

Crown-of-thorns Starfish

The crown-of-thorns starfish, Acanthaster planci, endangers life on reefs off some Pacific islands and may become a serious threat to others. A U.S. scientific research team reporting to the Department of the Interior in December 1969 said that the starfish—which eats the living coral—is having a 'population explosion' in numerous areas, possibly caused by man-induced changes in nature's checks and balances.

BASED ON an extensive survey last summer, the report—*Acanthaster planci: Impact on Pacific Coral Reefs*—summarizes the findings of teams of scientists under direction of the Westinghouse Ocean Research Laboratory, San Diego, under contract with the Interior Department. The U.S. Navy, the National Science Foundation, and the U.S. Coast Guard also provided financial and logistical support for the survey.

If current trends continue unchecked, the report said, results could include fish shortages for some islanders who rely on fish for the protein in their diet; loss of tourist trade; and, possibly, erosion on some low-lying islands now protected by coral reefs.

The report suggested a three-phase control programme:

- Organize groups of divers to kill the creatures individually where infestations are now heavy. One method would be the use of a hand-operated chemical injector gun loaded with formalin.
- Further educate islanders to the seriousness of the problem, and what they can do to control it.
- Increase scientific study of the biology of the starfish and the creatures that prey upon it, and of the way in which reefs both degenerate and regenerate.

One diver with a formalin gun can kill up to 600 or 700 starfish a day, said the report, and six divers can clear about one mile of heavily infested reef daily.

Ten teams of scientists visited 16 islands in the Trust Territory of the

Pacific Islands in the summer of 1969 to study the problem. In a companion effort, the University of Hawaii directed five teams that surveyed Hawaiian Islands, Johnston and Midway Islands, and three Marshall Island atolls—Kwajalein, Arno, and Majuro.

They found normal populations of the starfish in a number of island reefs, i.e., fewer than 20 specimens per 20 minutes of search.

Serious infestations, most in need of control, were found on Guam, Rota, and Saipan in the Marianas Islands, and Palau, Truk, and Ponape in the Caroline Islands (more study also was recommended for Johnston Island, and

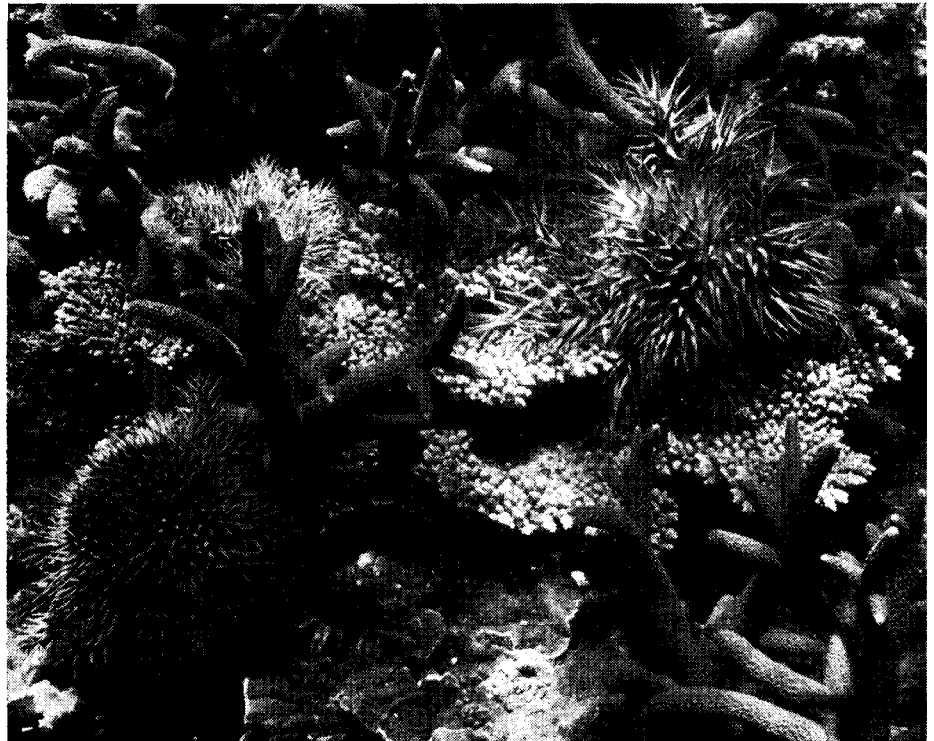
three Caroline atolls, Kapingamarangi, Nukuoro, and Pingelap).

The infestations were judged to be relatively recent, with the earliest dating back to World War II. Destruction of corals by this starfish on a major scale in Australia's Great Barrier Reef was first reported in 1963.

Definite causes for the starfish population explosion were not established. The report suggests two possibilities: that dredging and blasting of reef areas have decimated creatures normally feeding on the starfish larvae; and that shell collectors have substantially reduced the number of triton snails, which prey on adult starfish.

Damage done by the crown-of-thorns starfish threatens the balance of the marine life system of reefs around many islands and atolls, the report says.

Fish that have adapted to life in a coral reef cannot adjust to a radically changed environment. Larger food and game fish were almost totally absent in dead reefs, and even deep-sea fish



Crown-of-thorns starfish feeding on live corals.



A diver inspects crown-of-thorns starfish in a devastated reef area off Brewer Reef in the Great Barrier Reef.

populations may be affected by this breakdown in the food and life chains.

The Ninth South Pacific Conference, which took place in Nouméa in October 1969, drew the attention of the South Pacific Commission to the dangers created by the crown-of-thorns starfish; the Conference delegates requested the Commission, in co-operation with the U.N. Development Programme and other organiza-

tions to examine ways in which the problem could best be tackled.

Copies of the report, '*Acanthaster planci*: Impact on Pacific Coral Reefs,' may be obtained from the Clearing-house for Federal Scientific and Technical Information, 5285 Port Royal Road, Springfield, Virginia 22151. The report can be ordered by asking for PB No. 187631. The price is \$US3.00.

FIJI FORESTRY TRAINING SCHOOL

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The responsibility for student affairs lies with the Student Body, which consists of a chairman, secretary, treasurer, auditor, sports secretary, and social secretary. This responsibility is also shared by the Students' Food Committee.

In student affairs, therefore, the Principal and other staff members act

only as advisers. All the student office bearers are elected by the students themselves. The post of chairman, however, requires the approval of the Principal.

Each student must take a two-weeks' turn at being the Orderly Officer responsible for stores, and for running the students' mess, as well as for the supervision of students outside working hours and during the absence of the Principal. An officer in charge of the course is appointed each week for

PROJECT MANAGER—UNDP(SF)/SPC RHINOCEROS BEETLE PROJECT

Dr Euan Cameron Young took up his appointment in February 1970 as Project Manager, UNDP(SF)/SPC Rhinoceros Beetle Project, Apia, Western Samoa.

Dr Young was born in Christchurch, New Zealand, in 1935, and received his Ph.D. from the University of London (Imperial College) in 1962.

In 1963 Dr Young was appointed Senior Lecturer in Zoology at the University of Canterbury (New Zealand), and each year since 1964 he has been Leader of the University's Antarctic Research Unit.

Dr Young's special interests are in the fields of entomology and ornithology.

supervision during training hours, and is required to submit a report after his week's tour of duty.

The students live singly in cubicles in two dormitories, each cubicle being furnished with a bed, wardrobe, table, and chair. This ensures privacy and at the same time enables the students to study on their own.

The mess and kitchen, as one unit, adjoin the dormitories. At present, the mess serves also during the evenings as the recreational room.

Recreation

Sports facilities at the school are very limited because, unlike students at other training institutions, forestry students are fully paid civil servants and receive salaries from the Treasury. The Government, therefore, provides only such facilities as sports fields, leaving the students to procure their own sports equipment.

Each student contributes an annual sports fee of \$2 to a Sports Fund for the purchase of equipment, and also pays a weekly subscription of 10 cents. It will be some time before the school can get sufficient equipment, but it is hoped that, eventually, they will also have volley ball, cricket, hockey, table tennis, and body-building equipment, in addition to rugby and soccer which the students now play.

Annual Intake

The number of students entering the school is limited by the accommodation available. Only 20 rooms are available for the one-year Forest Guards course, and in 1969 the school began with its full complement, consisting of 16 from Fiji, and two each from the Solomons and Western Samoa.

It is hoped to add at least another eight rooms by the end of 1969 or early in 1970. These will cater for refresher courses for serving members of the staff. These courses would be concerned with specialized forest operations and, depending on the particular subject, would last from one to four weeks.

Further information concerning the school can be obtained from either:

Conservator of Forests,
Department of Forestry,
Government Buildings,
Suva, Fiji, or;
Principal,
Forestry Training School
Lololo,
Lautoka, Fiji.