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**STONY CORALS (COELENTERATA : SCLERACTINIA) FROM
THE WEST COAST OF THAILAND**

by

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STONY CORALS (COELENTERATA: SCLERACTINIA) FROM THE WEST COAST OF THAILAND

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ABSTRACT

One hundred eighty three species of Scleractinia (two of them not identified) belonging to 65 genera (with 75 subgenera) in 17 families were found along the west coast of Thailand.

Their distribution within this area is discussed. Results shows that the coral diversity is high on this eastern Indian Ocean fringe.

The literature on coral diversity in the central part of the Indo-Pacific is discussed, and it is concluded that within this area there is a continuous distribution of coral genera, with the exception of 3 genera, which are found only west of the Bay of Bengal and 9 genera found only on the east side of this bay.

I. INTRODUCTION

The Scleractinia along the west coast of Thailand have not previously been investigated. Pillai and Scheer (1974) described a collection of 38 species from 20 genera belonging to 12 families from the Malaysian part of the Malacca Strait, and summarized earlier literature on corals from the eastern part of the Indian Ocean. Scheer and Pillai (1974) gave an extensive account of a large collection from the Nicobar Islands containing 110 species from 45 genera in 14 families. Rosen (1971) presented a list of 43 genera from Burmese Waters (Mergui Archipelago) possibly based on data presented by Duncan (1889), Bernard (1900) and Matthai (1924).

The present investigation was carried out along the 500 kilometer long west coast of Thailand. Collections were made from islands in the Andaman Sea and from the Malacca Strait. Localities in the former region included Koh (= island) Surin and Koh Similan, (two groups of oceanic islands in the southernmost part of the Mergui Archipelago), and in the latter region, the continental islands of Phuket, the string of smaller islands between this island and the Thai-Malaysian border, and a few collections from rocky points on the continent itself. The only major group of islands not investigated was the Koh Adang group near the Thai-Malaysian border.

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A list of species with references to the literature used for identification and short ecological notes on locality types and depth is given. Comparisons are made between corals collected on the west coast of Thailand and those collected elsewhere in the Indo-Pacific. The literature on coral diversity in the central Indo-Pacific is reviewed and discussed briefly.

II. MATERIAL AND METHODS

Corals were collected by the author during 100 hours scuba diving and more than 200 hours skin diving from October 1974 to August 1976. Minor unpublished collections, made by Dan Carlsson, R. Tansakul, S. Visutharon and Bob Wooster have been included in the author's material.

All species collected have been registered, with data on locality, depth and color, in the reference collection at Phuket Marine Biological Center. Black and white photographs have been made of all species to facilitate identification. These photographs have, like the collection, been catalogued in accordance with Wells (1956), but amendments by authors since 1956 have been taken into account as far as possible from available literature. A duplicate collection of corals will be deposited at the Institute of Palaeoecology, University of Aarhus, Denmark.

The material has been identified by the author. Identification of some species have, however, been confirmed by experts; the family Faviidae by Dr. Maya Wijsman-Best of the Museum van Natuurlijke Historie, Leiden, Netherlands, and those belonging to other families by Dr. Georg Scheer of the Hessian State Museum, Darmstadt, Federal Republic of Germany. These species have been marked by an asterisk in the text.

III. LOCALITY DESCRIPTION

The localities have been divided according to the following scheme.

Oceanic	}	Protected: Reef flat, Slope, Sandy fore reef.
		Open: Submarine terrace, Slope, Sandy fore reef.
Continental	}	Protected: Reef flat, Slope, Sandy fore reef.
		Open: Crest, Slope, Sandy fore reef.

Oceanic localities, Koh Surin and Koh Similan, lying more than 60 kilometer off the continental shores in the Andaman Sea are characterized by clear blue water with low primary productivity.

Continental localities, Koh Phuket, the near shore islands from here to the Thai-Malaysian border in the Malacca Strait and the point on the continent, are characterized by brown water with fluctuating turbidity and salinity. Primary production is high due to outlet of organic and inorganic nutrients from mangroves and shallow muddy bays, which cover the larger part of the shores on the continent itself.

A description of each locality type follows here :

PROTECTED OCEANIC LOCALITIES

These protected oceanic reefs develop in bays on the eastern sides of the off shore islands, sheltered from the strong Southwest Monsoon which blows between May and December.

The protected oceanic reef flats develop as a more or less open micro atoll zone situated on sandy substrate. On the seaward side, the micro atoll zone is broken up by lagoons or a network of channels with corals on their slopes, but no coral growth occurs on the fine sandy bottom between the slopes.

The seaward slope is divided into upper and lower parts because of a drastic change in growth forms and species composition of the corals found here.

Protected oceanic sandy fore reefs are poorly developed due to the fine grain size of the bottom material.

OPEN OCEANIC LOCALITIES

Usually, reef flats have not developed on the western sides or around the points on the eastern sides of the oceanic islands which were investigated. Only in bays on the western sides of these islands (somewhat protected by smaller islets) are there submarine terraces of mainly dead coral with scattered pinnacles of living corals.

The open oceanic slope follows the contour of the granitic rock and huge boulders. The coral growth consists of heads and incrusting plates usually less than 50 centimeters in size.

The sandy fore reef has its highest species diversity on the open oceanic locality, especially where the current is stronger.

PROTECTED CONTINENTAL LOCALITIES

At protected continental localities, continuous solid reef flats up to 500 meters wide have formed on the eastern sides of the islands and in protected bays on the western sides. Huge honeycombs have formed at less protected places.

The slopes are usually slight and end in sandy fore reefs with few non-attached coral species.

OPEN CONTINENTAL LOCALITIES

At open continental localities proper reef flats

do not develop. On the eastern sides of the islands reef crests have formed outside sandy lagoons. Seaward, the crests are followed by submarine terraces ending in sandy fore reefs, with only a few species.

On the western sides the slopes follow the contour of the rock. The sandy fore reefs which have developed here bear great resemblance to the open oceanic fore reefs, but their species composition is more or less impoverished.

A list of species collected from the above described localities follows. Ecological notes on depth and locality types on which a species has been found, are given for all species collected, together with references used for identification.

It should be noted that omission of the words continental and oceanic indicates that the coral species have been found at both locality types. This is also the case for all other above-mentioned subdivisions. The depth given for each species refers to the depth below the lowest low water level. Corals found within the tidal zone are indicated by the depth zero meters.

IV. RESULTS

Order SCLERACTINIA

Family ASTEROCOENIIDAE

Stylocoeniella armata (Ehrenberg).

Ref: Yabe, Sug. & Eg., 1936 : 16, pl. 11 figs. 1-3;
Wells, 1956 : 370, figs. 262, 7a, b.
Slopes, 0-30 m.

Family THAMNASTERIIDAE

**Psammocora contigua* (Esper).

Ref: Crossland, 1952 : 165, pl. 15 figs. 4 & 5, pl. 17, fig. 3.
Outer reef flats and upper slopes of protected localities, 0-4 m.

**Psammocora exesa* Dana.

Ref: Crossland, 1952 : 165, pl. 16 figs. 2 & 3, pl. 17 fig. 4.
Scattered on continental reefs, 0-10 m.

Psammocora profundacella Gardiner.

Ref: Yabe, Sug. & Eg., 1936 : 60, pl. 45 figs. 1, 4, 5, 7 & 8.

Slopes and sandy fore reefs, 1-15 m.

Family POCILLOPORIDAE

**Stylophora mordax* Dana.

Ref: Vaughan & Wells, 1943 : 105, pl. 6 figs. 1 & 1a.

Oceanic slopes 2-20 m.

**Seriatopora angulata* Klunzinger.

Ref: Yabe, Sug. & Eg., 1936 : 11, pl. 2 figs. 1 & 2.
Oceanic slopes, 1-10 m.

Seriatopora caliendrum Ehrenberg.

Ref: Yabe, Sug. & Eg., 1936 : 11, pl. 1 figs. 3-5, pl. 7 fig. 3.

Protected oceanic slopes, 1-20 m.

**Seriatopora hystrix* Dana.

Ref: Yabe, Sug. & Eg., 1936 : 12, pl. 1 figs. 1 & 2.
Oceanic slopes, 10-20 m.

**Pocillopora damicornis* (L.).

Ref: Crossland, 1952 : 110
Chuang, 1961 : 132, pl. 29.

Common in shallow water, 0-7 m. The only species of this family occurring within the tidal zone of muddy protected continental reefs.

**Pocillopora edouxi* Milne-Edwards & Haime

Ref: Scheer & Pillai, 1974 : 15, pl. 2 figs. 1 & 2.
Open upper slopes, 0-10 m. The most surf resistant branching coral.

**Pocillopora solida* Quelch.

Ref: Pillai & Scheer, 1974 : 451, figs. 3 d & e.
Open slopes 4-15 m.

Pocillopora verrucosa (Ellis & Solander).

Ref: Chuang, 1961 : 132, pl. 29.
Semi open slopes.

Family ACROPORIDAE

Due to lack of literature this family is treated here rather briefly.

Acropora affinis (Brook).

Ref: Crossland, 1952 : 205, pl. 34 fig. 1.

Up to 3 m. high staghorn found on upper slopes,
0-18 m.

Acropora ambigua (Brook).

Ref: Brook, 1893 : 70, pl. 7 fig. C.

Protected continental reef flats, 0-1 m.

Acropora aspera (Dana).

Ref: Crossland, 1952 : 205, pl. 33 figs. 2 & 3.

Common on protected reef flats, 0-1 m.

Acropora armata (Brook).

Ref: Crossland, 1952 : 212, pl. 37 figs. 1-3.

Semi open slopes, 0-5 m.

Acropora clavigera (Brook),

Ref: Brook, 1893 : 183, pl. 9 figs. A & A'.

Lower slopes of exposed localities, 8-40 m.

Acropora echinata (Dana).

Ref: Vaughan, 1907 : 158, pls. 49 & 50.

Protected upper slopes of eceanic localities,
11-5 m.

**Acropora efflorescens* (Dana).

Ref: Scheer & Pillai, 1974 : 19, pl. 5 fig. 2.

Lower slope of semi open reefs, 10 m.

**Acropora formosa* (Dana).

Ref: Scheer & Pillai, 1974 : 16.

Slopes protected reefs, 1-5 m.

**Acropora humilis* (Dana).

Ref: Wells, 1954 : 425, pl. 126 figs. 1-6, pl. 127
figs. 3 & 4, pl. 128 figs. 3-5.

Outer reef flats and upper slopes, 0-8 m.

Acropora intermedia (Brook).

Ref: Crossland, 1952 : 200, pl. 32 fig. 1.

Slopes.

Acropora irregularis (Brook).

Ref: Brook, 1893 : 50, pl. 14 figs. E & F.

Semi open slopes, 2-8 m.

Acropora nobilis (Dana).

Ref: Pillai & Scheer, 1974 : 453 fig. 3c.

Open slopes, 0-10 m.

**Acropora palifera* (Lamarck).

Ref: Scheer & Pillai, 1974 : 25.

Open reef flats and upper slopes, 0-10 m.

Acropora procumbens (Brook).

Ref: Brook, 1893 : 188, pl. 29 fig. D.

Protected upper slopes of eceanic reefs, 1-20 m.

Acropora reticulata (Brook).

Ref: Brook, 1893 : 68, pl. 4 figs A & B.

Slopes of semi open reefs, 0-15 m.

Acropora rosaria (Dana).

Ref: Crossland, 1952 : 224, pl. 40 figs. 1, 3 & 4.

Upper slopes, 1-10 m.

Acropora sinensis (Brook).

Ref: Brook, 1893 : 114, pl. 33 fig. C.

Upper slopes, 1-10 m.

**Acropora variabilis* (Klunzinger).

Ref: Crossland, 1952 : 222, pl. 38 figs. 1 & 6.

Semi open slopes, 0-10 m.

**Astreopora listeri* Bernard.

Ref: Scheer & Pillai, 1974 : 26, pl. 10 figs. 1 & 2.

Scattered on slopes and sandy fore reefs, 1-20 m.

Astreopora gracilis Bernard.

Ref: Yabe & Sug., 1941 : 83, pl. 88 figs. 3-4c, pl.
92 figs. 3 & 3a.

Protected continental slopes, 0-10 m.

Montipora composita Crossland.

Ref: Crossland, 1952 : 195, pl. 28 figs. 1 & 5,
pl. 29 figs. 1, 3 & 4.

Continental slopes, 1-10 m.

Montipora efflorescens Bernard.

Ref: Searle, 1956 : 15, pl. 9B.

Lower slope of continental reefs, 1-15 m.

**Montipora foliosa* (Pallas).

Ref: Crossland, 1952 : 194.

Shallow, protected localities, 0-5 m.

**Montipora fruticosa* Bernard.

Ref: Crossland, 1952 : 184, pl. 23 fig. 2.

Shallow, protected, continental localities, 0-2 m.

Montipora granulosa Bernard.

Ref: Crossland, 1952 : 181, pl. 25 figs. 1 & 4,
pl. 27 fig. 4.

Non-attached at sandy for ereefs, 10-20 m.

Montipora hispida (Dana).

Ref: Bernard, 1897 : 134, pl. 26.

Protected continental slopes, 0-2 m.

**Montipora digitata* (Dana).

Ref: Scheer & Pillai, 1974 : 6, pl. 1 fig. 1.

Upper slopes of protected reefs, 0-5 m.

**Montipora ramosa* Bernard.

Ref: Thiel, 1932 : 114, pl. 11 figs. 3 & 4.

Reef flats and upper slopes of protected reefs,
0-2 m.

Montipora trabeculata Bernard.

Ref: Ren-Lin et al., 1975 : 21, pl. 7 fig. 6.

Slopes, 1-20 m.

Montipora verrucosa (Lamarck).

Ref: Vaughan, 1907 : 160, pls. 53-59.

Rare on open continental slopes, 2-8 m.

Anacropora spinosa Rehberg.

Ref: Yabe & Sug., 1941 : 11, pl. 104, figs. 4-4b.

Lower portions of protected oceanic slopes,
20-30 m.

Family AGARICIIDAE

A revision of this family is strongly needed.

**Gardineroseris ponderosa* (Gardiner).

Ref: Scheer & Pillai, 1974 : 32, pl. 15 figs. 1 & 2.

Scattered at the lower slope of open reefs, 8-30 m.

**Pavona danai* (Milne-Edwards & Haime).

Ref: A specimen so-labelled by P. Wettstein,
University of Basal, was seen in Darmstadt,
collected by the University of Tel Aviv,
Israel, in the Gulf of Eilat, No. NS6106.

A single specimen was found at Koh Similan, 6 m.

**Pavona decussata* (Dana).

Ref: Yabe, Sug. & Eg., 1936 : 56, pl. 39 figs. 3
& 4.

Upper slopes of open reefs, 0-5 m.

**Pavona duerdeni* Vaughan.

Ref: Scheer & Pillai, 1974 : 30, pl. 13 figs. 4-6.

Slopes of continental reefs, 2-10 m.

**Pavona explanulata* (Lamarck).

Ref: Scheer & Pillai, 1974 : 30.

Open slopes, 0-15 m.

**Pavona lata* Dana.

Ref: Pillai & Scheer, 1974 : 457, fig. 4a.

Slopes of protected reefs, 0-10 m.

**Pavona varians* Verrill.

Ref: Scheer & Pillai, 1974 : 29.

Common on slopes, 0-15 m.

Pavona praetorta (Dana).

Ref: Yabe, Sug. & Eg., 1936 : 58, pl. 41 fig. 8,
pl. 42, figs. 8 & 9, pl. 44, fig. 2.

Lower slopes of protected oceanic reefs, 25-35 m.

Pavona cactus (Milne-Edwards & Haime).

Ref: Yabe, Sug. & Eg., 1936 : 56, pl. 41 figs. 1-3.

Slopes of oceanic protected reefs, 2-20 m.

**Pavona (Pseudocolumnastraea) pollicata* Wells.

Ref: Wells, 1954 : 443, pl. 153 figs. 1-3.

Open continental slopes, 5-15 m.

Pavona (Polyastra) venosa (Ehrenberg).

Ref: Wells, 1956 : 382.

Scattered on open slopes, 5-25 m.

**Coeloseris mayeri* Vaughan.

Ref: Scheer & Pillai, 1974 : 33, pl. 15 figs. 3-5.

Common on reef flats and upper slopes, 0-10 m.

Leptoseris columna Yabe & Sug.

Ref: Yabe & Sug., 1941 : 75, pl. 63, figs. 2-2d.

Oceanic lower slopes, 15-30 m.

Leptoseris digitata Vaughan.

Ref: Vaughan, 1907 : 140, pl. 42 figs. 1 & 2.

Oceanic lower slopes, 20-40 m.

Leptoseris explanata Yabe & Sug.

Ref: Yabe & Sug., 1941 : 75, pl. 63 figs. 3-3e.

Open lower slopes, 10-40 m.

Leptoseris hawaiiensis Vaughan.

Ref: Wells, 1954 : 444, pl. 154 figs. 3 & 4.

A single specimen from Koh Surin 35 m.

Leptoseris incrustans Gardiner.

Ref: Gardiner, 1905 : 948, pl. 42 fig. 25.

Common on sandy fore reefs, 10-30 m.

Leptoseris mycetoseroides Wells.

Ref: Wells, 1954 : 445, pl. 153 figs. 4-6.

Lower slopes 10-35 m.

Leptoseris tenuis Horst.

Ref: Horst, 1921 : 31, pl. 5 figs. 9 & 10.

Open slopes, 5-40 m.

Pachyseris involuta Studer.

Ref: Horst, 1921 : 36, pl. 3 fig. 6.

Sandy fore reefs, 8-30 m.

Pachyseris levicollis (Dana).

Ref: Scheer & Pillai, 1974 : 34, pl. 16 figs. 3 & 4.

On slopes, 2-10 m.

**Pachyseris rugosa* (Lamarck).

Ref: Vaughan, 1918 : 132, pl. 55 figs. 1 & 1a.

On slopes, 1-15 m.

**Pachyseris valenciennesi* Milne-Edwards & Haime.

Ref: Horst, 1921 : 36, pl. 5 fig. 2.

Protected continental slopes, 1-4 m.

Family SIDERASTREIDAE

Anomastrae (Pseudosiderastrea) tayamai Yabe & Sug.

Ref: Searle, 1956 : 22, pl. 42.

Slopes and sandy fore reefs, 0-30 m.

**Coscinaraea monile* (Forskål).

Ref: Matthai, 1924 : 57, pl. 7 fig. 1.

Open slopes, 1-20 m.

Coscinaraea ostreaeformis.

Ref: V.D. Horst, 1922 : 424, pl. 32 figs. 1 & 2.

and figs. 5 & 6.

Open lower slopes and sandy fore reefs, 8-20 m.

Family FUNGIIDAE

This family is arranged according to Wells (1966).

**Cycloseris cyclolites* (Lamarck).

Ref: Scheer & Pillai, 1974 : 35, pl. 17 figs. 1 & 2.

Sandy fore reefs 25-40 m.

Cycloseris distorta (Michelin).

Ref: Boschma, 1923 : 142, pl. 9 fig. 10.

Oceanic sandy fore reef, 40 m.

**Cycloseris marginata* (Boschma).

Ref: Scheer & Pillai, 1974 : 35, pl. 17 fig. 3.

Sandy fore reefs 10-40 m.

Cycloseris patelliformis (Boschma).

Ref: Boschma, 1923 : 136, pl. 9 figs. 9, 11, 13-16a.

Sandy fore reefs 20-40 m.

Lithophyllon lobata (Horst).

Ref: Horst, 1921 : 27, pl. 4 fig. 5, pl. 6. fig. 4.

Continental slopes, 0-15 m.

Fungia (Pleuractis) scutaria Lamarck.

Ref: Yabe & Sug., 1941 : 68, pl. 61 figs. 6 & 6a,

pl. 67 figs. 3-5, pls. 68 & 69.

Sandy open fore reefs, 8-25 m.

**Fungia (Pleuractis) somervillei* Gardiner.

Ref: Scheer & Pillai, 1974 : 37, pl. 18 figs. 1 & 2.

Open sandy fore reefs, 8-25 m.

**Fungia (Ctenactis) echinata* (Pallas).

Ref: Yabe & Sug., 1941 : 78, pls. 70-72.

Sandy fore reefs, 0-20 m.

**Fungia (Fungia) fungites* (Linnaeus).

Ref: Yabe & Sug., 1941 : 80, pl. 77 figs. 2-3b,
pl. 78.

Sandy fore reefs, 0-5 m.

**Fungia (Heliofungia) granulosa* Klunzinger.

Ref: Klunzinger, 1902 : 108

Klunzinger, 1897 : 65, pl. 7 fig. 3, pl. 8 fig. 3.

Sandy fore reefs 10-20 m.

Fungia (Verrillofungia) repanda Dana.

Ref: Yabe & Sug., 1941 : 78, pl. 73 figs. 2-3d,

pl. 74 figs. 2-2e, pl. 75 figs. 3-3b.

Sandy fore reefs, 0-10 m.

**Fungia (Danafungia) danai* Milne-Edwards & Haime.

Ref: Yabe & Sug., 1941 : 79, pl. 74 figs. 1-1d.

Sandy fore reefs, 0-10 m.

**Fungia (Danafungia) subrepanda* Doederlein.

Ref: Scheer & Pillai, 1974 : 38, pl. 17 figs. 5 & 6.

Sandy fore reefs, 2-15 m.

**Herpolitha limax* (Esper).

Ref: Yabe & Sug., 1941 : 80, pls. 79 & 80.
Sandy fore reefs, 0-30 m.

Herpolitha weberi (Horst).

Ref: Yabe & Sug., 1941 : 80, pl. 81 figs. 2-2d.
Sandy fore reefs, 10-20 m.

**Polyphyllia talpina* (Lamarck).

Ref: Yabe & Sug., 1941 : 81, pl. 86 figs. 1-2c,
pl. 87 fig. 3.
Sandy fore reefs, 0-15 m.

Herpetoglossa simplex (Gardiner).

Ref: Wells, 1966 : 241.
Continental sandy fore reefs, 5-15 m.

Parahalomitra robusta (Quelch).

Ref: Yabe & Sug., 1941 : 82, pl. 81 figs. 3 & 3a,
pls. 84, 85 & 86 fig. 3.
Sandy fore reefs, 3-25 m.

**Podabacia crustacea* Milne-Edwards & Haime.

Ref: Yabe, Sug. & Eg., 1936 : 64, pl. 47 figs. 1-6.
Slopes, 0-25 m.

Family PORITIDAE

Goniopora arbuscula Umbgrove.

Ref: Umbgrove, 1939 : 57, pl. 17 figs. 1-3.
Open continental slopes, 4-10 m.

Goniopora bernardi Faustino.

Faustino, 1927 : 284, pl. 95 figs. 3 & 4.
Protected continental slopes, 0-5 m.

Goniopora fruticosa Saville-Kent.

Ref: Searle, 1956 : 18, pl. 22A.
Continental reefs, 0-4 m.

Goniopora lobata Milne-Edwards & Haime.

Ref: Crossland, 1952 : 232, pl. 47 figs. 1-3.
Continental slopes, 0-8 m.

Goniopora malaccensis Brueggemann.

Ref: Chuang, 1961 : 136, pl. 37.
Continental slopes, 0-4 m.

Goniopora minor Crossland.

Ref: Crossland, 1952 : 233, pl. 48 figs. 1 & 3.
Continental slopes, 1-3 m.

**Goniopora stokesi* Milne-Edwards & Haime.

Ref: Scheer & Pillai, 1974 : 41, pl. 19 figs. 3 & 4.
Sandy fore reefs, 10-40 m.

Goniopora stutchburyi Wells.

Ref: Chuang, 1961 : 136, pl. 37.
Protected continental slopes, 0-2 m.

Goniopora tenella (Quelch).

Ref: Pillai & Scheer, 1974 : 458, fig. 7d.
Open slopes, 2-10 m.

Porites compressa Dana.

Ref: Pillai & Scheer, 1974 : 459, pl. 6c.
Slopes, 0-20 m.

Porites eridani Umbgrove.

Ref: Pillai & Scheer, 1974 : 459, pl. 6a.
Protected slopes, 1-20 m.

Porites lutea Milne-Edwards & Haime.

Ref: Searle, 1956 : 19, pl. 24A.
Very common on slopes and reef flats, 0-25 m.

Porites stephensoni Crossland.

Ref: Crossland, 1952 : 238, pl. 50 figs. 3 & 4.
Slopes and reef flats, 0-10 m.

Porites (Synaraea) convexa Verrill.

Ref: Searle, 1956 : 19, pl. 23A.
Outer reef flats and upper slopes of protected
continental reefs 0-2.

Porites (Synaraea) vaughni Crossland.

Ref: Crossland, 1952 : 247, pl. 53 figs. 4 & 5.
Slopes, 1-10 m.

Alveopora irregularis Crossland.

Ref: Crossland, 1952 : 234, pl. 49 fig. 2 pl. 50,
fig. 1.
Slopes, 10-40 m.

Family FAVIIDAE

**Plesiastrea versipora* (Lamarck).

Ref: Chevalier, 1971 : 295, pl. 33 fig. 4, pl. 34
fig. 3.

Open continental slopes, 0-15 m.

The genera *Favia*, *Favites*, *Goniastrea*, *Platygyra*,
Leptoria and *Hydnophora* are arranged here
according to Wijsman-Best (1972, 1974).

**Favia fava* (Forskål).
Open slopes, 0-30 m.

**Favia speciosa* (Dana).
Slopes and reef flats, 0-30 m.

Favia pallida (Dana).
Slopes, 4-30 m.

Favia rotumana (Gardiner).
Oceanic open slopes, 10-20 m.

**Favia amicorum* (Milne-Edwards & Haime).
Reef flats and slopes, 0-10 m.

**Favia valenciennesi* (Milne-Edwards & Haime).
Protected reef flats and slopes, 0-10 m.

**Favia stelligera* (Dana).
Open slopes, 0-10 m.

**Favia helianthoides* (Wells).
Oceanic reef flats and slopes, 0-10 m.

**Favites abdita* (Ellis & Solander).
Common on reef flats and slopes, 0-15 m.

Favites acuticollis (Ortmann).
Open oceanic localities, 10-20 m.

**Favites flexuosa* (Dana).
Oceanic localities, 10-30 m.

Favites melicerum (Ehrenberg).
Protected continental slopes, 1-5 m.

Favites palauensis (Yabe & Sug.).
Open slopes, 5-20 m.

**Favites pentagona* (Esper).
Slopes, 1-20 m.

Favites virens (Dana).
Open localities, 3-15 m.

**Oulophyllia crispa* (Lamarck).
Slopes, 1-25 m.

**Goniastrea australensis* (Milne-Edwards & Haime).
Slopes, 0-10 m.

**Goniastrea edwardsi* Chevalier.
Chevalier, 1971 : 240, pl. 27 fig. 2, pl. 28 figs.
6 & 7 & pl. 29 figs. 5 & 6.
Reef flats and slopes, 0-10.

**Goniastrea favulus* (Dana).
Protected reef flats, 0-2 m.

Goniastrea pectinata (Ehrenberg).
Slopes, 0-30 m.

**Goniastrea retiformis* (Lamarck).
Reef flats and slopes, 0-15 m.

**Goniastrea spectabilis* (Verrill).
Protected reef flats, 0-1 m.

**Platygyra lamellina* (Ehrenberg).
Reef flats and slopes, 0-25 m.

**Platygyra daedalea* (Ellis & Solander).
Reef flats and slopes, 0-30 m.

**Platygyra sinensis* (Milne-Edwards & Haime).
Reef flats and slopes, 0-20 m.

**Leptoria phrygia* (Ellis & Solander).
Open slopes, 1-15 m.

**Hydnophora exesa* (Pallas).
Slopes and sandy fore reefs, 1-25 m.

**Hydnophora microconos* (Lamarck).
Reef flats and slopes, 0-10 m.

**Hydnophora rigida* (Dana).
Reef flats and slopes, 0-10 m.

Montastrea magnistellata Chevalier.
Chevalier, 1971 : 293, pl. 9 fig. 3, pl. 34 fig. 2.
Protected reef flats and slopes, 0-5 m.

**Diplosatrea heliopora* (Lamarck).
Ref: Wells, 1956 : 405, fig. 302, 4b & c.
Reef flats and slopes, 0-25 m.

**Oulastrea crispata* (Lamarck).
Ref: Wells, 1956 : 405, fig. 301, 2a & b.
Protected continental reef flats, 0 m.

Leptastrea purpurea (Dana).
Ref: Crossland, 1952 : 115, pl. 1 fig. 5, pl. 3 fig. 3.
Reef flats and slopes, 0-10 m.

Leptastrea transversa (Klunzinger).
Ref: Scheer & Pillai, 1974 : 53.
Reef flats and slopes, 0-15 m.

Cyphastrea microphthalma (Lamarck).
Ref: Chevalier, 1975 : 9, pls. 1 fig. 1 & pl. 37 figs.
2-10.
Reef flats and slopes, 0-10 m.

Cyphastrea serailia (Forskål).
Ref: Chevalier, 1975 : 18, pls. 1 fig. 2-9 & pl. 2
fig. 1.
Slopes and sandy fore reefs, 2-30 m.

Echinopora lamellosa (Esper).
Ref: Scheer & Pillai, 1974 : 54.
Slopes, 0-35 m.

Echinopora gemmacea (Lamarck).
Ref: Matthai, 1914 : 54, pl. 14 fig. 9, pl. 15 figs.
5 & 6, pl. 16 figs. 5, 7 & 8, pl. 17 figs. 2 & 3,
pl. 37 fig. 5.
Upper slopes, 0-2 m.

Trachyphyllia geoffroyi (Audouin).
Ref: Scheer & Pillai, 1974 : 55, pl. 24 figs. 5 & 6.
Open oceanic sandy fore reef, 40 m.

Family RHIZANGIIDAE

Astrangia sp.
Ref: Wells, 1956 : 408.
Turbid or lower slopes, 1-40 m.

Family OCULINIDAE

Galaxea fascicularis (L.)
Ref: Chevalier, 1971 : 58, pl. 4 fig. 2, pl. 5 figs.
1-4, pl. 6 figs. 3 & 8, pl. 7 figs. 1 & 2, pl. 8
figs. 1-6, pl. 9 fig. 1, pl. 37 figs 1 & 2.
Reef flats and slopes, 0-25 m.

Family MERULINIDAE

Merulina ampliata (Ellis & Solander).
Ref: Chevalier, 1975 : 208, pl. 18 figs. 2-5, pl. 19
fig. 1, pl. 20 figs. 1-4, pl. 21 fig. 11.
Open slopes, 1-10 m.

Merulina scabricula (Dana).
Ref: Chevalier, 1975 : 221, pl. 19 figs. 2, 3 & 5.
Open slopes, 0-20.

Scaphophyllia cylindrica Milne-Edwards & Haime.
Ref: Chevalier, 1975 : 226, pl. 19 figs. 4 & 6,
pl. 20 figs. 5 & 6.
Open slopes, 2-15 m.

Family MUSSIDAE

Here arranged according to Chevalier 1975.

Lobophyllia corymbosa (Forskål).
Ref: Yabe, Sug. & Eg., 1936 : 46, pl. 31 fig. 5.
Slopes, 0-30 m.

Symphyllia nobilis (Dana).
Slopes, 0-20 m.

Symphyllia radians (Milne-Edwards & Haime).
Slopes, 0-10 m.

Parascalymia vitiensis (Brueggemann).
Open slopes, 5-25 m.

Acantastrea echinata (Dana).
Slopes, 5-25 m.

Family PECTINIDAE

Arranged according to Chevalier 1975.

Echinophyllia echinata (Kent).
Scattered on open slopes, 8-20 m.

Echinophyllia aspera (Ellis & Solander).
Scattered on open slopes, 4-10m.

Echinophyllia rugosa Chevalier.
Scattered on open slopes.

Oxypora lacera (Verrill).
Scattered on open slopes, 2-25 m.

Mycedium elephantotus (Pallas).
Slopes, 0-30 m.

Pectinia alvicornis Chevalier.
Open slopes, 4-25 m.

Pectinia lactuca (Pallas).
Slopes, 0-15 m.

Pectinia paeonia (Dana).
Oceanic slopes, 10-30 m.

Family CARYOPHYLLIIDAE

**Heterocyathus aequicostatus* Milne-Edwards & Haime.

Ref: Scheer & Pillai, 1974 : 61, pl. 28 figs. 3 & 4.
Sandy fore reefs, 6-40 m.

Euphyllia turgida Dana.

Ref: Thiel, 1932 : 55, pl. 4 figs. 1 & 2.
Scattered on slopes, 1-15 m.

Euphyllia glabrescens (Chamisso & Eysenhardt).

Ref: Searle, 1956 : 23, pl. 34B.
Oceanic reef flat, 0 m.

**Euphyllia fimbriata* (Spengler).

Ref: Searle, 1956 : 23, pl. 35A.
Scattered at open localities, 0-20 m.

Euphyllia picteti Bedot.

Ref: Yabe, Sug. & Eg., 1936 : 17, pl. 10 figs. 3 & 4.

Continental slopes, 2-5 m.

**Physogyra lichtensteini* (Milne-Edwards & Haime).

Ref: Chevalier, 1971 : 51, pl. 1 fig. 2, pl. 3 fig. 1-2, pl. 37 fig. 4.

Slopes, 2-20 m.

**Plerogyra sinuosa* (Dana).

Ref: Scheer & Pillai, 1974 : 62, pl. 28 fig. 2.
Open slopes, 4-20 m.

Family FLABELLIDAE

Flabellum distinctum Milne-Edwards & Haime.

Ref: Duncan, 1873 : 322, pl. 39 figs. 1-13.
Unknown locality.

Placotrochus laevis Milne-Edwards & Haime.

Ref: Wells, 1956 : 432, fig. 336, 5a & b.
Open oceanic sandy fore reefs, 40 m.

Family DENDROPHYLLIDAE

Balanophyllia sp.

Ref: Wells, 1956 : 433.
Open lower slopes, 20-40 m.

**Dendrophyllia arbuscula* Horst.

Ref: Crossland, 1952 : 170, pl. 14 fig. 3.
Open lower slopes, 3-40 m.

**Dendrophyllia micranthus* (Ehrenberg).

Ref: Scheer & Pillai, 1974 : 63, pl. 29 fig. 3.
Open lower slopes, 3-40 m.

**Tubastrea coccinea* (Ehrenberg).

Ref: Scheer & Pillai, 1974 : 64, pl. 30 figs. 1-3.
Open slopes, 2-8 m.

Tubastrea diaphana (Dana).

Ref: Searle, 1956 : 24, pl. 38A.
Open slopes, 4-8 m.

**Heteropsammia michelini* Milne-Edwards & Haime.

Ref: Scheer & Pillai, 1974 : 65, pl. 32 figs. 1 & 2.
Sandy fore reefs, 6-40 m.

Turbinaria bifrons Brueggemann.

Ref: Crossland, 1952 : 176, pl. 21 figs. 1 & 2.
Continental slopes, 0-10 m.

Turbinaria crater (Pallas).

Ref: Yabe & Sug., 1941 : 86, pl. 102 figs. 1 & 2.
Oceanic lower slopes, 15-30 m.

**Turbinaria frondens* (Dana).

Ref: Crossland, 1952 : 176, pl. 23 fig. 1.
Lower slopes of open reefs, 5-25 m.

**Turbinaria peltata* (Esper).

Ref: Scheer & Pillai, 1974 : 66, pl. 31.
Lower slope of open reefs, 5-30 m.

**Turbinaria mollis* Bernard.

Ref: Scheer & Pillai, 1974 : 66, pl. 32 fig. 3.
Lower slopes, 1-30 m.

NON SCLERACTINIAN GROUPS

Family HELIOPORIDAE

Heliopora coerulea (Pallas).

Ref: Searle, 1956 : 12, pl. 2A.
Upper slopes, 0-15 m.

Family MILLEPORIDAE

Millepora dichotoma (Forskål).

Ref: Boschma, 1948 : 19, pl. 6 figs. 1, 2, pl. 7 fig. 1, textfigs. 7-9.

Oceanic slopes, 1-25 m.

Millepora exaesa (Forskål).

Ref: Wells, 1954 : 475, pl. 183 fig. 2.

Slopes, 1-15 m.

Millepora platyphylla Hemprich & Ehrenberg.

Ref: Wells, 1954 : 475, pl. 183 fig. 1.

Slopes, 1-20 m.

Millepora tenera Boschma.

Ref: Wells, 1954 : 475, pl. 183 figs. 3 & 4.

Open slopes, 1-10 m.

Family STYLASTERIDAE

Distichopora violacea (Pallas).

Ref: Searle, 1956 : 12, pl. 1B.

Oceanic slopes, 2-10 m.

V. DISCUSSION AND CONCLUSIONS

A total of 183 species belonging to 75 genera and subgenera were found. Genera *Acropora*, *Montipora* and *Porites* have not been treated in details, due to lack of reference literature and a limited access to reference collections. The author (as a result of the present study) feels that a revision of some families, especially Agariciidae, is required. This, however, is not possible without comparing his specimens with those collected elsewhere in the Indo-Pacific and discussion with appropriate authorities.

The following discussion is presented solely at generic level and the number of genera used as an expression of the diversity, as also done by two major recent works (Rosen, 1971 and Stehli & Wells, 1971).

DISTRIBUTION ALONG THE WEST COAST OF THAILAND

One hundred fifty five species were found on the oceanic islands, Koh Surin and Koh Similan,

of which 16 were restricted to this locality type. Genera *Stylophora*, *Seriatopora*, *Anacropora* and *Trachyphyllia* were found only on oceanic islands during the present investigation. Scheer & Pillai (1974) found *Stylophora*, *Seriatopora* and *Trachyphyllia* on the near-by Nicobar Islands, also situated in the Andaman Sea. It seems therefore that these genera cannot tolerate the more silty and sometimes brackish water conditions of the Malacca Strait. Whilst absent from this area, it should be pointed out, however, that *Stylophora* and *Seriatopora* are common on continental fringe reefs in the arid Eilat Bay in the Red Sea (Mergner and Schuhmacher, 1974). *Stylophora* is found on the reef flat at Tuléar, Madagascar (Pichon, 1964).

One hundred sixty one species were found at the continental localities, of which 22 species were restricted to these sometimes brackish and turbid localities. Genera *Goniopora* and *Montipora*, common at the continental localities, are noticeably more sparsely represented at the oceanic localities.

Genera *Oulastrea* and *Lithophyllon* were found only on continental reefs, but lack of these genera at the oceanic localities in this investigation may be due to much less time spent diving here compared with time spent at continental localities.

DISTRIBUTION IN THE INDO-PACIFIC

Rosen (1971) summarized all earlier investigations on coral distribution in the Indian Ocean. In order to do this, however, the number of recognized genera had to be reduced somewhat, because some of these had not been recognized in earlier literature. Sixty seven genera and subgenera collected and identified in the present investigation compare with this list.

Stehli & Wells (1971), by not sub-dividing the genus *Fungia* and by omitting the non-reef-forming corals (non-hermatype corals) which lack zooxanthella, produced a still shorter list in order to compare all coral growth areas on earth. Fifty four genera identified within the present study area compared with this list.

Their conclusions concerning coral distribution in the Indo-Pacific are quite similar and can be summarized as follows: — A main focus of 64 genera and subgenera is found between Borneo and the west central Pacific, and a smaller secondary center between the north tip of Madagascar and the southern tip of India with 63 genera and subgenera (Rosen's numbers).

Rosen (1971) correlated water temperature with coral diversity, and showed a clear smoothcurved relationship between high minimum prevailing sea temperature and high coral diversity. Since the west coast of Thailand lies in an area with highest minimum prevailing sea temperature of 28°C, a high species diversity should be expected. The present study confirms this expectation, as already anticipated to some extent by Rosen (1975).

In view of the results of this investigation and a review of the available literature; it can be concluded that the high diversity pattern in the central part of the Indo-Pacific is continuous across the ocean from Madagascar to the west central Pacific, with a few exceptions.

Genera *Acrhelia* and *Caulastrea* have only been found further eastward in the Malay Archipelago, while genera *Moselaya* and *Duncanopsammina* have only been found in northern Australia, and *Physophyllia* in the South and East China Seas — Japanese area (Wells 1954).

Genera *Oulastrea*, *Lithophyllon*, *Coeloseris* and *Anomastraea* (*Pseudosiderastrea*) are all present in the west Pacific Ocean and occur regularly along the west coast of Thailand, but no records extend their distribution west of the Nicobar-

Andaman Ridge.

Genera *Siderastrea*, *Anomastraea* (*Anomastraea*) and *Ctenella* have been reported only from the minor western focus (Rosen 1971), and were not found on the west coast of Thailand during this investigation.

It therefore seems that the Bay of Bengal forms a border between the two foci, and the west coast of Thailand must be included in the West Pacific focus which extends from the west side of the Malay Peninsula to the west central Pacific. The only record which does not support this statement is one dubious record of *Siderastrea* from Burma (Rosen 1971).

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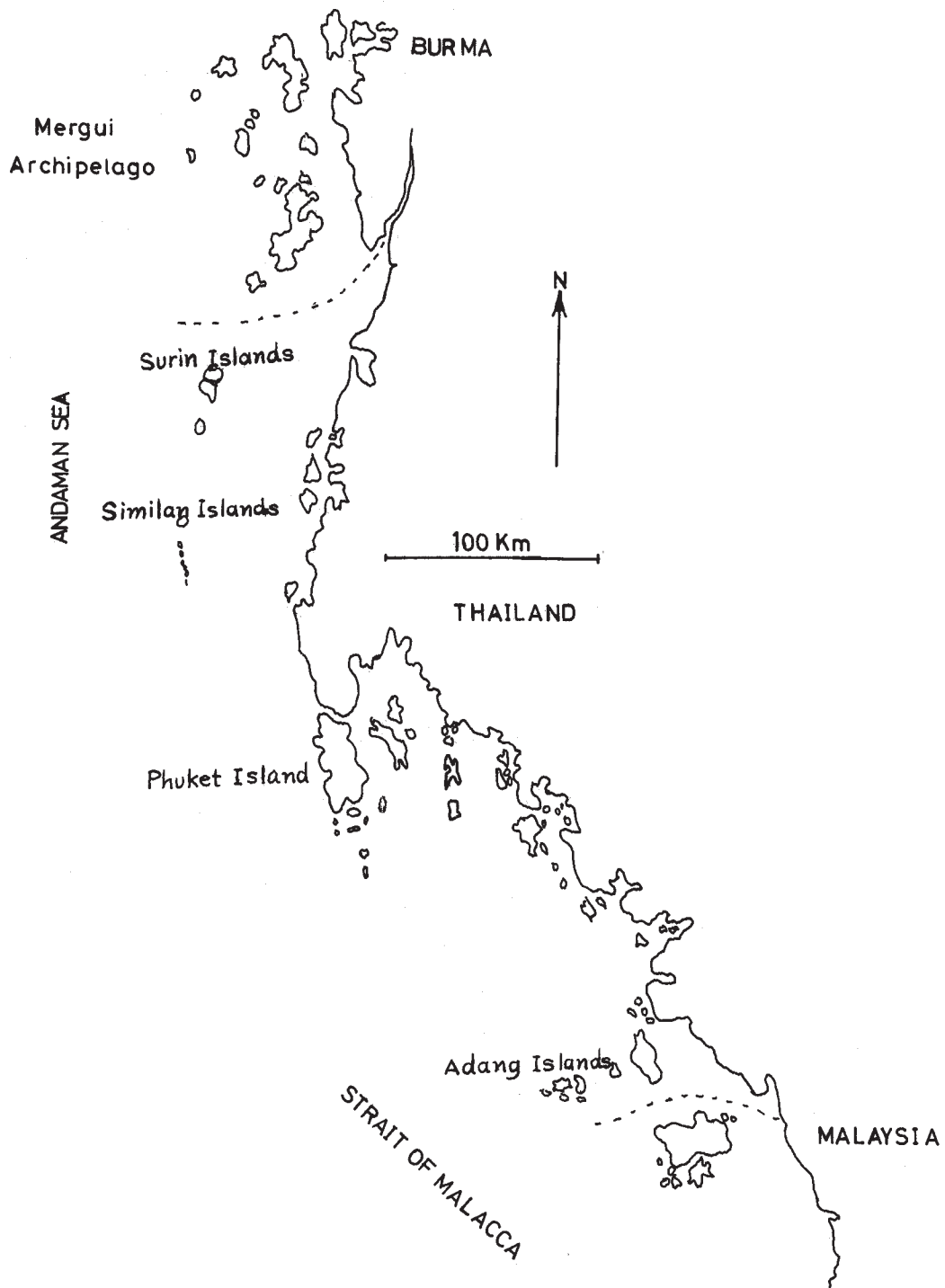
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Map 1 — Map of the west coast of Thailand showing the Islands (Koh) under investigation.