets flexible, arranged more or less in one plane; calyces occur along the two narrow edges of the branchlets leaving a bare strip along the two flattened sides (Key Fig. 9)

- 8. Branchlets short (25-40 mm; 1.0-1.6 inches) and occur on opposite sides of main branch usually at the same level Pseudopterogorgia-bipinnata

- 8. Branchlets larger (80-150 mm; 3.1-5.9 inches) and rarely paired at the same level 9

- 9. Colonies very slimy when alive; a sticky mucus mats the branchlets together when dried Pseudopterogorgia-americana

- 9. Colonies not notably slimy; branchlets dry neatly and well separated Pseudopterogorgia-acerosa

- 10. Branches flattened, triangular or square in cross-section (Key Fig. 10) 11

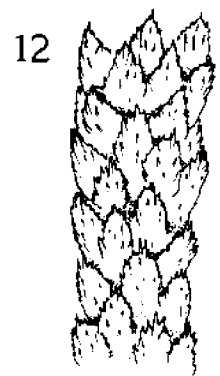
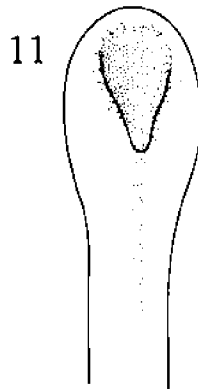
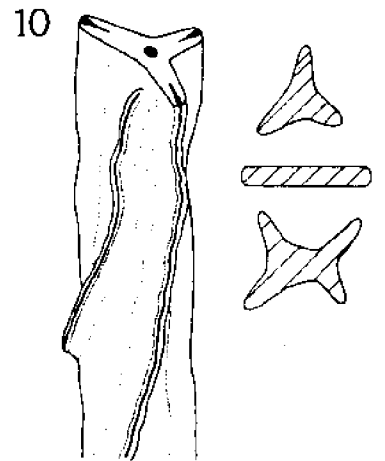
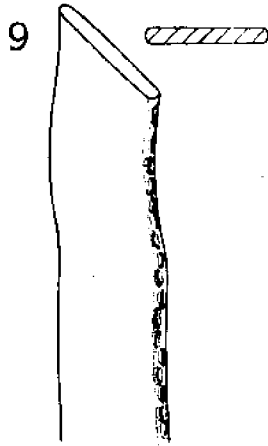
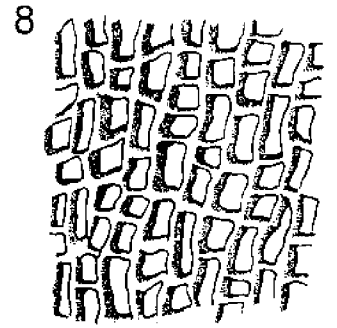
- 10. Branches round in cross-section 13

- 11. Branches with three or four longitudinal flanges which give them a triangular or square cross-section, Pterogorgia anceps

- 11. Branches flattened 12

- 12. Colony large (up to 1 meter; 39 inches) ends of branches slightly enlarged and indented forming a shallow pit (Key Fig. 11) Iciligorgia schrammi

- 12. Colony small (17 CM; 7 inches), ends of branches do not have a pit Pterogorgia citrina

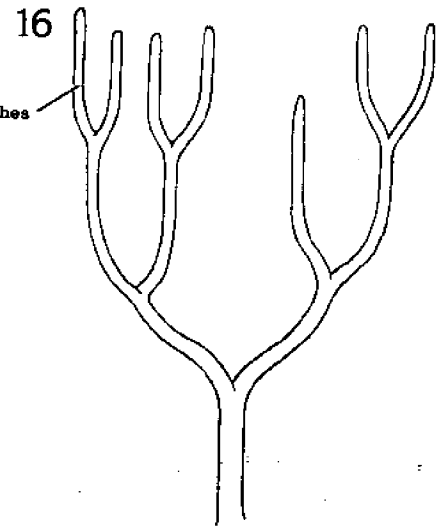
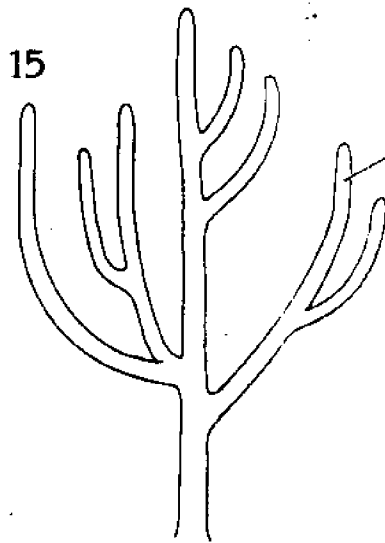
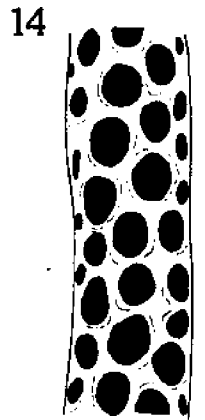
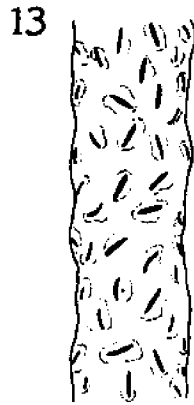


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forma succinea

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forma homomalla
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forma plantaginea



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Briarium asbestinum (Pallas)

Common Briareum, Corky Sea Finger

Recognition Features.--The colony is composed of upright cylindrical branches about 1 cm (0.4 inch) in diameter which are joined only at the common incrusting base. When alive, the long, brown tentacles of the polyps give this species a hairy appearance. If touched the tentacles will slowly retract, exposing a smooth to nodular surface with numerous small apertures, or openings, all over the branch. Color when alive is purplish gray; dried it is brownish, yellowish, or grayish.

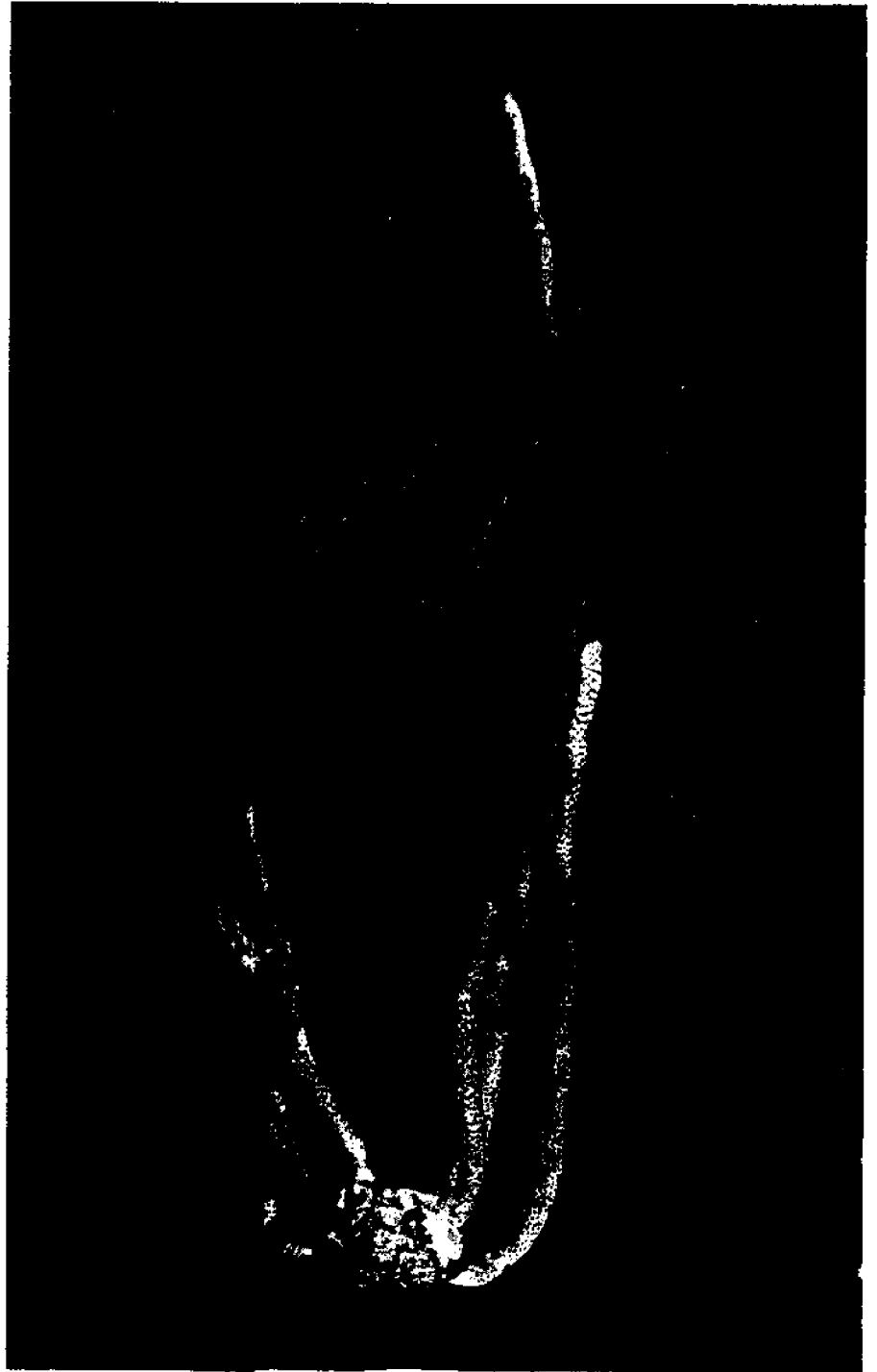
Size.--The branches can be 60 cm (2 ft) tall.

Comparisons.--This is an easily distinguished species because it is the only one in the western Atlantic that has erect branches that do not give off any side branches. The individual branches are all united at the stolon-like or incrusting base.

Geographical Range.--Southern Florida, Bahamas, Caribbean Sea, West Indies south to Barbados (Bayer, 1961).

Habitat and Depth Range.--0-32 m (0-105 ft). Five to six colonies/m² have been reported at Red Reef (Opresko, 1973). It is primarily a patch reef (clear water) species.

References.--Bayer, 1961: 62-64; Deichman, 1936: 79-80; Guitart, 1959: 3; Lewis, 1960: pl. 5, fig. 11 (underwater photograph).



• Figure 1: Common Briareum

Erythropodium polyanthes Duchassaing and Michelotti

Incrusting Gorgonian

Recognition Features.--This is one of two incrusting species of gorgonians in the western Atlantic. It forms lumpy masses on rocks and dead coral or may actually incrust other species of living gorgonians, slowly killing them as it grows upward. The apertures are large and the polyps are very large and are gray or brownish. The surface of the colony is purplish brown. When the polyps are retracted, this species is very inconspicuous and resembles an incrusting sponge.

Size.--The thickness of the mat is about 1.0 cm (0.4 inch).

Comparisons.--The other species of incrusting gorgonian in the western Atlantic, E. caribaeorum, can be distinguished from this species by its thinner mats (4 mm = 3/16 inch), smaller polyps, and grayish color. It never incrusts gorgonians and is much rarer than E. polyanthes.

Geographical Range.--Off Florida, Florida Keys, Lesser Antilles.

Habitat and Depth Range.--Primarily restricted to the patch reef (clear water) environment (Opresko, 1973).

Other Names.--Erythropodium marquesarum Kukenthal, 1919; Briarium asbestinum, Bayer, 1961.

References.--Deichman, 1936: 77-78.

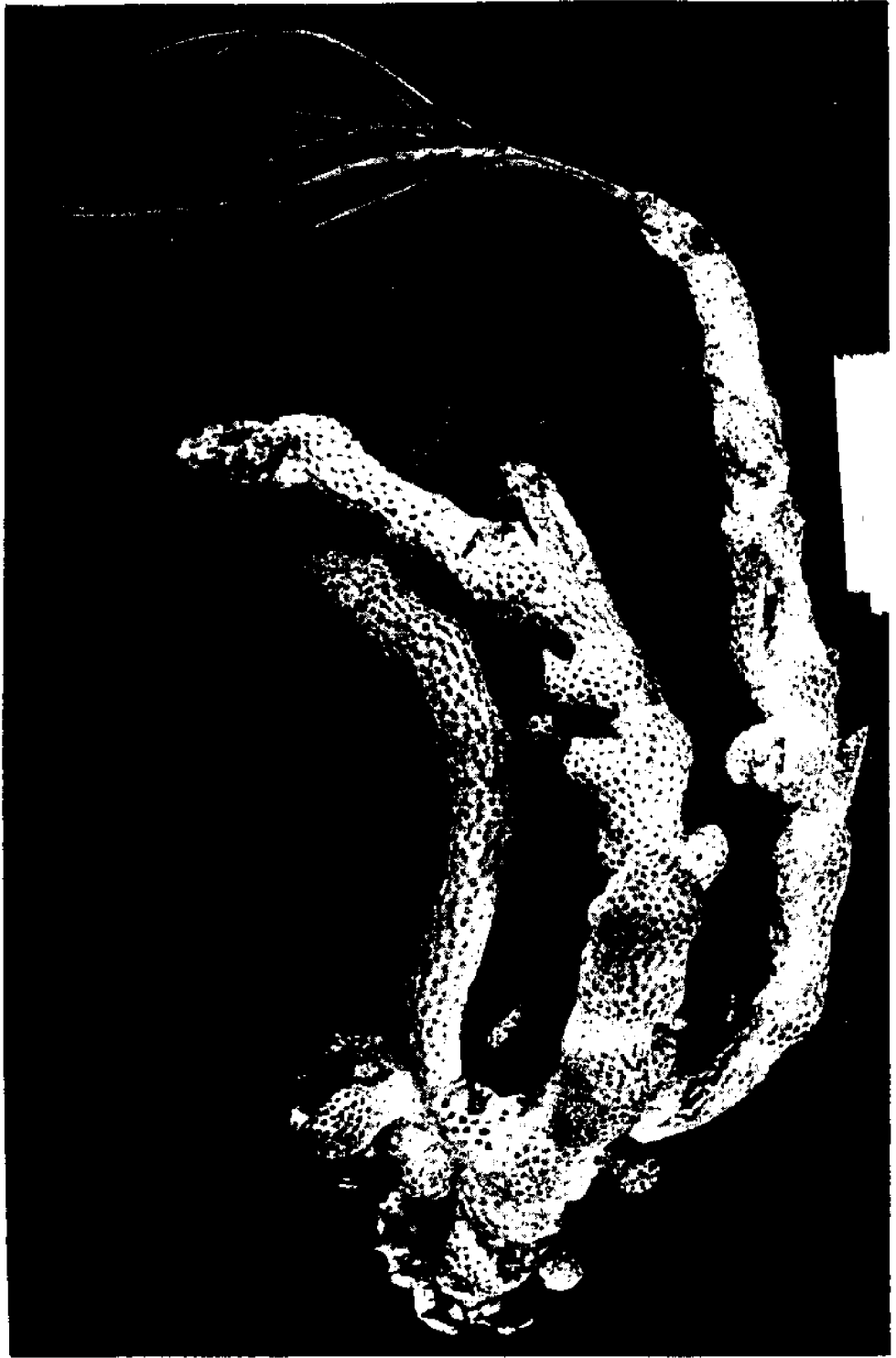


Figure 2: Incrusting Gorgonian

Iciligorgia schrammi Duchassaing

Schramm's Iciligorgia

Recognition Features.--Colonies are fairly large, in a single plane, and dichotomously branched. The branches are slightly flattened in the plane of branching. The end of the branches are enlarged and indented, forming a shallow pit. The apertures are small and slitlike, arranged in two rows, one on each narrow edge. Color when dried is brown, when alive a brilliant orange-red.

Size.--Large colonies measure 1 m (39 inches) tall and are quite broad.

Comparisons.--This species is easily distinguished from all other gorgonians by the conspicuous shallow pit at the ends of all the branches.

Geographical Range.--Florida east coast, Bahamas, West Indies, south to the mouth of the Amazon River (Bayer, 1961).

Habitat and Depth Range.--11-358 m (36-1170 ft). Very common on the deep reef slope (Goldberg, 1973). Not likely to be encountered unless using SCUBA.

Other Names.--Iciligorgia ballini Kukenthal, 1908.

References.--Bayer, 1961: 66-67, frontispiece, fig. 12a; Deichman, 1936: 82-83; Greenberg, 1972: 26 (underwater color photograph); Goldberg, 1973: figs. 5, 7 (underwater photographs), Hannau, 1974: 103 (lower), 105 (upper) (underwater color photographs.)

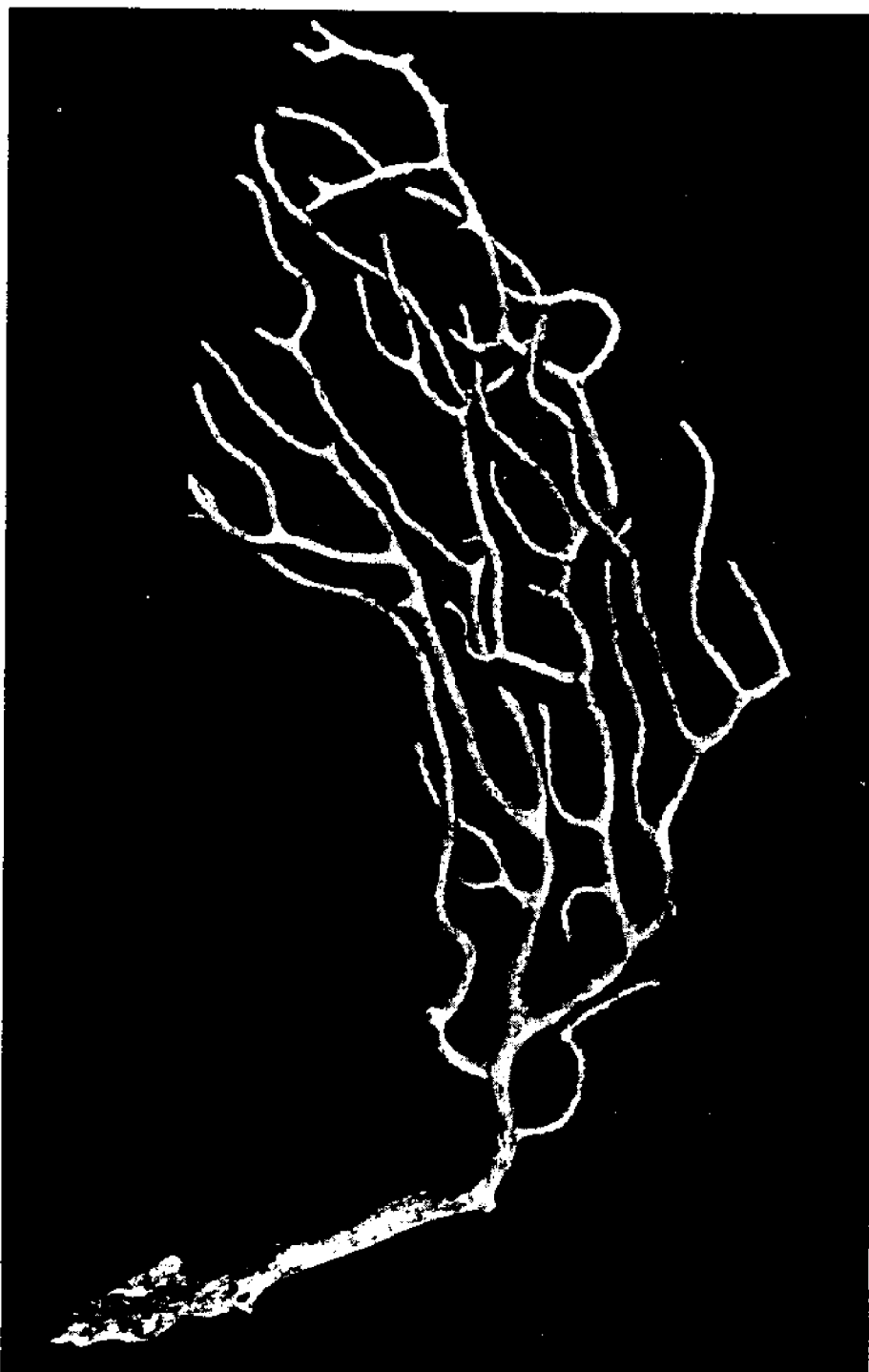


Figure 3: Schramm's Iciligorgia

Plexaura homomalla (Esper)

Black Sea Rod, Prostaglandin Plexaura

Recognition Features.--Colonies are bushy but compressed in the vertical plane, laterally branching. It occurs in two forms: form homomalla is broad with end branches 4-5 mm (3/16-1/5 inch) in diameter; form kuekenthali is taller with terminal branches 2.5 mm (1/10 inch) in diameter. End branches are about 10 cm (4 inches) long. The tissue surrounding the apertures may be completely flat or slightly raised. Color when dried is dark brown to black; color alive is dark brown.

Size.--Mature colonies are 25-35 cm (10-14 inches) high.

Comparisons.--The closely related Plexaura nina is distinguished by its longer (25 cm = 10 inches) and more slender (1.5 mm = 1/16 inch) end branches.

Geographical Distribution.--Bermuda, southern Florida, Caribbean Islands (Bayer, 1961).

Habitat and Depth Range.--0-53 m (0-208 ft) (Kinzie, 1973). Primarily a clear water, patch reef species.

Spawning.--Very little information is available on the sexual reproduction of any gorgonian; P. homomalla is one of less than a dozen species that have been studied. Goldberg and Hamilton (1974) found that through most of the year nearly all specimens were either sexually unrecognizable or female. In early June males were detectable and June-July are implied to be the months of greatest sexual activity.

Economic Importance.--A very powerful and wide-spectrum drug, called a prostaglandin, has been found in significant quantities in P. homomalla. After purification it has the ability to induce labor, induce therapeutic abortion, speed the healing of stomach ulcers, and reverse the effect of cyanotic congenital heart disease. In the future it may be used to induce heat in livestock, treat nasal congestion, asthma, and rheumatoid arthritis, and lower blood pressure (Arehart-Treichel, 1975).

Other Names.--Plexauropsis tricolor Stiasny, 1935.

References.--Bayer, 1961: 97, pl. 1, fig. 6, pl. 16; Hargitt and Rogers, 1901: 285; Bayer, 1974: fig. 1, 2.

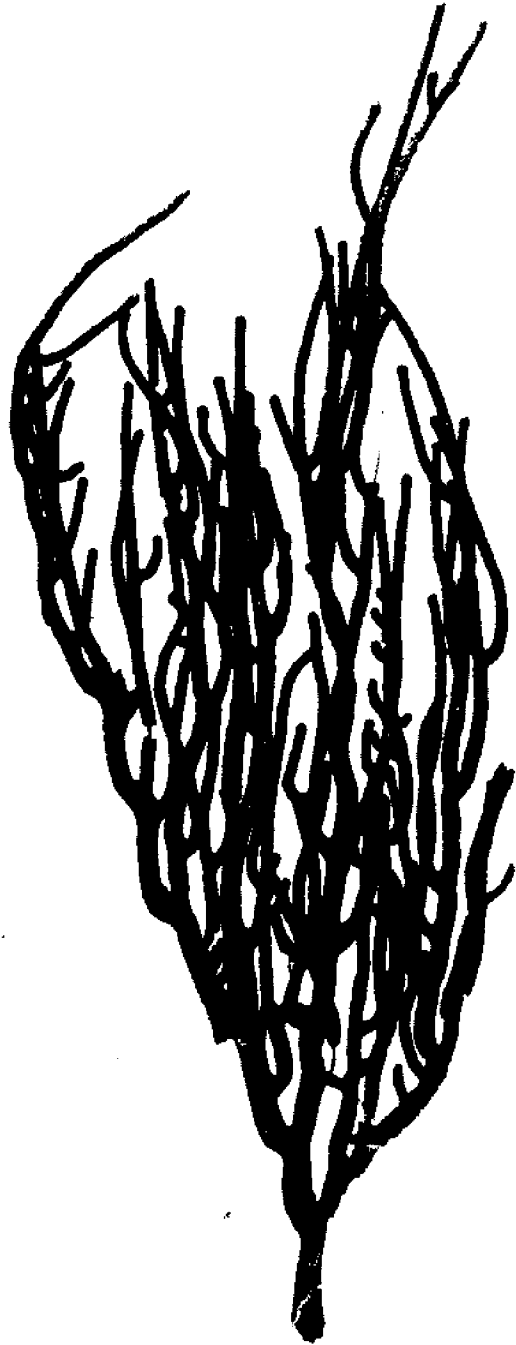


Figure 4: Black Sea Rod

Plexaura flexuosa Lamouroux

Sea Rod, Bent Plexaura

Recognition Features.--A very common species with a variable outward appearance. Small colonies are profusely and dichotomously branched; larger colonies are bushy but tend to spread in one plane. Diameter of end branches is 2.5-4.5 mm (1/10-3/16 inch). Tissue around apertures is sometimes slightly raised beneath, forming a small lip below the aperture. Color variable, ranging from white through yellow, brown, and purple to reddish purple in both live and dried specimens.

Size.--This species can be as tall as 41 cm (16 inches).

Comparisons.--It is easily confused with P. homamalla in outward appearance. P. homamalla, however, is usually dark brown or black, it does not occur in all of the color forms as P. flexuosa and, although their branching pattern is very similar, P. flexuosa tends to have a dichotomously branching colony whereas P. homamalla has lateral branching.

Geographical Range.--Bermuda, Antilles, Caribbean Islands (Bayer, 1961).

Habitat and Depth Range.--0-47 m (0-154 ft) (Kinzie, 1973). This is a clear water (patch reef) species (Goldberg, 1973).

Spawning.--Very similar to P. homamalla. In June, females have mature eggs; by July, the eggs are ripe, and by August, gonads are unrecognizable (Cary, 1914).

Other Names.--Eunicea hicksoni Stiasny, 1935.

References.--Bayer, 1961: 105, pl. 4, fig. 4, pls. 16, 17; Hargitt and Rogers, 1901: 284, pl. 4, fig. 13; Verrill, 1907: pl. 33C: 4a-c; Guitart, 1959: 7.



Figure 5: Sea Rod

Eunicea palmeri Bayer

Palmer's Eunicea

Recognition Features.--Colonies are tall and straggly. Small colonies are branched in one plane in the shape of a candelabrum. Larger (older) colonies become bushy and have many more branches. The branches are extremely soft and flexible. They can be long (35 cm = 14 inches) but usually are less than 10 cm (½ inch) and slender (3-4 mm = 1/8 inch). The tissue surrounding the apertures is usually slightly raised all around, sometimes present only as a lower lip, or it may be absent altogether. Color when alive is purplish gray, purplish brown, or grayish brown; when dried the color is brown.

Size.--Tall colonies are 50 cm (20 inches) in height.

Comparisons.--E. palmeri is similar in colony form and branch diameter to E. succinea forma plantaginea. The former usually can be distinguished by its longer end branches and less projecting calicular rims.

Geographical Range.--So far it is known only from the Florida Keys, from Soldier Key to Key West (Bayer, 1961).

Habitat and Depth Range.--1-30 m (3-98 ft). It is particularly abundant on the seaward shore of Soldier and Ragged Keys in 3-6 feet (Bayer, 1961). Goldberg (1973) reports that it is most common on the deep slope (20-25m = 65-82 ft) off Florida. Sandy substrate.

References.--Bayer, 1961: 129-132, pl. 1, fig. 4, pl. 2, fig. 4; Goldberg, 1973: 474.

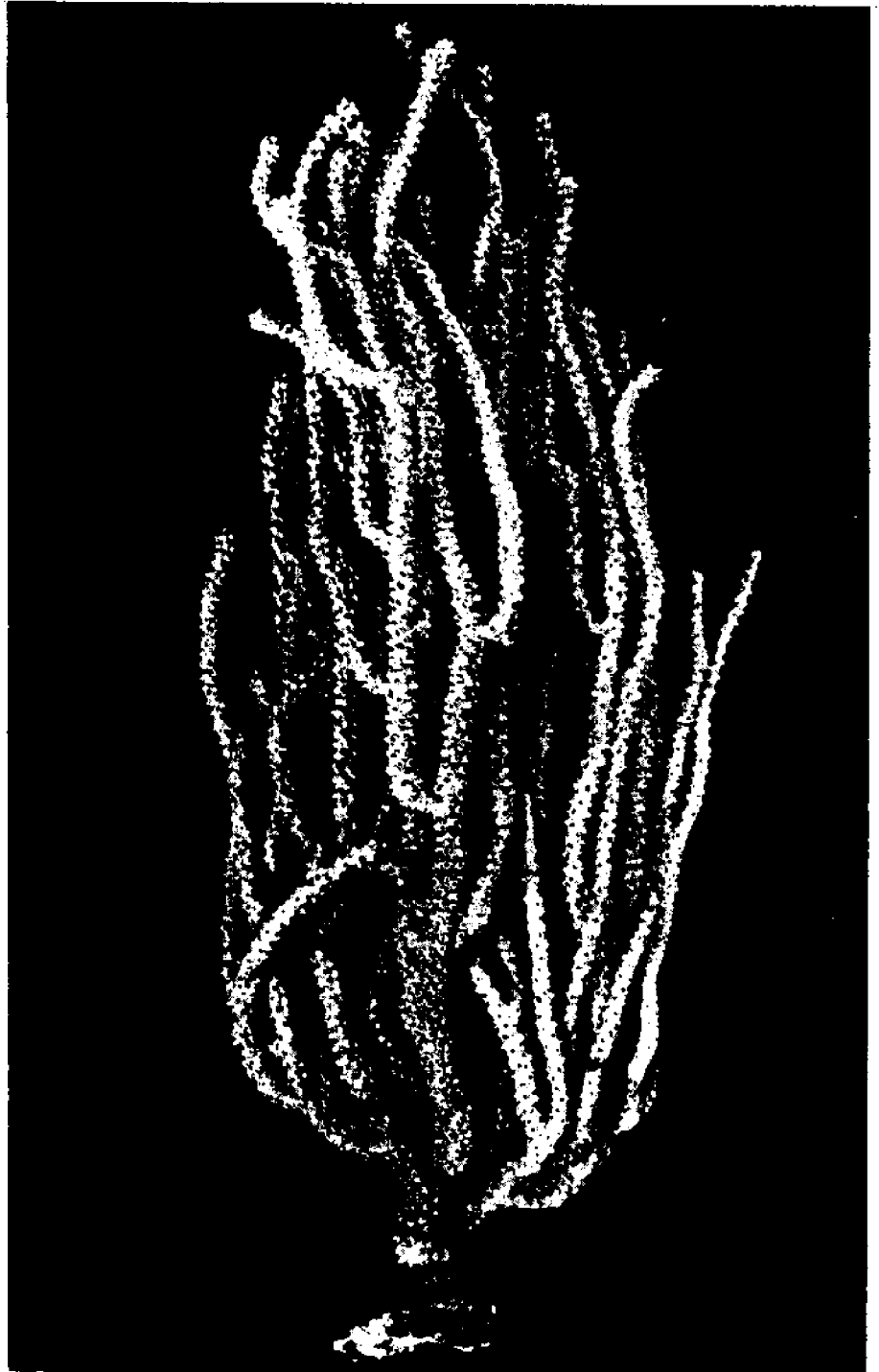


Figure 6: Palmer's Eunicea

Eunicea succinea (Pallas)

Amber Eunicea

Recognition Features.--This species commonly occurs in two forms on the reef, called the succinea and plantaginea forms. The succinea form has a low colony spreading in one plane and is shaped like a candelabrum. The end branches are thick (7 mm 1/4 inch in diameter) and the lower lips of the apertures are only slightly projecting. The equally common plantaginea form has a taller, bushier colony with thinner end branches (3-5 mm = 1/8-3/16 inch in diameter). The lower lips are more upturned. Both forms are brown when dried; however, form succinea is usually darker brown.

Size.--Both forms can attain a height of 52 cm (20 inches), although form plantaginea is usually taller.

Comparisons.--E. succinea forma succinea is similar to the candelabrum-shaped E. tourneforti, but can be distinguished by its thinner branches. E. succinea forma plantaginea could be confused with E. palmeri, another thin-branched Eunicea. See E. palmeri for additional remarks.

Geographical Range.--Florida Keys and Antilles.

Habitat and Depth Range.--1.5-9.0 m (5-30 ft). Extremely common (2-6 colonies/m²) at Soldier Key and Red Reef (Opresko, 1973).

Other Names.--Eunicea hummelincki Stiasny, 1941.

Reference.--Bayer, 1961: 136-137, pl. 2, fig. 2, 5.



Figure 7: Amber Eunicea

Eunicea tourneforti Milne Edwards and Haime

Tournefort's Eunicea

Recognition Features.--This species forms single plane candelabrum-shaped colonies which, with greater size, have a tendency to become bushy. The branches are stiff, stout (10-15 mm = 1/3-3/5 inch in diameter), and sometimes reunite with one another. The apertures have strongly projecting, upturned lower lips, which can be very prominent particularly at the branch tips. Dried colonies are dark gray or blackish brown.

Size.--According to Verrill (1907), large colonies measure 2 feet (61 cm) in height.

Comparisons.--E. tourneforti can be distinguished from most other common species of Eunicea by its candelabrum colony shape and its strongly projecting calicular lips. E. laciniata, however, is externally similar and may be indistinguishable in the field, without recourse to microscopic examination of the spicules. A character that might distinguish E. laciniata in the field is its slightly clubbed end branches.

Geographical Range.--Very widespread: Bermuda, Florida Keys, Bahamas, Antilles (Bayer, 1961).

Habitat and Depth Range.--0-30 m (0-98 ft). It is common where there are strong currents and on the outer reef (Verrill, 1907). Goldberg (1973) notes greatest abundance on the shallow slope (20-25 m = 65-82 ft) of the reef.

References.--Bayer, 1961: 35-37, pl. 2, fig. 7, pl. 14, fig. 1-7, pl. 21; Verrill, 1907: 312-313, fig. 158; Guitart, 1959: 10.

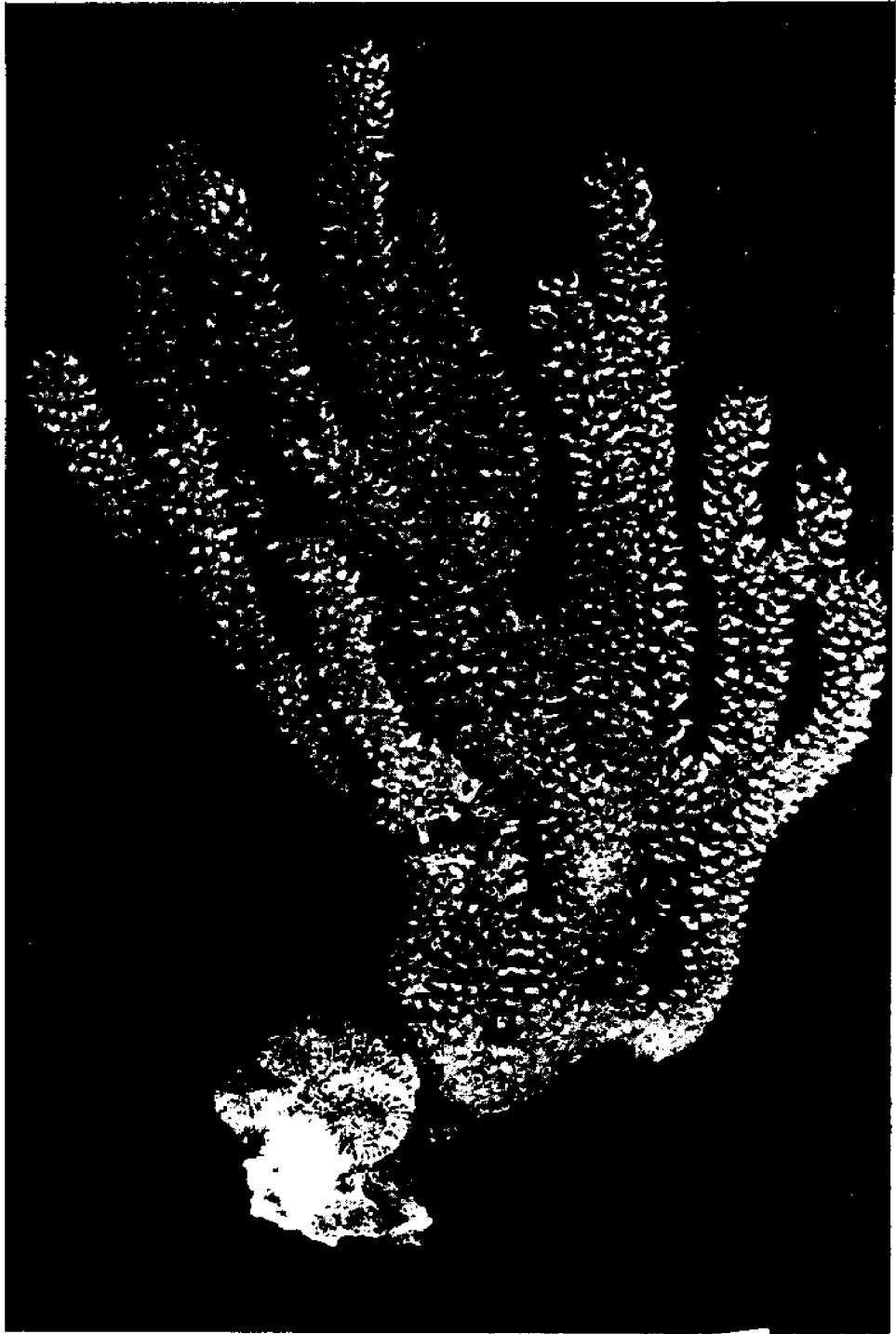


Figure 8: Tournefort's Eunicea

Eunicea mammosa Lamouroux

Mammilated Eunicea

Recognition Features.--Colonies are small with more or less single plane, lateral branching. Diameters of terminal branches are variable but those specimens from Florida are usually robust with stout branches (10 mm = 2/5 inch in diameter). The calyces are close-set and, when alive, have a swollen, fat appearance characteristic of the species. The color, alive or dried, is a pale yellowish brown.

Size.--Small, less than 20 cm (8 inches) in height, but may be quite wide.

Comparisons.--When alive, this species can be distinguished from all other species of Eunicea by its close-set, swollen calyces.

Geographical Range.--Florida Keys and Antilles (Bayer, 1961).

Habitat and Depth Range.--0-25 m (0-82 ft). Characteristic of the turbulent, sandy rear reef zone (.3-2 m - 1-6 ft) (Kinzie, 1973).

References.--Bayer, 1961: 132-134, pl. 2, fig. 1; Guitart, 1959: 11.

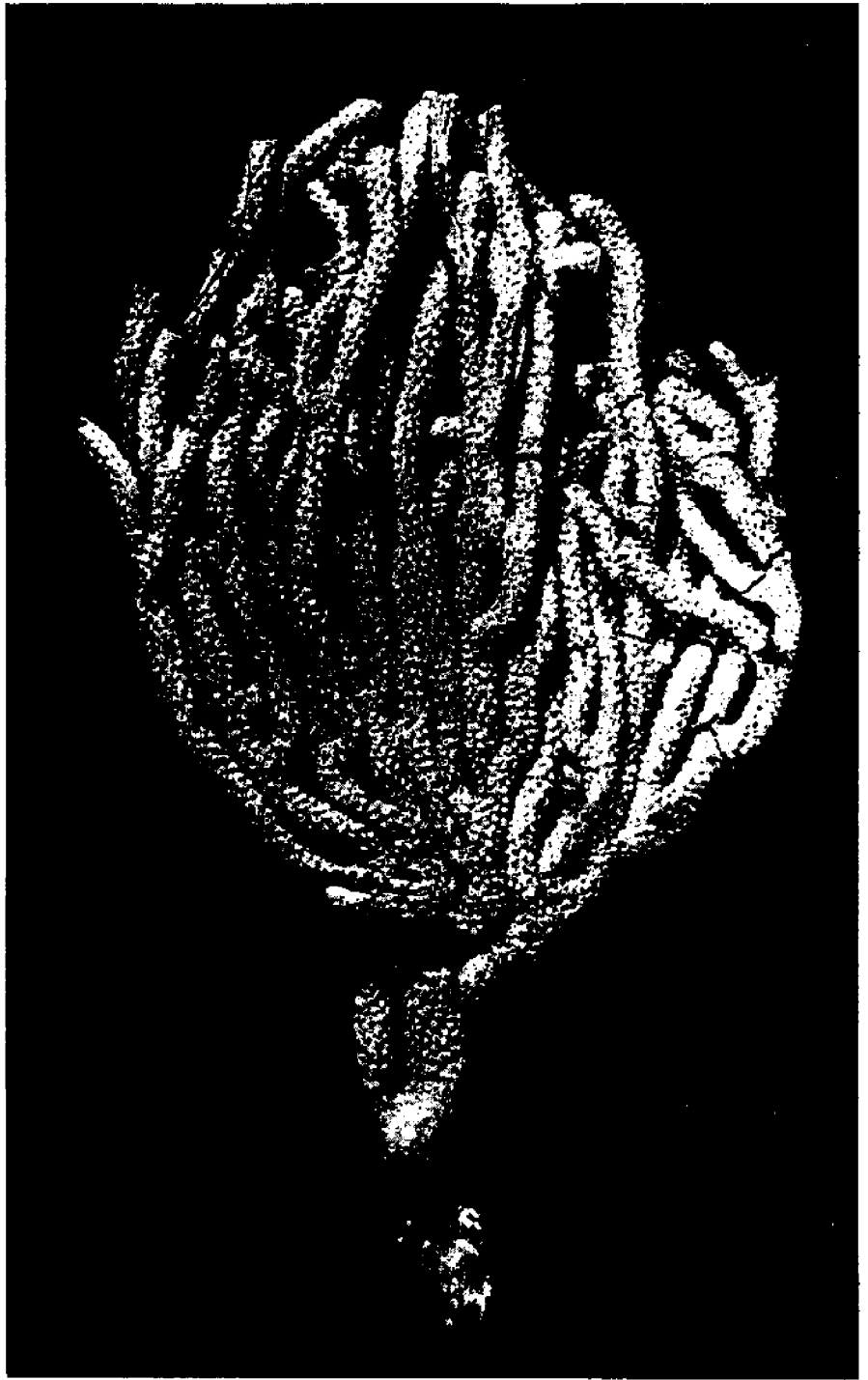


Figure 9: Mammilated Eunicea

Eunicea calyculata (Ellis and Solander)

Warty Eunicea

Recognition Features.--Colonies are tall with dichotomous branching, not candelabrum-shaped. End branches are long (up to 17cm = 6.7 inches), cylindrical, stout (8-16 mm = 5/16-5/8 inch in diameter), and uniform in diameter throughout. Apertures are gaping and occur on small mounds. Color of dry colonies is light or dark brown; live colonies are yellowish brown.

Size.--Large colonies approach 3 feet (98 cm) in height and are half as broad.

Comparisons.--E. calyculata is distinguished from all other species of Eunicea by having stout branches and a colony not shaped like a candelabrum.

Geographical Range.--Bermuda, Bahamas, southern Florida to Curacao (Bayer, 1961).

Habitat and Depth Range.--3-32m (10-105 ft). Found in patch reef environments but more abundant inshore (Opresko, 1973).

Other Names.--Eunicea grandis Verrill, 1900; Eunicea crassa Hargitt and Rogers, 1901; Eunicopsis grandis Verrill, 1907; Eunicea sparsiflora Kunze, 1916.

References.--Bayer, 1961: 154-158, pl. 3, fig. 3, pl. 22, 23; Verrill, 1900: 570, pl. 69, fig. 3, 3a; Hargitt and Rogers, 1901: 283, pl. 2, fig. 1; Verrill, 1907: 313, pl. 33a, pl. 33b, fig. 1a, pl. 36a, fig. 3.



Figure 10: Warty Eunicea

Pseudoplexaura porosa (Houttuyn)

Porous False Plexaura

Recognition Features.--Colonies are very large, profusely and dichotomously branched. The basal trunk of a large specimen can be 4-5 cm (1.5-2.0 inches) across. End branches are very long, slightly tapered and round, with a diameter ranging from 2-7 mm (1/10-3/10 inch) but averaging 4 mm (3/16 inch). Tips of branches are soft and slimy. Apertures are round to elliptical, gaping, and separated from one another by less than their own diameter. Apertures are large (1-1.5 mm = 1/16 inch), flush with the surface, and arranged in a weak spiral along the branch. Because the apertures are so close-set the polyps, when fully expanded, overlap each other. Color when alive is light yellow, brownish or even reddish purple. When dried it becomes light brown or straw yellow.

Size.--A large colony measures 2.25 m (7.4 ft) in height.

Comparisons.--Readily distinguished from P. flagellosa and P. wagnaari by its large colony size and its large, close-set apertures.

Geographical Range.--Bermuda, southern Florida, West Indies south to Colombia and Curacao (Bayer, 1961).

Habitat and Depth Range.--Most common on the reef between 3-6 m (10-20 ft) but reported as deep as 283 m (930 ft) off Colombia (Bayer, 1961).

Other Names.--Pseudoplexaura crassa Verrill, 1907; Plexaurella dubrovskyi Stiasny, 1935; Plexaurella van der horsti Stiasny, 1935.

References.--Bayer, 1961: 109-111, pl. 1, fig. 1-2, pl. 18; Verrill, 1907: 263-265, fig. 150.

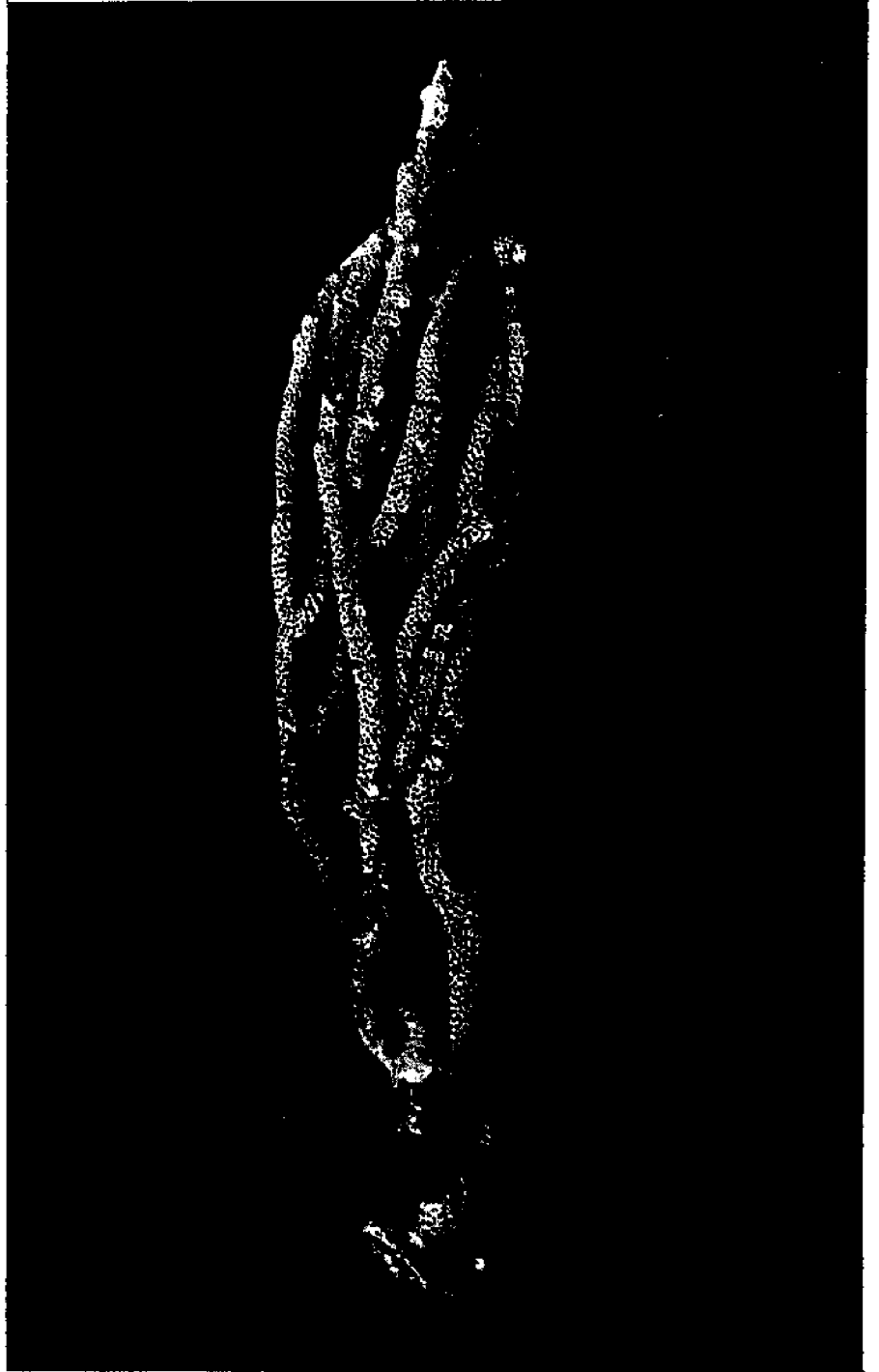


Figure II: Porous False Plexaura

Pseudoplexaura flagellosa (Houttuyn)

Flagellate False Plexaura

Recognition Features.--Colonies are large, branching dichotomously, more or less in one plane. End branches are long and slender, 2-3mm (1/15-1/8 inch) in diameter. When dried the apertures are pore-like, flush with the surface of the branch, and separated from one another by a distance equal to or greater than their own diameter. The apertures are small (0.5-1.0 mm = 1/32 inch in diameter), ellipsoid (elongated in the axis of the branch), and arranged in poorly-defined vertical rows on the branch. Live specimens are purple; when dried they are light yellowish brown or purplish brown.

Size.--This species can reach a height of 1 m (39 inches).

Geographical Range.--Bermuda, Florida Keys, West Indies as far as Curacao (Bayer, 1961).

Habitat and Depth Range.--3-30 m (10-98 ft). A reef dweller.

Other Names.--Plexaura esperi Verrill, 1907.

References.--Bayer, 1961: 112-114, pl. 18; Verrill, 1907: 305-306.

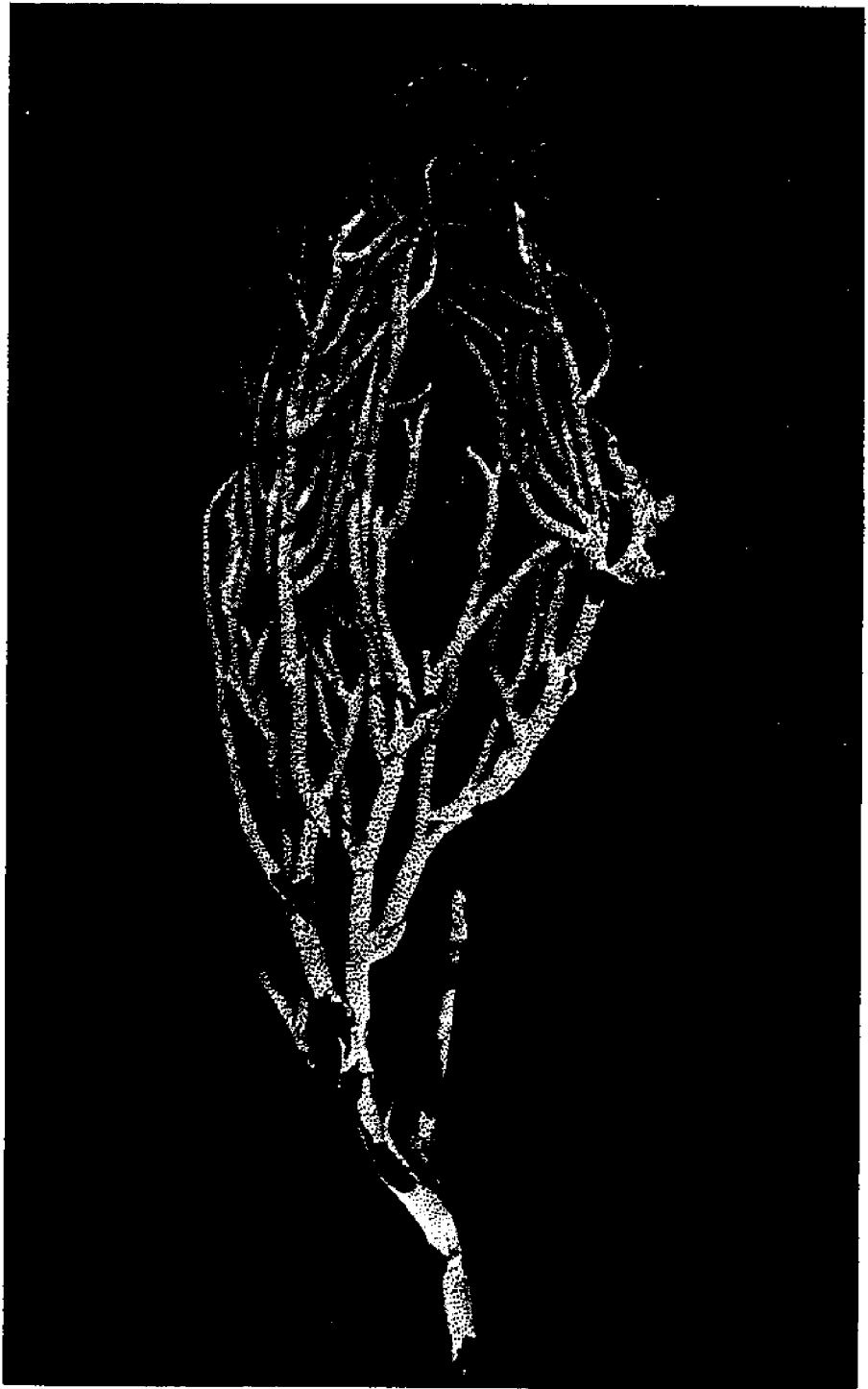


Figure 12: Flagellate False Plexaura

Pseudoplexaura wagnaari (Stiasny)

Wagnaar's False Plexaura

Recognition Features.--Colonies are small, sparsely and dichotomously branched with, at most, 18-20 branches in one colony. End branches are long and slender (3-4 mm = 1/8 inch in diameter), more or less tapered toward the end. Apertures are similar to those of P. flagellosa: pore-like, oval, 0.5-1.0 mm (1/32 inch) in diameter, and separated from one another by more than their own diameter. The lower rim of the apertures may be slightly raised as a lip. Color in life is rose, gray or light greenish gray, sometimes purple; when dry it is gray or brown.

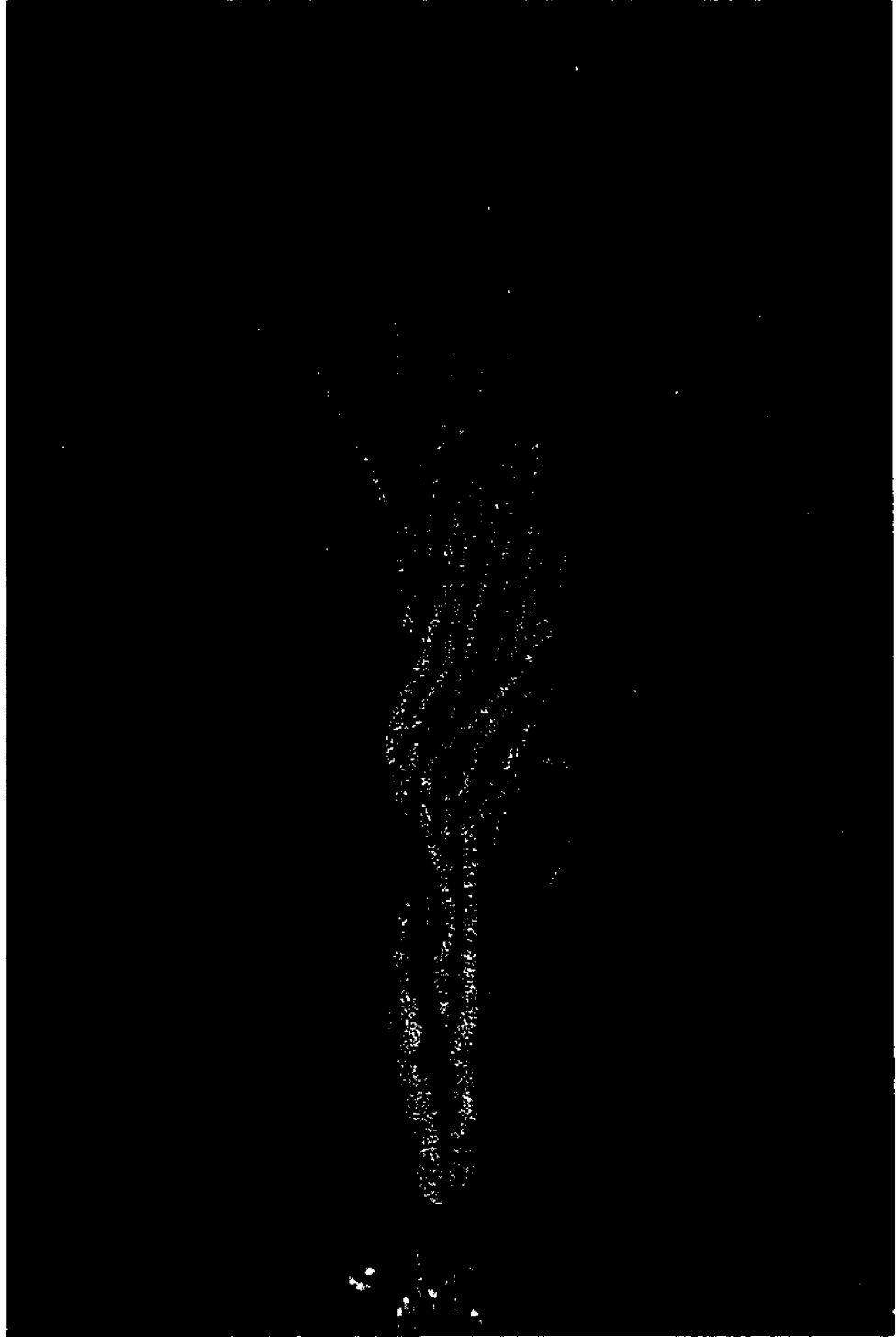
Size.--Less than 30 cm (10 inches) in height.

Comparisons.--This species can be distinguished from P. flagellosa by its smaller size, lesser number of branches, and different coloration when alive.

Geographical Range.--Bermuda, southern and western Florida as far as Anclote Keys, West Indies south to Venezuela (Bayer, 1961).

Habitat and Depth Range.--2-30 m (7-98 ft). Reported from sandy bottoms.

References.--Bayer, 1961: 114-115, pl. 1, fig. 3, pl. 19.



← Figure 13: Wagenaar's False Plexaura

Plexaurella dichotoma (Esper)

Double-forked Plexaurella

Recognition Features.--Colonies are dichotomously branched and bushy. End branches are rigid and blunt, sometimes club-shaped at their ends. Depending on the habitat, the branches may be short and crooked or long (15-25 cm = 6-10 inches) and straight. The end branches are 10-15 mm (3/8-3/5 inch) in diameter. Apertures (1-1.5 mm = 1/16 inch in diameter) are usually slightly raised but may also be flush with the surface. The apertures are narrow, slitlike openings in both living and dried specimens. Color when alive is yellowish brown, when dried a grayish yellow or straw color.

Size.--Large colonies measure 78 cm (31 inches) in height.

Geographical Range.--Bermuda, southern Florida, Antilles, Brazilian reefs (Bayer, 1961).

Habitat and Depth Range.--0-49 m (0-160 ft) (Kinzie, 1973). Common on the outer reef platform and patch reefs (Goldberg, 1973) and to a lesser extent inshore.

Other Names.--Plexaurella obesa Verrill, 1912; Plexaurella curvata Kunze, 1916.

References.--Bayer, 1961: 170-172, pl. 6, fig. 6-7, pl. 23-25; Verrill, 1907: 310-311, fig. 156, pl. 33b, fig. 1b; Hannau, 1974: 104 (larger specimen) (underwater color photograph).



Figure 14: Double-forked Plexaurella

Plexaurella grisea Kunze

Gray Plexaurella

Recognition Features.--Colonies are tall and dichotomously branched. End branches are long, straight, stiff, and 7-12 mm (1/4-1/2 inch) in diameter. Apertures are pore-like and ellipsoid with the long axis oriented along the branch. Apertures are not elevated. Branch surfaces are smooth. Colonies are grayish in color.

Size.--This species can reach 56 cm (22 inches) in height.

Comparisons.--P. grisea is distinguished from P. dichotoma by its smaller branches, elliptical apertures (not slitlike) and smooth branch surfaces.

Geographical Range.--Florida Keys, Antilles, Caribbean (Bayer, 1961).

Habitat and Depth.--9-33 m (29-108 ft). Primarily a patch reef species, occasionally found inshore (Opresko, 1973).

Reference.--Bayer, 1961: 75-177, pl. 6, fig. 4.

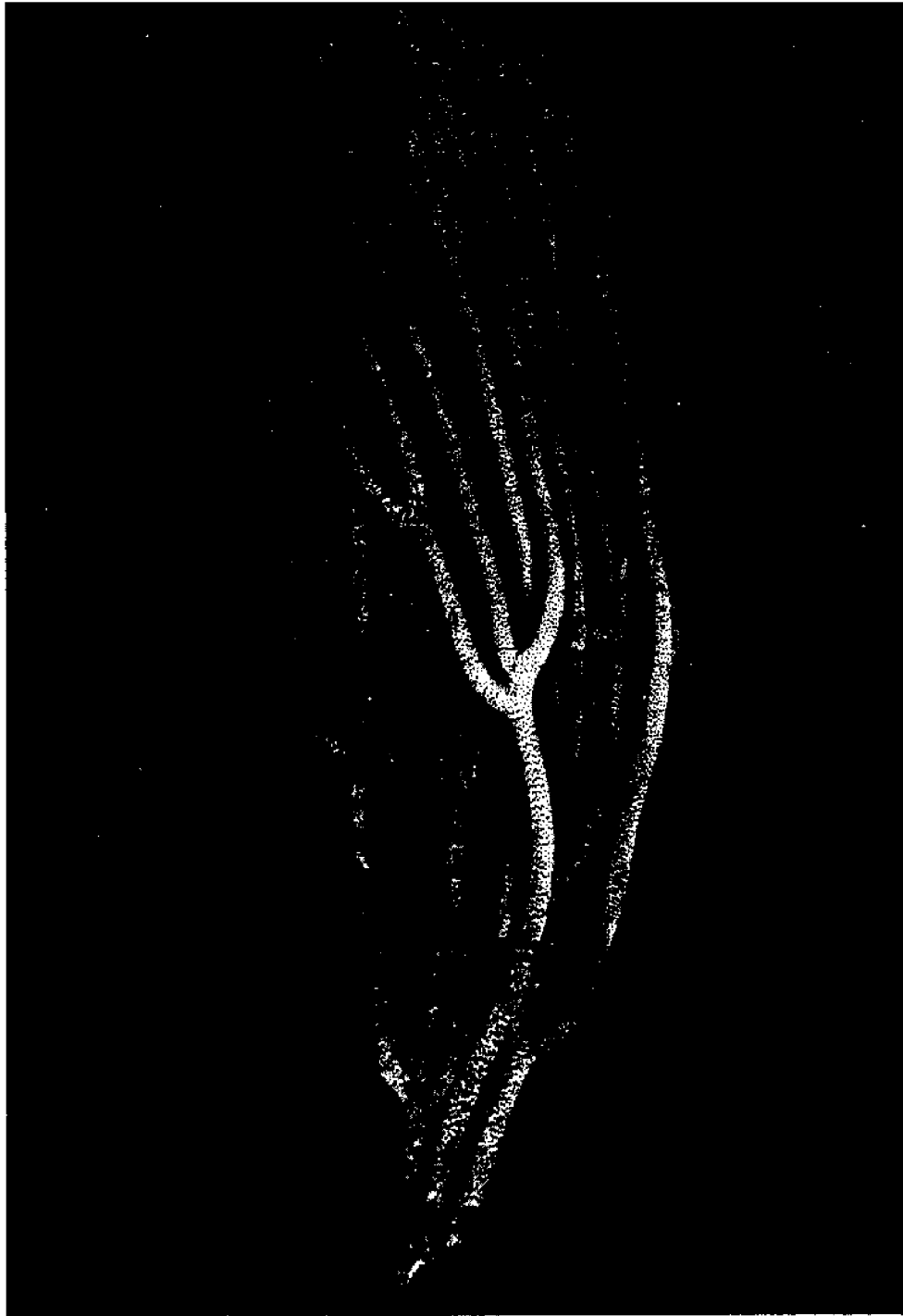


Figure 15: Gray Plexaurella

Plexaurella nutans (Duchassaing and Michelotti)

Nodding Plexaurella

Recognition Features.--Colonies are very tall and sparsely branched in a dichotomous fashion. End branches are thick (10-15mm = 3/8-3/5 inch in diameter) and can be very long (1 m = 3 ft). The ends of the branches are usually club shaped. Apertures are widely spaced and each is usually elevated on a small mound. The apertures are 2-2.5 mm (1/16-1/10 inch) in diameter and range from circular to slitlike in shape, depending on contraction when preserved. Color when dried is a putty gray or light brown.

Size.--This species may reach slightly over 1 m (39 inches) in height.

Comparisons.--P. nutans can be distinguished from P. dichotoma and P. grisea by the large size of the colony and its large, widely spaced apertures, which are always elevated.

Geographical Range.--Southern Florida, Gulf of Mexico, West Indies (Bayer, 1961).

Habitat and Depth Range.--10-50 m (33-164 ft) (Kinzie, 1973). Primarily a patch reef (clear water) species but is also found inshore (Opresko, 1973).

Other Names.--Plexaurella affinis Bell, 1889; Plexaurella kunzei Kukenthal, 1924.

Reference.--Bayer, 1961: 172-173, pl. 13, fig. 2a, b.

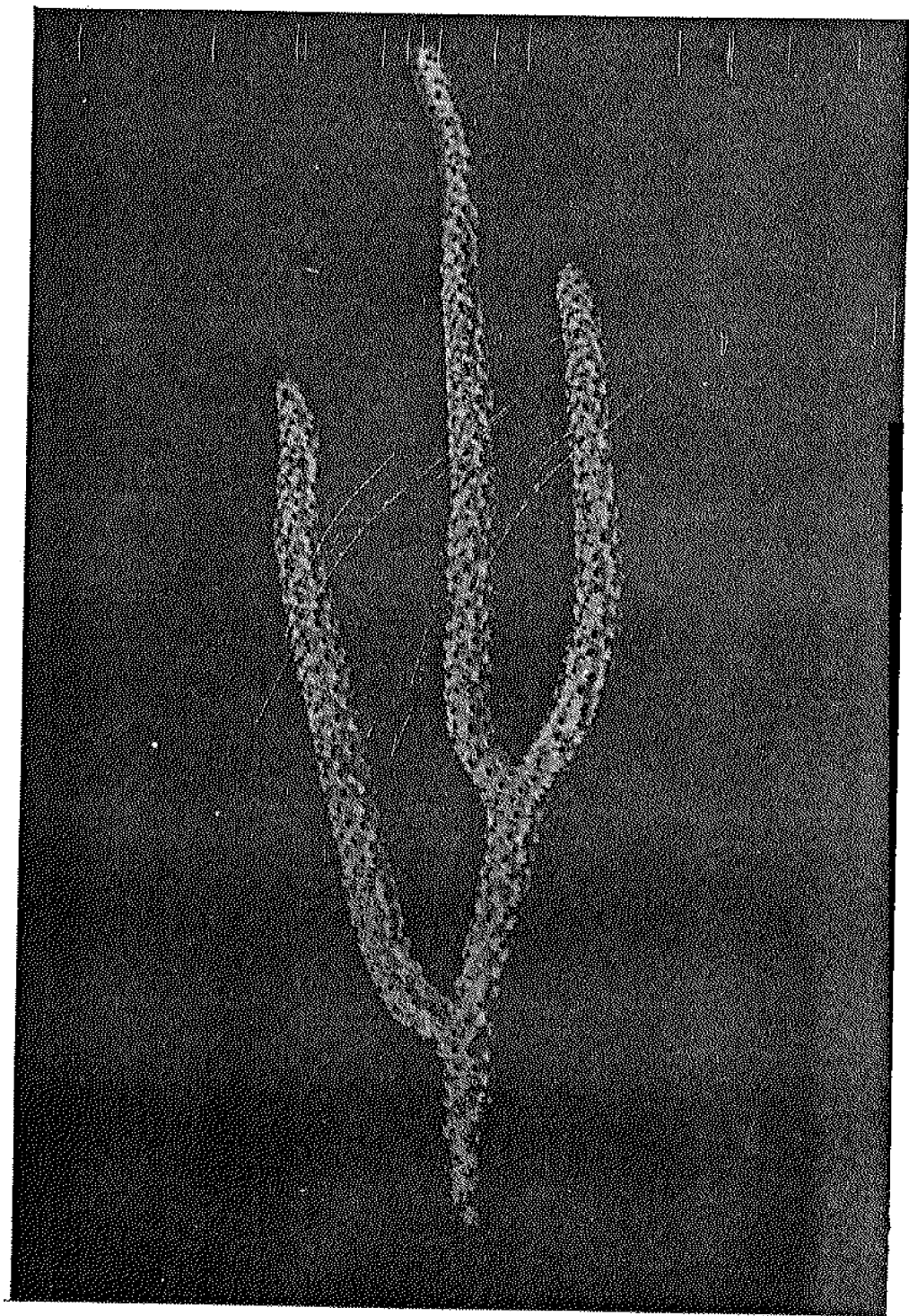


Figure 16: Nodding Plexaurella

Muricea muricata (Pallas)

Spiny Muricea

Recognition Features.--This species branches laterally in one plane, producing a broad, fan-shaped colony. End branches are short, slightly tapered, and flattened (6.0 by 4.5 mm = 1/4 by 3/16 inch in diameter). If a branch is dried and the outer tissue (rind) is peeled away, the inner hard axis will appear flattened, especially noticeable at points of branching. Each aperture is bordered by a very prominent, projecting lower lip, which gives the branch a very rough texture. When dried the colony is white.

Size.--Rarely exceeding 30 cm (1 ft) in height but very broad.

Comparisons.--This species is very similar to M. atlantica in outward appearance, although well differentiated by its microscopic spicules. In addition, M. atlantica does not have a conspicuously flattened axis at points of branching and it is found at Bermuda, as well as throughout the Antilles and the Bahamas.

Geographical Range.--Florida to Curacao (Bayer, 1961).

Habitat and Depth Range.--0-16 m (0-52 ft). Common on patch reefs and the outer reef platform (Goldberg, 1973).

Other Names.--Muricea spicifera, Deichman, 1936.

References.--Bayer, 1961: 182-184, pl. 5, fig. 5; Guitart, 1959: 14.



Figure 17: Spiny Muricea

Muricea elongata Lamouroux

Orange Muricea

Recognition Features.--Colonies are tall and bushy. The branching in the lower part of the colony is lateral but toward the top of the colony two branches often originate at the same level from a main branch (pinnately). End branches are long and measure 4-5 mm (3/16-1/5 inch) in diameter. The apertures are very closely set and bordered by a projecting, sharply pointed lower lip. When dried, the colonies are a distinctive orange-brown; they are yellowish when alive.

Size.--Colonies can grow to 46cm (18 inches) in height.

Comparisons.--See Muricea laxa.

Geographical Range.--West coast of Florida, Florida Keys, Dry Tortugas, Bahamas, Antilles (Bayer, 1961).

Habitat and Depth Range.--Reported from 3 m (10 ft) on a sandy bottom. It is commonly found inshore from Miami southward.

Reference.--Bayer, 1961: 189-191, pl. 5, fig. 1.

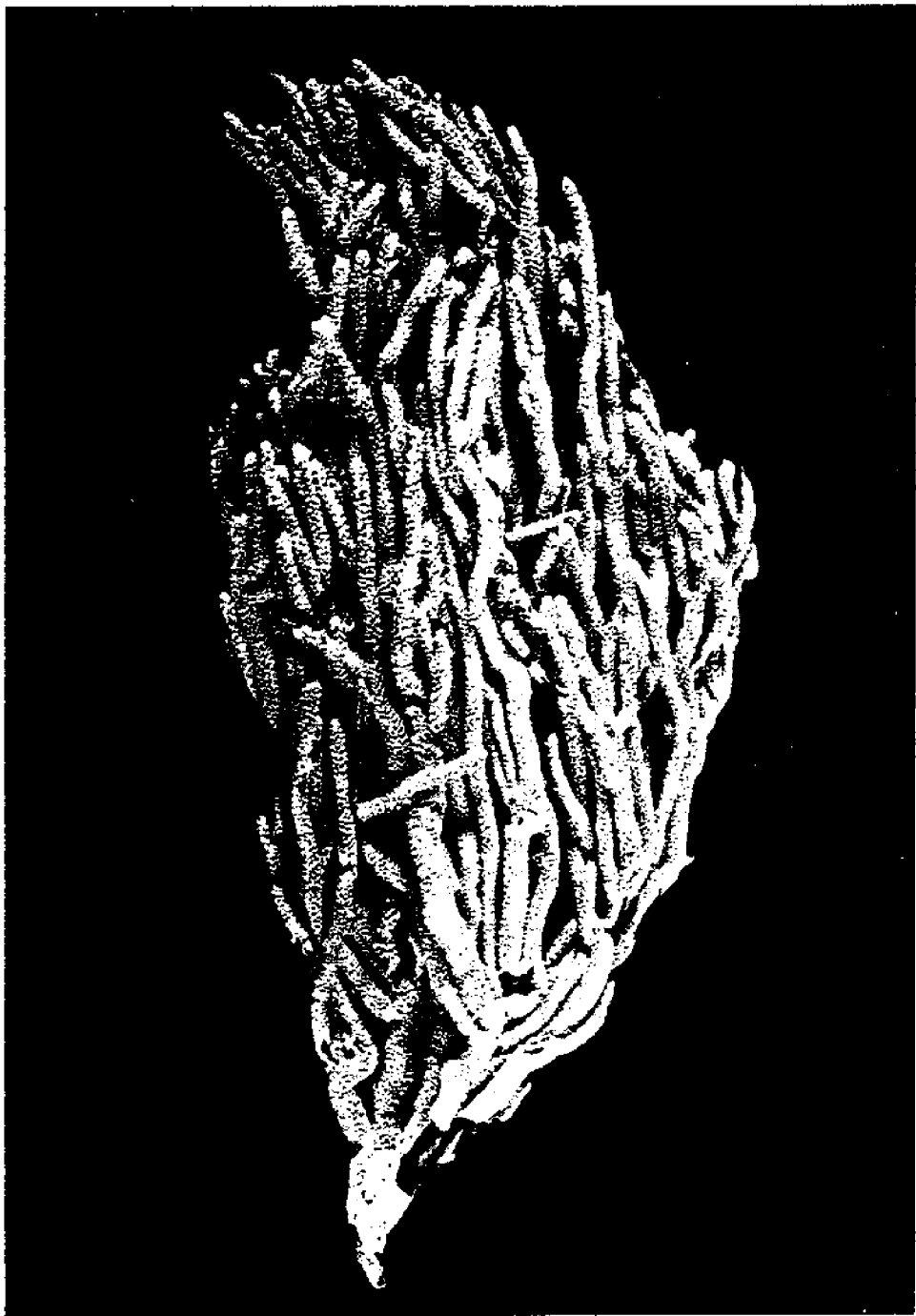


Figure 18: Orange Muricea

Muricea laxa Verrill

Delicate Muricea

Recognition Features.--Colonies small, laterally branched, and bushy. End branches long, flexible, and slender (2-3 mm = 1/16-1/8 inch in diameter). Apertures are bordered by highly projecting, pointed lower lips, which are directed upward. Color when alive is grayish, bluish white, or yellowish; when dried it becomes white.

Size.--Mature colonies are 25-30 cm (10-12 inches) in height.

Comparisons.--Differentiated from Muricea muricata by its bushy colonial form and greater depth range. Often confused with Muricea elongata, another bushy form, but differentiated by thinner branches, less crowded apertures, and a more projecting lip, as well as a greater depth range. All three species of Muricea have similar pointed, projecting lower lips.

Geographical Range.--West coast of Florida, Florida Keys, Dry Tortugas, Bahamas, Antilles (Bayer, 1961).

Habitat and Depth Range.--18-128 m (59-420 ft). This species would not be encountered unless using SCUBA.

References.--Bayer, 1961: 188-189, pl. 5, fig. 2; Deichman, 1936: 101, pl. 28, fig. 1, la.

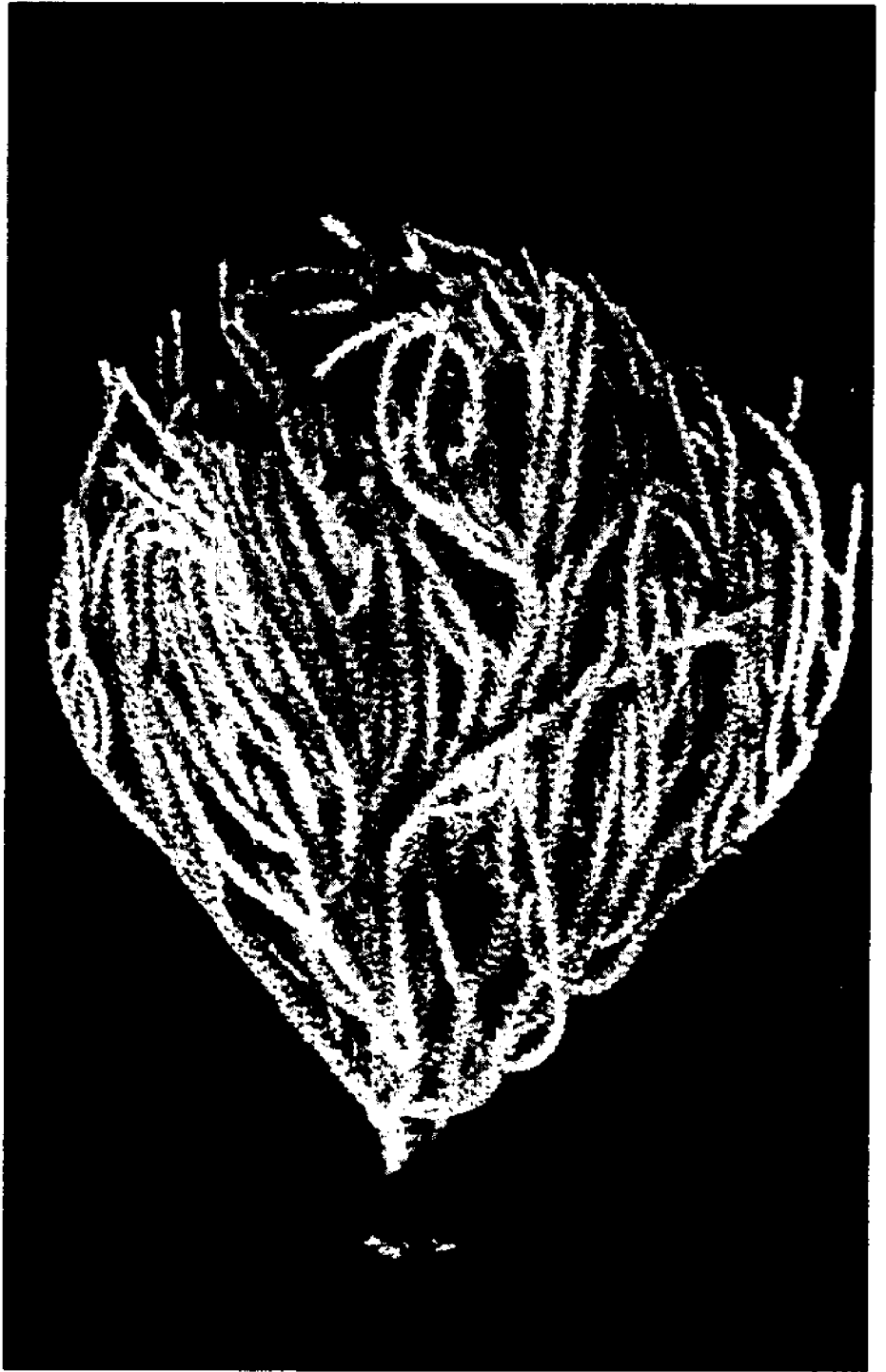


Figure 19: Delicate Muricea

Muriceopsis flavida (Lamarck)

Lamarck's Muriceopsis, Rough Sea Plume

Recognition Features.--Colonies are tall and plume like. Several long main branches give rise to numerous shorter branchlets 5-8 cm (2-3 inches) in length (pinnate branching). The branchlets are slender (2.5 mm = 1/10 inch), originating from all sides of the main branch. Often secondary branches develop new plumes from the main branch. Very small (less than 1 mm = 1/32 inch), closely-set apertures occur on all sides of the main branches and branchlets. When dried, they are often raised as low warts with small, elongate pores on top. There is regional variation in coloration: specimens from the Caribbean are dull brown or buff-white while those from other parts of the West Indies are purple tinged with yellow. The dried colony remains purple.

Size.--A large colony measures 74 cm (29 inches) in height.

Comparisons.--Superficially, Muriceopsis flavida resembles species of Pseudopterogorgia in its pinnate branching but can be differentiated by its three-dimensional branching and apertures on all surfaces of the branches.

Geographical Range.--Common in southern Florida and throughout the West Indies.

Habitat and Depth Range.--0-33 m (0-108 ft). It is primarily a patch reef (clear water) species (Opresko, 1973).

Other Names.--Muricea flexuosa Hargitt and Rogers, 1901; Plexaura flavida Verrill, 1907; Plexauropsis puertorealis Stiasny, 1941.

References.--Bayer, 1961: 163-165, pl. 4, fig. 1; Deichman and Bayer, 1959: 8-10, pl. 3; Verrill, 1907: 261, fig. 148; Guitart, 1959: 5.



Figure 20: Lamarck's Muriceopsis

Pterogorgia anceps (Pallas)

Angular Sea Whip

Recognition Features.--Tall colonies with lateral branching. End branches are long, slightly tapered, and about 5 mm (1/5 inch) in diameter. A branches are characteristically three or four-flanged (ridged) with a row of very small apertures at the top of the ridges. The ends of the branches are usually three-flanged (Y-shaped) in cross-section or simply flattened. At the base, the ridges are highly convoluted and numerous with occasional short isolated ridges oriented in all directions. The color of the living colony is brownish purple, olive green, or gray, and the edges of the flanges are purple. Retains color when dried.

Size.--A tall colony measures 55 cm (22 inches) in height.

Geographical Range.--Southern Florida to Curacao (Bayer, 1961).

Habitat and Depth Range.--7-15 m (23-49 ft) (Kinzie, 1973). Primarily inshore species common in Biscayne Bay (Opresko, 1973).

Other Names.--Xiphogorgia anceps, Deichman, 1936 and Guitart, 1959.

References.--Bayer, 1961: 275-277, pl. 9, fig. 4, pl. 26; Bayer, 1951: 9; Guitart, 1959: 17.



Pterogorgia citrina (Esper)

Yellow Sea Whip

Recognition Features.--Small, shrubby colonies with lateral branching. End branches are stiff, slender, and strongly flattened (1.5 by 2.5 mm = 1/16 by 1/10 inch), almost rectangular. Slitlike apertures are arranged in rows only along the thin edge of the branch. The color of a live specimen is bright or light yellow, the branches have purple edges. However, sometimes the colony may be completely purple or completely yellow. Colors remain in a dried specimen.

Size.--An average-size colony is 17 cm (7 inches) in height although it has been reported as tall as 46 cm (18 inches) (Opresko, 1973).

Geographical Range.--Bermuda, southern Florida, Florida Keys to Curacao (Bayer, 1961).

Habitat and Depth Range.--1-10 m (3-33 ft). Primarily an inshore species, very common at Soldier Key and in Biscayne Bay (Opresko, 1973).

Other Names.--Xiphogorgia citrina Verrill, 1864; Gorgonia citrina, Verrill, 1907.

References.--Bayer, 1961: 275, pl. 9, fig. 5; Verrill, 1907: 300-301, fig. 143; Guitart, 1959: 16.



Figure 22: Yellow Sea Whip

Pseudopterogorgia acerosa (Pallas)

Purple Sea Plume, Dry Sea Plume

Recognition Features.--Colonies are tall, branching pinnately from one or more main branches, which are very strong and elastic. Deichman (1936) compared the shape of this plumose colony to a "gigantic ostrich feather." Branchlets are long (11.0 cm = 4 inches not unusual), flexible, slightly tapered, and flattened (2 by 1 mm = 1/16 inch). The branchlets occur on opposite sides of a main branch but usually not at the same level. The apertures are very small; when dried they appear as tiny pores in a staggered arrangement on the narrow edge of the branches. Color of the live colony is light purple, purple-red or light yellow. These colors fade upon drying or may become white.

Size.--Very tall; colonies sometimes measure 1.8 m (6 ft in height).

Geographical Range.--0.5-33 m (1-108 ft). Primarily an inshore species (Opresko, 1973).

Other Names.--Pterogorgia acerosa; Pterogorgia ellisiana Deichman, 1936.

References.--Bayer, 1961: 240-242, pl. 9, fig. 3; Verrill, 1907: 254-256, pl. 33c, fig. 1; Hargitt and Rogers, 1901: 287, pl. 3, fig. 2; Hannau, 1974: 34, 74 (underwater color photographs); Kinzie, 1973: fig. 24; Guitart, 1959: 19-20; Deichman, 1936: 198.



Figure 23: Purple Sea Plume

Pseudopterogorgia americana (Gmelin)

Slimy Sea Plume

Recognition Features.--Large colonies are composed of numerous main branches with smaller branchlets arranged pinnately. Branchlets are long, slightly flattened, tapered, and measure 1.5-2.5 mm (1/16-1/10 inch) in diameter. When alive, this species can be identified by its great production of mucus, which causes the branches to feel slimy. When dried, the mucus usually causes the branches to stick together. Apertures are small and oval, arranged in 2-3 rows on each of the narrow edges of the branches. Color when alive is pale yellow or light purple.

Size.--A large colony measures 1 m (39 inches) in height.

Comparisons.--P. americana can be distinguished from P. acerosa by its slimy texture, wider colony, and the presence of 2-3 rows of larger apertures on the branch edges.

Geographical Range.--Bermuda, Florida Keys, Bahamas, Antilles (Bayer, 1961)

Habitat and Depth Range.--0-45 m (0-147 ft). Common along the shallow seaward shore and outer reefs of the Florida Keys. Equally common in patch reef (clear water) and inshore areas (Opresko, 1973).

Other Names.--Pterogorgia americana Verrill, 1864; Gorgonia americana Verrill, 1907.

References.--Bayer, 1961: 242-244, pl. 8, fig. 6, pl. 9, fig. 2, pl. 19; Verrill, 1907: 256.



Figure 24: Slimy Sea Plume

Pseudopterogorgia bipinnata (Verrill)

Bipinnate Sea Feather

Recognition Features.--Colonies are of moderate size and very broad, usually spreading in one plane. Branching is pinnate with long regularly spaced secondary branches. Both primary and secondary branches bear short (25-40 mm = 10-16 inches), stiff branchlets about 1-1.5 mm (1/16 inch) in diameter. At uniformly spaced intervals of 4-10 mm (3/16-3/8 inch), pairs of branchlets occur opposite each other at almost a right angle from the secondary and main branches. The apertures are quite small and slitlike, arranged in a single or staggered double row on each side of the branches. Color when alive is violet or bright yellow; the dried colony remains pale violet.

Size.--The largest specimen reported is 57 cm (22 inches) in height and almost as broad.

Comparisons.--This species can be distinguished from the other pinnately branched species by its short branchlets and very wide angle of branching.

Geographical Range.--Bahamas, Florida Keys, Antilles, Caribbean Islands, northern coast of South America (Bayer, 1961).

Habitat and Depth Range.--14-55 m (46-180 ft). Abundant (3-4 colonies/m²) at Red Reef; primarily a patch reef (clear water) species (Opresko, 1973).

Spawning.--Kinzie (1971) observed numerous specimens releasing larvae in late January and early February of three successive years.

Other Names.--Pterogorgia bipinnata Verrill, 1864 and Deichman, 1936; Pterogorgia antillarum Bielschowsky, 1918.

References.--Bayer, 1961: 229-235, pl. 8, fig. 3, pl. 11, fig. 1; Deichman, 1936: 195; Hannau, 1974: 33(center), 103 (underwater color photographs); Guitar, 1959: 18.



Figure 25: Bipinnate Sea Feather

Gorgonia flabellum Linnaeus

Bahamian Sea Fan, Venus Fan

Recognition Features.--Colonies are fan-shaped; the branches are interconnected, forming a reticulate network, and are strongly compressed at right angles to the plane of the fan. The species occurs in two forms: form flabellum does not have short, free branchlets springing from its flat side whereas form occatoria does. This condition is probably the result of current patterns. Color alive or dried is yellow, grayish white, or lavender.

Size.--Larger colonies measure 1 m (39 inches) in height and can be almost as broad.

Comparisons.--This species is very similar to C. ventalina but differs in one important character: the branches are compressed perpendicularly to the plane of the fan, not in the plane of the fan.

Geographical Range.--Very abundant in the Bahamas, rare off Florida and throughout Antilles (Bayer, 1961).

Habitat and Depth Range.--0-30 m (0-98 ft). Occurs along with G. ventalina on patch reefs and along the outer reef. Kinzie (1973) reports that it is exposed at low tide at Jamaica.

References.--Bayer, 1961: 259-261, pl. 10, fig. 2; Hargitt and Rogers, 1961: 287, pl. 3, fig. 3; Bayer, 1951: 93, fig. 1; Guitart, 1959: 15; Hannau, 1974: 1 (underwater color photograph); Greenberg, 1972: 29 (underwater color photograph).

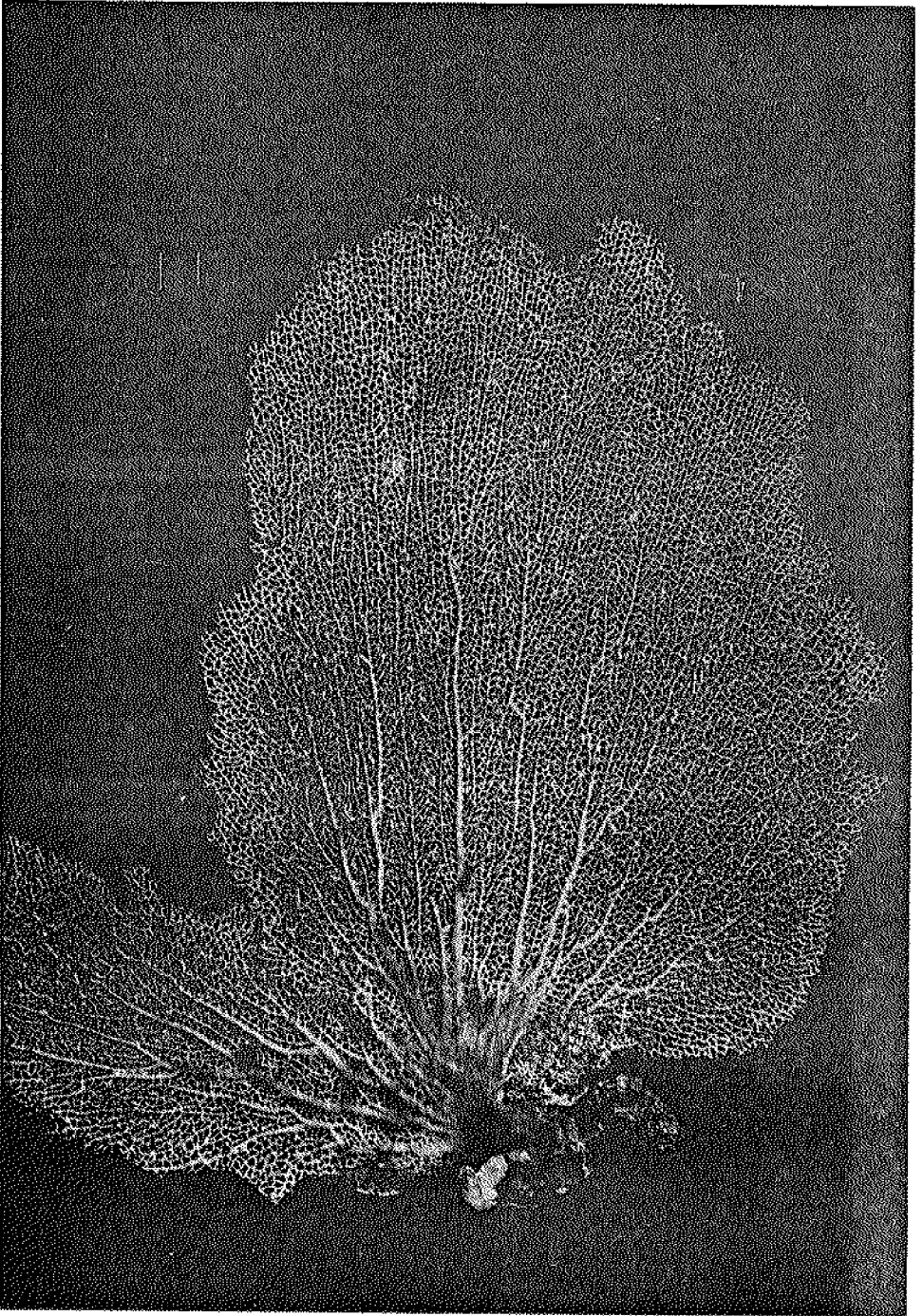


Figure 26: Bahamian Sea Fan

Gorgonia ventalina Linnaeus

Common Sea Fan

Recognition Features.--Colonies are large, in a single plane, and fan shaped easily recognized as "sea fans." The outline of the colony is an interconnected network of thin branches which enclose irregular, triangular or rectangular spaces (reticulate pattern). The branches are round or slightly compressed in the plane of the fan. The apertures are very small pores located in two rows along the edges of the branches. Alive it is purple yellow, or brownish in color, usually retaining this color when dried.

Size.--This species can form very large fans 1.5-1.8m (5-6 ft) high and 1.2-1.5 m (4-5 ft) broad.

Comparisons.--A third species in this genus, G. mariae Bayer, is quite variable and resembles G. ventalina in that its branches are round or flattened in the plane of the fan. However, it has a tendency to form pinnate branches, which only sometimes unite laterally to form a fan. Also, the meshes formed by the branchlets are larger.

Geographical Range.--Very widespread from Bermuda south to Curacao (Bayer, 1961).

Habitat and Depth Range.--0-30 m (0-98 ft). Restricted to the outer reef and patch reefs (Bayer, 1961).

Economic Importance.--Both G. ventalina and G. flabellum are sold as souvenirs in shell and coral shops in the Florida Keys and eastern Florida coast for .50 to \$1 apiece.

Other Names.--Gorgonia flabellum Verrill, 1907.

References.--Bayer, 1961: 262-265, pl. 10, fig. 1, pl. 27; Verrill, 1907: 253-254, fig. 142; Hannau, 1974: 104 (underwater color photograph); Greenberg, 1974: 30 (underwater color photographs); Kinzie, 1973: fig. 34 (underwater photograph).

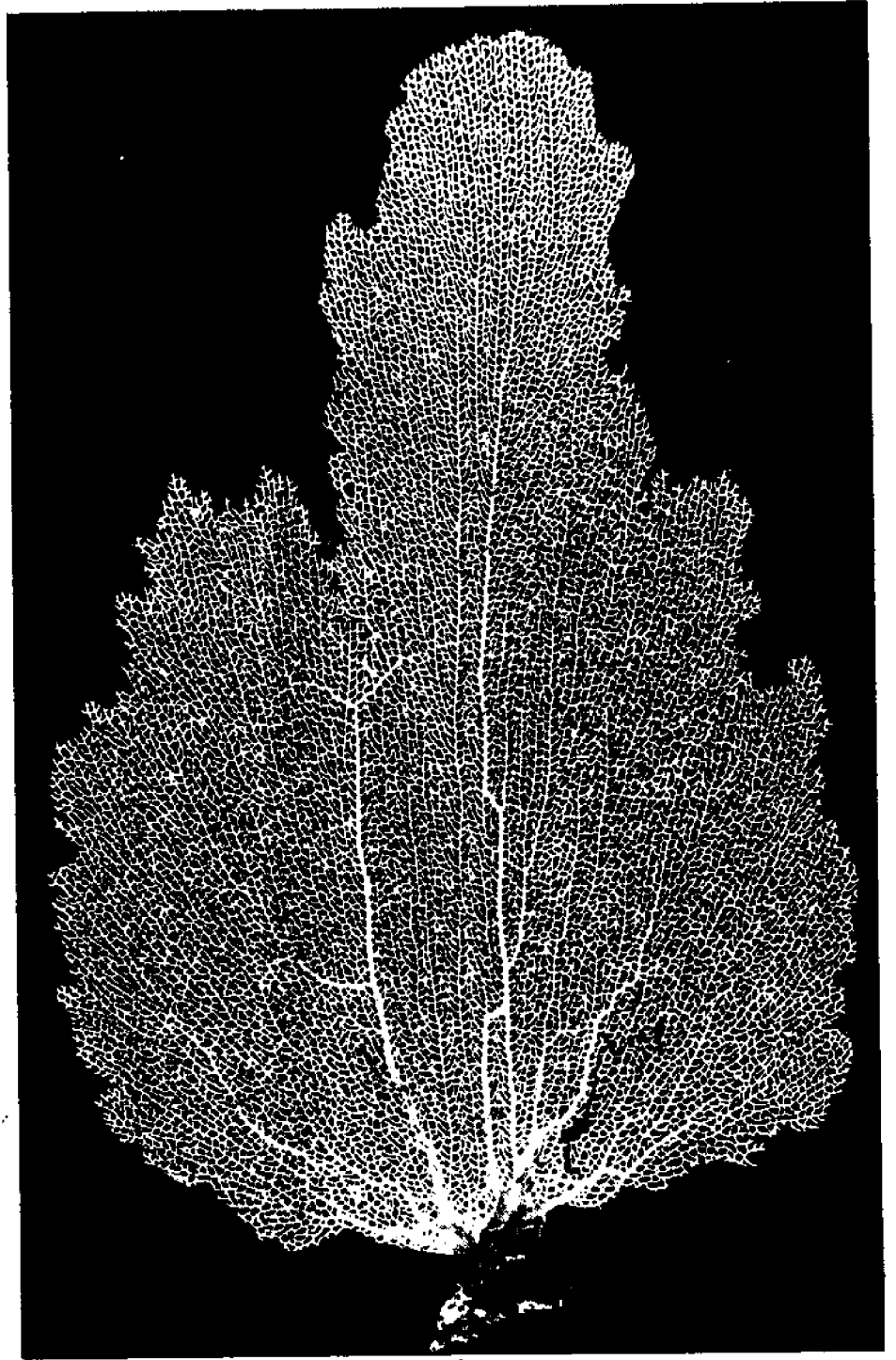


Figure 27: Common Sea Fan

Selected Bibliography

- Arehart-Treichel, Joan
1975. Where are all those prostaglandin drugs? *Science News* 108: 188-190.
- Bayer, Frederick M.
1951. A revision of the nomenclature of the Gorgoniidae (Coelenterata: Octocorallia), with an illustrated key to the genera. *J. Wash. Acad. Sci.* 41: 91-102, 14 figs.
1956. Octocorallia. In: Moore, Raymond C. (ed.) *Treatise on Invertebrate Paleontology*, Part F, Coelenterata, pp. 166-231, figs. 134-162. Geol. Soc. America and University of Kansas Press.
1959. Octocorals from Surinam and the adjacent coasts of South America. *Studies on the fauna of Surinam and other Guyanas* 3: 1-43, figs. 1-21.
1961. The shallow water Octocorallia of the West Indian Region. *Stud. Fauna Curacao* 12: 373 pp., 101 figs., 28 pls.
1974. *Plexaura homomalla*: brief historical background. In: Bayer, Frederick M. and Alfred J. Weinheimer (eds.) *Prostaglandins from Plexaura homomalla: Ecology, Utilization and Conservation of a Major Medical Marine Resource: A Symposium*. *Studies in Tropical Oceanography No. 12*: 1-8.
- Bayer, Frederick M. and Elisabeth Deichman
1958. Two new plexaurid gorgonians from the Bahama Islands. *Bull. Mar. Sci. Gulf & Carib.* 8: 224-235, 5 figs.
- Cary, Lewis R.
1914. Observations upon the growth-rate and oecology of gorgonians. *Carnegie Inst. Wash. Pub.* 182: 79-90, pls. 1-2.
- Deichman, Elisabeth
1936. The Alcyonaria of the western part of the Atlantic Ocean. *Mem. Mus. Comp. Zool.* 53: 1-317, pl. 1-37.
- Deichman, Elisabeth and Frederick M. Bayer
1959. The lemon-colored plexaurids from the West Indies and Brazil. *Breviora Mus. Comp. Zool.* 115: 1-12, pls. 1-5.

- Goldberg, Walter M.
1973. The ecology of the coral-cotocoral communities off the southeast Florida coast: geomorphology, species composition, and zonation. *Bull. Mar. Sci.* 23(3): 465-488, 7 figs.
- Goldberg, Walter M. and Ramon D. Hamilton
1974. The sexual cycle in Plexaura homomalla. In: Bayer, Frederick M. and Alfred J. Weinheimer (eds.) Prostaglandins from Plexaura homomalla: Ecology, Utilization and Conservation of a Major Marine Resource: A Symposium. Studies in Tropical Oceanography No. 12: 58-61.
- Gonzalez-Brito, P.
1970. Una lista de los Octocorales de Puerto Rico. *Caribb. J. Sci.* 10(1-2): 63-69.
- Gordon, Isabella
1925. Gorgonids from Curacao Island. *Bijdragen tot der Dierkunde* 24: 15-24.
- Greenberg, Jerry and Ida
1972. The living reef. Miami, Florida: Seahawk Press.
- Guitart-Manday, Dario
1959. Gorgonias del litoral de la costa norte de Cuba. *Acuario Nacional Sibarimar Centro Experimental*. No. 1: 24 pp.
- Hannau, Hans W.
1974. In the coral reefs of the Caribbean, Bahamas, Florida, Bermuda. Garden City, New Jersey: Doubleday.
- Hargitt, Charles W. and Charles G. Rogers
1901. The Alcyonaria of Puerto Rico. *Bull. U. S. Fish Comm.* 20(2): 265-287, figs. A-K, 4 pls.
- Kinzie, Robert A.
1970. The ecology of the gorgonians (Cnidaria, Octocorallia) of Discovery Bay, Jamaica. Ph.D. Dissertation, Yale University, 107 pp.
1973. The zonation of West Indian gorgonians. *Bull. Mar. Sci.* 23(1): 93-155, 34 figs.
1974. Plexaura homomalla: the biology and ecology of a harvestable marine resource. In: Bayer, F. M. and A. J. Weinheimer (eds.). Prostaglandins from Plexaura homomalla: Ecology, Utilization and Conservation of a Major Medical Marine Resource: A Symposium. Studies in Tropical Oceanography No. 12: 22-38.
- Lewis, John B.
1960. The coral reefs and coral communities of Barbados. *Can. J. Zool.* 38: 1133-1145, 15 figs.

Opresko, Dennis M.

1973. Abundance and distribution of shallow-water gorgonians in the area in Miami, Florida. *Bull. Mar. Sci.* 23(3): 535-558.

Verrill, Addison E.

1864. List of the polyps and corals sent by the Museum of Comparative Zoology to other institutions in exchange, with annotations. *Bull. Mus. Comp. Zool.* 1(3): 29-60.

1900. Additions to the Anthozoa and Hydrozoa of the Bermudas. *Trans. Conn. Acad. Arts Sci.* 10: 551-572.

1907. The Bermuda Islands. Part 5. Characteristic life of the Bermuda coral reefs. *Trans. Conn. Acad. Arts Sci.* 12: 204-348, 413-418, pls. 28-40.

1912. The gorgonians of the Brazilian coast. *J. Acad. Nat. Sci. Philadelphia* (2) 15: 373-404, pls. 39-35.