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TRUST TERRITORY ARCHIVES PROJECT
TRUST TERRITORY OF THE PACIFIC ISLANDS

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Chairman, Archives Committee

TRUST TERRITORY OF THE PACIFIC ISLANDS--ARCHIVES SURVEY FORM

Primary Branch, Department, Bureau, or Office producing materials:

Subgroup of the above: $\sim A_1$

Author/Title/Date of publication (if any) of specific materials:

Subject of materials: (See schedule in TTPI Files System Manual) 1001

Brief description: ONE 1/2 IN. DIA. 1-1/2 IN. LONG CEMENT RODS

Geographic area dealt with in materials:

TTP1 at large:

Individual districts:

Individual governments:

Individual islands:

Other:

Span of years covered by materials:

Format of information:

Correspondence: —

Reports: L

Clippings:

Other:

Physical arrangement of materials: (How are they organized within the file?)

Geographically:

Chronologically: ☒

By subjects: ☒

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Other:

Physical location of materials: (Area where presently located)

Office: 10 Subgroup: (1)

File cabinet number:

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TRUST TERRITORY OF THE PACIFIC ISLANDS
MANUAL OF ADMINISTRATION

Part 3

August 16, 1973

Programs

Land Management

Resources and Development

Section 485

Real Estate Services

Chapter 1

LAND FOR CAPITAL IMPROVEMENT PROJECTS

485.1

I. PURPOSE:

Section 485, Chapter 1, promulgated on August 16, 1968, is hereby repealed in its entirety and is replaced by this release.

For purpose of this Section, Chapter 1, the term "capital improvement project" is any Government improvement program or project requiring the use of land, either public or private, for the general benefit of the citizens of the Trust Territory of the Pacific Islands. These programs and projects include those funded by the Trust Territory Government, the Congress of Micronesia, the District Legislatures, grant-in-aid and others utilizing public funds.

It is essential to clarify the responsibility of various Trust Territory programs, activities and departments on a District level, as opposed to a Headquarters level, in acquisition and certification of land for capital improvement projects. *

II. BASIC AUTHORITY-RESPONSIBILITY:

Pursuant to Section 51, Title 2, of the Trust Territory Code and the directive of the High Commissioner dated May 29, 1973, the basic authority and responsibility for acquisition and certification of land for capital improvement projects is hereby delegated to the District Administrator of the District in which such acquisition and/or certification is required, effective July 1, 1973. Further delegation of this authority and responsibility may not be made by the District Administrator without the written approval of the High Commissioner. The exercise of this authority and responsibility shall conform to policies and guidelines herein contained and as may be amended from time to time, and as prescribed in the Lands and Surveys Manual, Section 481, Manual of Administration.

Accordingly, in each District the District Administrator of that District shall henceforth be responsible for the acquisition of interests in private land; the Government of the Trust Territory, provided that the initiation of any action in the courts of the Trust Territory, pursuant to Title 10 of the Trust Territory Code, to acquire land by exercise of eminent domain shall be subject to the prior written approval of the High Commissioner after review of the findings and recommendations of the District Administrator. All matters pertaining to the acquisition and certification of land and compliance with the provisions of the Uniform Relocation

Assistance and Real Property Acquisitions Policies Act of 1970, which are pending at Headquarters as of the effective date of this Manual Chapter, shall become the responsibility of the Districts to complete in accordance with the following procedures.

III. BASIC POLICY CONSIDERATIONS:

Because of the large amount of public land and in the interest of economy, capital improvement projects involving land should be situated where feasible on land which is part of the existing public domain. Where public land is not available or is not suitable for the contemplated construction project, appropriate interests in private land will be acquired by the Government, if public interest and necessity dictate.

An interest in private land may be acquired by negotiation or by the exercise of the power of eminent domain. Use of eminent domain is restricted to those few situations where land cannot be acquired by negotiation and the land is absolutely required for public use.

In acquiring an interest in private land, the interest or estate acquired shall be compatible with the type of project to be established and the long-range benefits to the specific community and to Micronesia as a whole. Consideration shall be given to future expense, administrative burden, practicality and substantive security of title, both qualitatively and quantitatively as to the estate acquired, at all times. Effective policy provisions will be made by the Headquarters Chief of Lands and Surveys Division for periodic review and necessary action as to terminable or renewable estates. Specific safeguards are to be implemented by each District Land Management Officer to preclude the possibility of lapse or loss of such estates under the direction of the Chief of Lands and Surveys Division.

IV. BASIC PROCEDURES DURING PLANNING PHASES: (See Exhibit I - "Comprehensive Flow Chart")

A. Application for Land:

Application for land site(s) for projects shall be made to the District Administrator by the District Planning Officer with utilization of a Form No. 985, as shown in Appendix "B" attached hereto.

B. Master Plan:

A twenty-year Master Plan, pursuant to Title 51 of the Trust Territory Code (The Land Planning Act), shall be prepared through the coordinated efforts of the District Administrator,

the District Planning Commission, the District Planning Officer, the District Land Management Officer and all using agencies.

C. Capital Improvement Program:

All proposed projects shall be included in a five-year capital improvement program.

D. Initiation of Form No. 985:

A Form No. 985 (Application for Lands for Capital Improvement Project) shall be initiated by the District Planning Officer for each proposed project with input from the District Land Management Officer, the District Attorney and the using agency. Each office has the following responsibilities:

1. The District Planning Officer shall determine that the proposed site is consistent with the Master Plan and in accordance with the Trust Territory Environmental Quality Protection Act (sub-Chapter 1, Chapter 13, Title 63 of the Trust Territory Code). If no Master Plan exists, he shall determine that the proposed site is consistent with sound planning procedures after input from the District Planning Commission (Title 51 of the Trust Territory Code), the District Land Management Officer and the District Administrator.
2. The District Land Management Officer shall determine survey costs, land acquisition costs, existing land use, prepare a preliminary title abstract in conformity with the guidelines contained in Appendix "C" and, under the direction of the District Attorney, negotiate for and effect execution of an entry permit and acquisition option agreement in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, and in conformity with the National Environmental Quality Protection Act, where applicable, and in further compliance with the Lands and Surveys Manual promulgated by the Chief of the Lands and Surveys Division, Department of Resources and Development.
3. The District Attorney shall give legal supervision and instruction to the District Land Management Officer in his negotiations, prepare necessary documents, determine legal questions and prepare a preliminary title opinion. He shall prepare a summary as to applicability of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and of specific action necessary for compliance therewith. He shall forward the files to the District Administrator after adding any additional documentation required by the District Administrator for review and decision.

4. The District Public Works Officer shall determine topographic survey and sub-surface exploration costs. Upon the request of the District, the Chief of the Division of Design and Engineering, Headquarters Department of Public Works, shall provide the District Public Works Officer with technical assistance to determine the topographic and sub-surface exploration requirements and costs.

Where A-E revolving funds are anticipated, the District Administrator will direct his application for funds for all elements of the project to the Headquarters Director of Public Works. After determination of appropriate funding availability, the Form No. 985 will be certified by the appropriate Financial Officer.

V. CERTIFICATION PROCEDURE FOR PUBLIC LAND:

A. Initiation:

If public land is to be used for the project site, the District Administrator will forward a copy of the Form No. 985 with appropriate comments and instructions to the District Attorney, after determination that funds are available. He will notify the Headquarters Director of Public Works, also, to proceed with topographic mapping, sub-surface investigation, and A-E contracting, or in-house design.

B. Review:

The District Attorney will review the Form No. 985 and attachments for form and legal sufficiency and transmit to the District Land Management Officer.

C. Survey Plat:

The District Land Management Officer will prepare an appropriate survey plat pursuant to standards and guidelines shown on Appendix "E" attached hereto. He will then transmit the survey plat to the District Attorney for examination in connection with related documents.

D. Alien Property Custodian and Other Conveyance:

The District Attorney will secure all necessary conveyances and releases, including conveyances from the Alien Property Custodian, as required.

E. Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 Review and Action:

The District Attorney will then review all data and effect further necessary compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, utilizing the services and assistance of the District Land Management Office.

F. Final Abstract:

The District Land Management Officer shall prepare a final title abstract and transmit the same to the District Attorney.

G. Review, Title Opinion and Certification Recommendation by the District Attorney:

The District Attorney will review all documents as to form and legal sufficiency, prepare a final title opinion, in compliance with Appendix "D", and recommend certification of the title or interest of the Trust Territory Government in the site to the District Administrator.

H. Certification:

The District Administrator shall review all documents and issue the certification of the title or interest of the Trust Territory Government in the site, sending copies of all documents to:

1. The Chief of the Division of Lands and Surveys, Department of Resources and Development, for review and monitoring in accordance with Article XI hereof.
2. The Headquarters Director of Public Works for obligation of funds for land surveys, land acquisition, property damage, topographical survey, sub-surface exploration, site preparation, re-entry permits, option costs and relocation assistance.
3. The District Attorney, who shall effect final compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 with the aid and assistance of the District Land Management Officer.
4. The District Land Management Officer for inventory and allocation with respect to public land.

VI. ACQUISITION AND CERTIFICATION PROCEDURE FOR PRIVATE LAND:

A. Transmittal by District Administrator:

If private land is selected to be used for the project site, the District Administrator shall transmit the approved Form No. 985 to the District Attorney after determination that funds are available for land acquisition. He shall notify the Headquarters Director of Public Works to proceed with topographic mapping, sub-surface investigation, and A-E contracting, or in-house design.

B. Review by District Attorney and Exercise of the Option:

The District Attorney shall review the Form No. 985 and attachments for form and legal sufficiency and transmit to the District Land Management Officer. The District Attorney shall also prepare the necessary documents to exercise the option to acquire the project site under the acquisition option agreement, and upon execution of the option by the District Administrator shall cause delivery of the same to the landowner(s).

C. Survey Plat:

The District Land Management Officer will prepare an appropriate survey plat and transmit all data to the District Attorney.

D. Preparation of Final Documents and Compliance with Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970:

The District Attorney will prepare final acquisition documents and effect further compliance with the Relocation Assistance Act, utilizing the aid and assistance of the District Land Management Officer, and transmit the completed final documents to the District Land Management Officer.

E. Landowner Document Execution:

The District Land Management Officer will effect landowner execution of final acquisition documents and transmit to the District Attorney.

F. Review and Transmittal:

The District Attorney shall review the executed agreements and, if found acceptable, approve them for form and forward the same to the District Administrator for execution.

G. Execution:

The District Administrator will officially execute the agreements and return the same to the District Attorney.

H. Filing:

The District Attorney shall file the original documents with the Clerk of Courts and with the District Registrar and transmit certified copies thereof to the landowner(s).

I. Final Title Abstract:

The District Land Management Officer will prepare a final abstract of title and transmit the same to the District Attorney.

J. Review, Title Opinion, Recommendation for Certification:

The District Attorney will prepare a final title opinion after review of all documents and will forward all documents to the District Administrator with his recommendation for certification of the title or interest of the Trust Territory Government in the site.

K. Certification:

The District Administrator shall review all documents and issue the certification of the title or interest of the Trust Territory Government in the site, sending copies of all documents to:

1. The Chief, Division of Lands and Surveys, Department of Resources and Development, for review and monitoring, in accordance with Article XI hereof.
2. The Headquarters Director of Public Works for obligation of funds for land surveys, land acquisition, property damage, topographical survey, sub-surface exploration, site preparation, re-entry permits, option costs and relocation assistance.
3. The District Attorney for final compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, and for supervision of payment of compensation to the landowner(s), utilizing the aid and assistance of the District Land Management Officer.
4. The District Land Management Officer for inventory and allocation purposes.

5. The District Administrator shall advise the Chief of the Division of Lands and Surveys, Department of Resources and Development, of compliance with K.3. of this Section.

VII. UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION POLICIES ACT OF 1970:

A. Compliance:

All personnel involved in capital improvement project planning, site acquisitions, and/or land certification for capital improvement projects will familiarize themselves with the provisions of the Act and implementing regulations and effect compliance therewith in all phases of project programming. It will be necessary to utilize specific regulations of one or more funding agencies from time to time.

B. Rescission of Prior Appointment:

Except for Trust Territory policy and review, the memorandum of the High Commissioner of September 20, 1972, designating the Chief of the Division of Lands and Surveys as administrator of the Act in the Trust Territory is hereby rescinded.

C. Administrator of Act:

The District Administrator shall serve henceforth as administrator of the Act in his District and shall be responsible for its implementation, administration and operation.

D. Policy and Guidelines: (Interim)

The policy and guidelines set forth in the following releases shall be followed in administration of the Act until the Headquarters Division of Lands and Surveys issues Trust Territory policies and guidelines.

1. The Uniform Relocation and Real Property Acquisition Policies Act of 1970 (42 U.S.C. 4601 et seq.).
2. Department of the Interior Property Management Regulations, Uniform Relocation and Real Property Acquisition Policies, Part 114.50.

3. HUD Handbook.
4. July 25, 1972, Opinion of C. Brewster Chapman, Jr., Deputy Solicitor, Department of the Interior.
5. September 20, 1972, directive of the High Commissioner.
6. July 3, 1973, letter of the Director, Office of Territorial Affairs, Department of the Interior.
7. 43 CFR Part 4, Subpart G (Appeals).
8. Regulations of other U.S. participating agencies.
9. Miscellaneous Opinions of Comptroller General.

VIII. ALLOCATION AND USE OF LAND IN THE PUBLIC DOMAIN FOR CAPITAL IMPROVEMENT PROJECTS:

A. First Consideration:

Whenever land is required for a capital improvement project, first consideration shall be given to the allocation and use of land in the existing public domain.

B. Responsibility of District Administrator:

It shall be the responsibility of the District Administrator and District Land Management Officer to endeavor to effect compliance with Part A of the Article as to use of public land for capital improvement projects whenever possible.

C. Factors Ruling out Use of the Public Domain:

Use of a particular parcel of land in the existing public domain may be ruled out by the District Administrator as unsuitable if -

1. the land is unsuitable because of soil terrain or other land characteristics;
2. the proposed construction project will establish incompatible land uses, e.g., school in an industrial area;

3. the proposed construction project conflicts beyond reconciliation with the Master Plan or other land use or zoning restrictions existent in the area;
4. the land is allocated for other governmental or public purposes of higher priority;
5. use of the land would cause cancellation of an existing lease and such cancellation would be
 - a. too costly,
 - b. not in the public interest, or
 - c. impractical in view of the conditions existing in the district;
6. the requesting department or activity advises that the land will not meet its requirements;
7. Headquarters Public Works Division of Design and Engineering advises that undue costs are involved because of location or difficult terrain;
8. there are other compelling reasons in the particular situation.

D. Uncertainty of Title:

In the event that the District Administrator is unable to certify that the Government has good title to the parcel of public land considered for the capital improvement project, he shall -

1. request the District Attorney to initiate a suit with the High Court of the Trust Territory of the Pacific Islands to clear title; or
2. with the advice of the District Attorney, instruct the District Land Management Officer to initiate determination of ownership proceedings, pursuant to Division of Lands and Surveys Regulation No. 1 (Code of Public Regulations); or
3. with the advice of the District Attorney, petition the appropriate District Land Commission, if established in the District, for registration of the land; or
4. follow whichever of the above is most practicable under the circumstances.

E. Land Under Indefinite Use Rights Agreement:

Where a capital improvement project is proposed to be situated on land held by the Trust Territory Government through an "Indefinite Use Rights Agreement" or some similar instrument, the District Administrator shall consult with the District Attorney to determine whether to obtain from the landowners a more definite tenure, interest or estate to protect the interests of the Government.

IX. ACQUISITION OF INTERESTS IN PRIVATE LAND:

A. When Consideration will be Given to Acquiring an Interest in Private Land:

Whenever land is required for a capital improvement project, consideration will be given to acquisition of interests in private land when:

1. suitable public land is not available;
2. it is required for the orderly implementation of the Master Plan; or
3. it is demanded by construction necessity and not mere administrative convenience; or
4. it is essential for reasons of public interest and necessity.

B. How Acquired:

If it is determined that suitable public land is not available, interests in private land may be acquired by negotiation and purchase, by exchange with or without additional compensation, by donation, or by the exercise of eminent domain. Each District Administrator is hereby delegated authority to enter, approve and execute any and all such acquisition agreements in behalf of the Government of the Trust Territory.

C. Types of Interests - General:

The Government may acquire any interest compatible with the use to be made, including fee simple title.

The type of interest or estate acquired in the private land shall be consistent with sound land management practices, fiscal standards relating to the use of Federal grant funds and the immediate and foreseeable future needs of the community and Micronesia as a whole.

The specific interest acquired in a given parcel of private land will vary, depending on the kind and cost of construction of the project proposed or the use to be made of the land, but shall conform to the guidelines set forth in Appendix "A".

D. Negotiations:

The District Land Management Officer shall be responsible for all necessary negotiations with private landowners and he shall arrange for appraisals of land and improvements, if required, and all necessary property and pre-acquisition entries for surveys and other required purposes.

E. Pre-Acquisition Entry - Mere Entry:

Any representative or agent of the Government desiring entry to private land for the purpose of observation, discussion, measurement, or for other purpose which does not materially affect the physical aspects of the land, shall notify the District Land Management Officer to make the necessary arrangements with the landowner and tenants, if any. No entry shall be made until the District Land Management Officer has completed all necessary arrangements.

Any agency requiring entry should estimate the charges for damages to the property during entry and advise the District Land Management Officer, who will estimate total entry costs.

F. Pre-Acquisition Investigation and Survey:

In many instances, certain engineering investigation, such as soil and sub-surface testing, and certain property, topographical and engineering surveys are necessary on private land before a final decision can be made as to the feasibility of the project from an engineering or economical point of view.

G. Pre-Acquisition Investigation - Costs and Damages:

Prior to the pre-acquisition entry, the District Land Management Officer shall estimate probable costs for the types of entry being considered, together with estimated charges for damages to property which might occur during entry, and relocation costs, in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, and so advise the District Administrator and the Department of the Trust Territory Government requesting the land.

H. Construction:

Other than for investigation surveys and other pre-acquisition studies covered by E, F and G of this Section, no land clearance, site preparation or construction action shall be initiated until the District Administrator has issued a written certificate to the requesting agency that the Government has obtained sufficient title, right or interest to warrant the initiation of clearance, preparation or construction.

I. Ownership:

The District Administrator shall insure that the actual or true owners and persons having any interest under local custom or otherwise in the private land being acquired are identified and represented in any agreement concluded by the Government.

J. Uncertainty of Ownership:

In the event there is any question as to the ownership under local custom, or otherwise, of a parcel of private land that cannot be resolved, the District Administrator, with the advice of the District Attorney, may:

1. request the District Attorney to initiate a suit in the nature of friendly condemnation, pursuant to Chapter 20 of the Trust Territory Code, subject, however, to approval of the High Commissioner after review of the findings and recommendations of the District Administrator; or
2. petition the appropriate District Land Commission for registration of land and a determination of ownership.

K. Certification of Funds for Acquisition:

Upon the written advice of the District Administrator of the amount of funds required to acquire an interest in private land, the officer in control of the project account shall cause such amount to be set aside, certified and made available for the acquisition.

L. Options to Buy:

In negotiating to acquire an interest in private land, the District Administrator or his authorized representative may obtain written options to purchase, lease or acquire other suitable interests at stipulated amounts from the private owners prior to a certification that funds are available for such acquisition.

X. ACQUISITION OF PRIVATE LAND BY EMINENT DOMAIN (CONDEMNATION):

A. Eminent Domain - Definition:

Eminent domain (see Chapter 20 of the Trust Territory Code) is the right of the Government to condemn private property for public use, and to appropriate the ownership and possession of such property for such public use upon paying the owner or owners a just compensation to be ascertained according to law.

B. When Consideration will be Given to Eminent Domain:

When private land is required for a capital improvement project and cannot be obtained through negotiation and when the proposed project will benefit either a community or the Trust Territory as a whole, consideration will be given to the exercise of eminent domain.

C. Determination:

When it has been determined that no suitable public land is available and all negotiations for purchase or exchange have failed and, in the opinion of the District Administrator, condemnation is required, he shall so advise the High Commissioner. The decision to initiate an eminent domain or condemnation proceeding, pursuant to Chapter 20 of the Trust Territory Code, shall be made only by the High Commissioner.

D. Action by District Attorney:

When a final decision is made by the High Commissioner to acquire an interest in private land by eminent domain, the District Attorney shall initiate a suit with the High Court in the appropriate District, pursuant to Title 10 of the Trust Territory Code. The District Administrator shall provide the District Attorney with all necessary support and assistance as may be required.

XI. REVIEW AND MONITORING:

Review Committee:

A committee, chaired by the Chief of the Division of Lands and Surveys or his designated representative, shall be established to review all final documents submitted as a result of certification by the various District Administrators. This committee shall consist of a representative of the Office of the Attorney General, the Special Assistant for District Affairs, and a representative of the Division of Lands and Surveys.

The committee will meet within the first ten days of each month to review each certification for substance, form, legality and practicability. It will inform the District Administrator of the District involved in writing of its findings. A summary of this report, including recommendations for remedial action, if indicated, will be forwarded to the High Commissioner by the Chief of the Division of Lands and Surveys. Appropriate periodic cumulative reports of the effectiveness of the program will be submitted by the Chief of the Division of Lands and Surveys.

XII. GENERAL PROVISIONS:

A. Agreements to be in Writing:

All agreements between the Government of the Trust Territory and private landowners shall be in writing and approved as to form by the District Attorney and executed for the High Commissioner by the District Administrator.

B. Uniform Documentation:

The Attorney General and the Chief of the Division of Lands and Surveys shall work together to develop a set of uniform forms and legal instruments and property plats for acquisition of interests in private land.

C. Land Records:

The Division of Lands and Surveys shall maintain a comprehensive land records' registry and property plat filing system, showing all uses of the public domain and containing information about all interests which the Government has obtained in private land for capital improvement projects and other purposes. The Division shall maintain such a system at Headquarters. The system will contain information for all the six Districts. A separate system will be maintained by each District Land Management Office for that District.

D. Lease Renewals, Terminable Interests, etc.:

Each District Land Management Officer shall implement a system of record-keeping to insure that the Government's interest is not lost by inadvertence in any parcel of land under lease, terminable interest, reversionary provisions, etc., and shall notify the District Administrator of such possibility of loss in a timely fashion. The District Administrator shall review the matter and order appropriate action.

XIII. RESPONSIBILITY OF CHIEF, DIVISION OF LANDS AND SURVEYS:

Reliance upon Title Certifications of District Administrators:

In performance of his official duties, prescribed by law and/or regulation, the Chief, Division of Lands and Surveys, may henceforth rely upon the quality of title expressed in each certification by the District Administrators. He shall be under no responsibility, except through post review, to investigate or inquire into the correctness, security or soundness of any title so certified. The correctness, security and soundness of titles certified by the District Administrator will be wholly and directly his responsibility.

XIV. WAIVER OF CERTIFICATION:

A. Exclusive Authority of High Commissioner

The High Commissioner shall have sole and exclusive authority to waive title certification in all capital improvement projects. All such waivers shall be in writing.

B. Written Waiver Request:

All requests for waiver of certification must be in writing and addressed to the High Commissioner. Such requests must detail:

1. Justification for request.
2. Explanation of factors preventing certification by District Administrators.

XV. SURVEY PLATS, RIGHTS OF ADJACENT OWNERS:

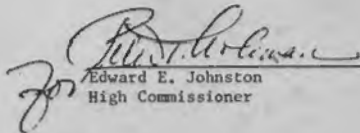
Affidavits Required:

All survey plats included in certification documentation shall have appropriate affidavits of adjacent landowners attached reflecting their recognition of ownership and boundaries described therein to preclude later claims to portions of capital improvement sites. Such affidavits, however, may be on the basis of "best knowledge and belief."

XVI. AUDIT AND REVIEW SCHEDULE:

The Division of Lands and Surveys will conduct audits and reviews of all Districts at least semi-annually.

Audits and reviews will consist of a detailed survey and analysis of the District operation and files. Discrepancies and non-compliance with this directive will be noted and technical advice given to correct or improve procedures. A written report of such audits and reviews will be submitted to the High Commissioner through the Director of Resources and Development within ten working days after completion of the audit and review. Such reports will include a determination of "acceptable" or "unacceptable" of the activities within the District.


Edward E. Johnston
High Commissioner

COMPREHENSIVE FLOW CHART

EXHIBIT I

LAND CERTIFICATION FLOW DIAGRAM FOR LAND NEEDS FOR
PROJECTS UTILIZING PUBLIC FUNDS

PLANNING PHASES

1. A 20-year Master Plan is prepared through a coordinated effort of the District Administrator, District Planning Office and all using agencies.
↓
2. The proposed project is included in a 5-year capital improvement program.
↓
3. A Form No. 985 (Application for Lands for Capital Improvement Project) is initiated by the District Planning Officer with input from the District Land Management Officer, the District Attorney and the using agency. Each office has the following responsibilities:
 - (a) Planning Officer - determines whether proposed site is consistent with Master Plan or consistent with sound planning procedures if no plan exists.
 - (b) District Land Management Officer - determines survey costs, land acquisition costs, existing land use; prepares preliminary title abstract; under direction of the District Attorney negotiates for and effects execution of an entry permit and acquisition option agreement in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, if applicable.
 - (c) District Attorney - provides technical supervision and legal assistance to District Land Management Officer; prepares all necessary documents; determines applicability of Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970; prepares preliminary title opinion.
 - (d) District Public Works Officer - determines topographic survey and sub-surface exploration costs.
 - (e) Using Agency - approves site as to agency requirements.↓
4. Completed Form No. 985 is reviewed by the District Administrator and, if approved, he will assure that appropriate funds will be provided.

Public Land Site(s)
Chart I
CERTIFICATION PROCEDURE

Private Land Site(s)
Chart II
ACQUISITION AND CERTIFICATION
PROCEDURE

CHART 1
CERTIFICATION PROCEDURE
Public Land Site(s)

District Attorney

District Land Management Officer

District Administrator

Transmits Form 985 request to District Attorney after determination that funds are available and notifies Headquarters Director of Public Works to proceed with topographic mapping, sub-surface investigation and A & E Contract

Reviews Form 985

Prepares Survey Plat

1. Obtains deed from Alien Property Custodian
2. Effects further Uniform Relocation Act compliance utilizing District Land Management Officer

Prepares final title abstract

Reviews all documents, prepares final title opinion, and recommends certification

Certifies site and sends to requesting agency, Chief, Lands and Surveys, and to Director of Public Works for obligation of funds

Effects final compliance with Relocation Assistance Act utilizing District Land Management Officer

8/16/73

485.1

CHART
ACQUISITION AND CERTIFICATION PROCEDURE
Private Land Site(s)

District AttorneyDistrict Land Management OfficerDistrict Administrator

Has acquisition option exercised.

Transmits Form 985 request to District Attorney after determination that funds are available and notifies Headquarters Director of Public Works to proceed with topographic mapping, sub-surface investigation and A & E Contract

Reviews Form 985

Prepares Survey Plat

1. Prepares final acquisition documents
2. Effects further Uniform Relocation Act compliance utilizing District Land Management Officer

Effects landowner execution of final acquisition documents

Reviews documents

Executes final acquisition document

1. Files final documents with Clerk of Courts and District Registrar
2. Send copies to landowner

Prepares final title abstract

Reviews all documents, prepares final title opinion, and recommends certification

8/16/73

485.1

8/6/73

District Attorney

1. Effects final compliance with Relocation Assistance Act utilizing District Land Management Officer
2. Assures final obligation and actual payment of funds to recipients, utilizing District Land Management Office.

District Land Management Officer

District Administrator

Certifies site and sends copies to requesting agency, Chief of Lands and Surveys, and Director of Public Works for obligation of funds

Notifies Chief of Lands and Surveys of such compliance and payments.

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APPENDIX A

GUIDELINES TO BE CONSIDERED IN ACQUIRING AN INTEREST IN PRIVATE LAND

Type of Capital Improvement or Facility

Interest to be obtained

A. RIGHTS-OF-WAY AND ROADS

- | | |
|--------------------------------|---|
| 1. Primary Road | Fee Simple |
| 2. Secondary Road | Fee Simple in Trust Territory
or Public-at-large |
| 3. Tertiary Road | Fee Simple in Municipality or
Public-at-large |
| 4. Road and Street
Drainage | Easement |

B. PUBLIC UTILITIES - Primary and Secondary

- | | |
|---|----------|
| 1. Power and Distribution
Transmission Lines and Poles | Easement |
| 2. Water Pipelines, Pumps
and Gauges | Easement |
| 3. Sewer Lines, Pumps, etc. | Easement |
| 4. Oil Pipelines, Pumps, etc. | Easement |

C. PUBLIC UTILITIES' SITES

- | | |
|-------------------------|---------------------|
| 1. Power Plant | Fee Simple |
| 2. Water Plant | Fee Simple |
| 3. Watershed | Watershed Easements |
| 4. Reservoir | Fee Simple |
| 5. Sewage Plant | Fee Simple |
| 6. Fuel Tank Sites | Fee Simple |
| 7. Telephone Structures | Fee Simple |

D. EDUCATION FACILITIES

- | | |
|-----------------------------|---|
| 1. Elementary Schools | Fee Simple Title in Trust
Territory or Municipality with
Trust Territory-allocated
Rights by Agreement |
| 2. Junior High Schools | Fee Simple |
| 3. High Schools | Fee Simple |
| 4. Vocational Schools | Fee Simple |
| 5. Special Training Schools | Fee Simple |
| 6. Interim Facilities | 20-year Lease with Option to
Buy |

E. GOVERNMENT HOUSING

- | | |
|--|--|
| 1. Staff Housing, Homes | 20-to 25-year lease with option to Renew |
| 2. Staff Housing, Apartments | 50-year lease |
| 3. Staff Housing as Part of Another Capital Improvement Facility | Fee Simple |

F. HEALTH FACILITIES

- | | |
|--|--|
| 1. General Hospitals | Fee Simple |
| 2. District and sub-District Hospitals | Fee Simple |
| 3. Dispensaries (under \$50,000) | 20-to 30-year lease with option to Renew |

G. AIRPORTS AND PORT FACILITIES

- | | |
|-----------------------------------|------------|
| 1. Docks and Piers | Fee Simple |
| 2. Airfields and Associated Space | Fee Simple |
| 3. Warehouse | Fee Simple |

H. GOVERNMENT ADMINISTRATION

- | | |
|---------------------------------|---------------------------------------|
| 1. Court House | Fee Simple |
| 2. Administration, Civic Center | Fee Simple |
| 3. Agriculture Station | Long-term Leases with Option to Renew |

I. QUARRIES

Short-term Lease, License or Permit

J. COMMUNICATIONS

- | | |
|-------------------|--------------------------------------|
| 1. Administration | Fee Simple |
| 2. Antenna Fields | Long-term Lease with Option to Renew |

NOTES: ^{1/} Fee Simple includes fee simple defeasible: "As long as the land is used for public purposes."

Interest to be acquired by the Trust Territory Government unless otherwise noted.

APPLICATION FOR LAND FOR CAPITAL IMPROVEMENT PROJECT

PROJECT NO. _____

TO: District Administrator, _____ District

FROM: District Planning Officer, _____ District

Answer all questions fully. Use additional sheets, if necessary.

1. PURPOSE: A parcel of land is required for the following - (state purpose).
2. CONSTRUCTION SCHEDULE: Construction is to commence by _____ 19____.
It is requested that the land be set aside by the District Land Management Officer by _____ 19____.
3. PROJECT FUNDING: Project is programmed to be funded in FY _____.
It is expected to be completed at a cost of \$ _____.
4. LOCATION: Facility to be constructed at:
 - (a) District _____
 - (b) Island _____
 - (c) Municipality _____
 - (d) Village _____
 - (e) Enumeration District _____

NOTE: Attach Locality Sketch

5. AREA REQUIRED: Amount of land required (in acres): _____

NOTE: Attach reconnaissance engineering report of Headquarters Public Works Project Engineer/Architect, or District Director of Public Works, and sketch showing proposed boundaries of site.

6. STATE OF LAND: Proposed site is situated on -

☐ Private Land☐ Public Land☐ Retention Land☐ Unknown

7. TITLE INTEREST IN LAND REQUIRED: What is the minimum interest proposed to be acquired in the land? (For guidance see Appendix A, Manual Chapter 485.1)

(An acquisition option agreement has/has not been executed)

8. FUNDS FOR ACQUISITION OF PRIVATE LAND:
Funds for acquisition of private land have been included in budget for project in amount of \$ _____

9. PLANNING:
The project conforms to the District Master Plan.
Siting approved by -

(a) District Administrator ☐ Yes ☐ No

Signature

Date

(b) District Land Management Officer ☐ Yes ☐ No

Signature

Date

(c) District Planning Officer ☐ Yes ☐ No

Signature

Date

(d) District Planning Commission or Land Advisory Board ☐ Yes ☐ No

Signature

Date

(e) Using Agency ☐ Yes ☐ No

Signature

Date

10. ALTERNATIVE SITES: (Attach location and site maps)

(An acquisition option agreement has/has not been executed)

11. UNIFORM RELOCATION ASSISTANCE ACT: Action necessary to effect compliance with Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 detailed in Attached Exhibit A. Cost of compliance included in budget for project in following amount

Account No. _____ \$ _____

12. SURVEYING AND MAPPING SERVICES REQUIRED: (Specify in detail survey information desired. Indicate dates, surveys required, by)

(a) PROPERTY (approximate site boundaries required should be indicated on sketch under 4.)

(b) TOPOGRAPHIC (Include desired contour interval)

(c) AS-BUILT SURVEYS

(d) UTILITIES SURVEYS(e) OTHER SURVEYS (Specify)

13. FUNDS FOR SURVEYING, MAPPING SERVICES AND REAL ESTATE SERVICES- For land surveys, land acquisition, property damage, topographical survey, sub-surface exploration, site preparation, re-entry permits, option costs, relocation assistance, funds have been included in the budget for project in following amount
- Account No. _____ \$ _____
14. FORM TT 901 -Job Order Request for estimates attached. Reflects services required above.
15. ENTRY PERMITS - Will/will not be required for engineering surveys, and if required has been obtained. Specify types of surveys or exploration work to be undertaken by personnel not in Division, Lands and Surveys.
16. MANAGEMENT - The Trust Territory Government Department or activity responsible for administration of facility to be situated on land is _____

17. CERTIFICATION OF FUNDS AVAILABLE -

- (a) Land Surveys \$ _____
- (b) Land Acquisition \$ _____
- (c) Property Damage \$ _____
- (d) Topographical Surface \$ _____
- (e) Sub-surface Exploration \$ _____
- (f) Site Preparation \$ _____

(g) Re-entry Permits \$ _____
 (h) Option Costs \$ _____
 (i) Relocation Assistance \$ _____

TOTAL AMOUNT

\$ _____

Approved by:

 District Finance Officer

 Date

 District Administrator

 Date

 District Planning Officer

 Date

- Attachments: 1. Locality Sketches
2. Alternative Sketches
3. TT Form No. 901

Below this line for District Land Management Office use only

Date Application Received _____

Project Title _____

File No. _____ Date _____

Project No. _____

Funding by _____

Date Construction _____ Construction Cost \$ _____

LAND: Area Required _____

Title Required _____

STATUS: Private _____

Private Land Acquisition Cost \$ _____

Acquisition Option Agreement

Date Executed _____

Public _____

Account Chargeable _____

SURVEY: Permit of Entry Grant Date _____

Topo Map No. _____ Date _____

Property Map No. _____ Date _____

As-built Map No. _____ Date _____

CERTIFICATE OF OWNERSHIP BY: _____

Date _____

LAND SET ASIDE - SERIAL LMO _____

Date _____

WHEN COMPLETED SUBMIT ORIGINAL TO THE DISTRICT ADMINISTRATOR

GUIDELINES FOR COMPILATION OF ABSTRACTS OF TITLE

1. The following sources of information should be researched and copies acquired of all documents relating to the land to be abstracted:
 - a. Japanese Documents
 - b. Japanese Cadastral Maps
 - c. Japanese Inventories
 - d. German Documents, Maps and Inventories
 - e. Spanish Documents
 - f. Land Title Officer Adjudications, Exchange Agreements
 - g. Cadastral Surveys, etc.
 - h. Court Records
 - i. Land Commission Records
 - j. Land Registrar Records
 - k. District Land Office Files
2. Obtain copies of documents relating to the land in question in the possession of private persons, if available.
3. Obtain affidavits relative to the land in question from any individual(s) who have pertinent knowledge. In this connection, obtain all possible documents, both confirming and negating ostensible ownership. If an affidavit is obtained stating the land is private land of the affiant, a supporting document should be obtained from clan, tribe or lineage from which the land derived, verifying such individual ownership and signed by those members authorized to convey such collective ownership land.
4. Any other information available should be reduced to writing and copied.
5. All written data should then be assembled in chronological order, the pages numbered in sequence and an abstractor's certificate inserted at the end. This certificate should read:

I, _____, District Land Management Officer of _____ District certify that I personally researched, or members of my staff under my immediate supervision researched, all pertinent documents relating to (describe land) in the Office of the Land Commission, the District Land Management Office, the Office of the Clerk of Courts, and in the Office of the District Registrar for _____ District and have caused copies of the same to be incorporated herein. I have also made personal inquiry and have

APPENDIX C

caused the results of said inquiry to be reduced to writing and incorporated herein. My title search began on _____, 19____, and ended on _____, 19____. This abstract does not cover any matter not of record except for the results of personal inquiry in affidavits included. The period of time covered by said abstract and by this certificate began on _____, 19____, and ended on _____, 19____.

District Land Management Officer

District

6. District Land Management Officers will henceforth not attempt to issue title opinions. This function is henceforth reserved for the District Attorney. All Land Management Officers will, however, take cognizance of the facts that

PROPER AND DILIGENT ABSTRACTING IS ESSENTIAL TO EFFECTIVE TITLE EXAMINATION AND OPINION!

IF YOU ARE NEGLIGENT IN YOUR TITLE RESEARCH OR COMPILATION OF THE ABSTRACT, YOU MAY BE HELD ACCOUNTABLE FOR TITLE PROBLEMS THAT ARISE LATER AS A RESULT OF YOUR NEGLIGENCE!

THE DISTRICT ATTORNEY CAN ONLY EXAMINE THE DOCUMENTS ABSTRACTED! HIS TITLE OPINION WILL, IN LARGE MEASURE, BE DEPENDENT UPON YOUR CAREFUL RESEARCH!

GUIDELINES FOR TITLE OPINIONS

The title opinion must contain the following essential elements:

1. The basis for the title opinion. The attorney should indicate whether the title opinion is based upon a personal search of the land records or upon a title insurance policy issued by a licensed title company. If based upon a personal search of the records, the dates or search should be given. If based upon a title insurance policy, a copy of said policy should be made an attachment to the title opinion. If based upon an abstract of title, the abstract should be described.
2. A legal description of the land covered by the opinion and/or identification thereof by parcel, tract or area number, as shown in Exhibit "A" property map attached to the project application. The legal description should agree with the Exhibit "A". Any discrepancies should be fully explained.
3. The quality of title or other interest held must be specified, i.e., fee simple, easement, lease, etc. In order to indicate that an owner holds the entire property interest, subject to no, or only minor encumbrances, the title opinion must use the term "fee simple." The use of the term "good and merchantable title" is not acceptable.
4. Any defects in title or outstanding encumbrances, such as lease, easements, mortgages, liens, mineral rights, etc., must be set forth and explained in the opinion to permit a determination as to whether such will interfere with the accomplishment of the project or the use and operation thereof. A statement by the attorney to the effect that there are no outstanding exceptions to title that will interfere with the accomplishment of the project or the use and operation thereof is not acceptable. If there are no outstanding exceptions, it should be so stated in the opinion. Where there are outstanding easements, he should indicate their possible effect on the project or the use and operation of the project at the time the opinion is submitted.

GUIDE FOR PREPARATION OF TITLE OPINION

In preparing a title opinion on lands acquired by the Government, the attorney should include several elements which are essential to the formulation of an acceptable opinion. These elements are as follow, but need not appear in numerical order:

1. If the title opinion is based on a search of the records, the nature and location of the records and beginning and ending of the period searched should be stated. If the opinion is based on a title insurance policy, a copy of the policy should accompany the title opinion.

EXAMPLE:

"I have searched the land records in the District of Yap, located in the Trust Territory of the Pacific Islands, for the period beginning with (the beginning document) issued to John Brown by the Trust Territory of the Pacific Islands on 1 April 1870, and ending with (the ending document) the entry made at 10:30 a.m., 4 March 1959, covering the following-described land..."

2. Legal description of land and/or identification thereof by parcel or tract number as shown on the property map identified as Exhibit "A".

EXAMPLE:

"Parcel 1: NW $\frac{1}{4}$, NW $\frac{1}{4}$ Sec. 8, TWP 43 N. Yap District and consisting of 40 acres, more or less, and identified as Parcel 1 on the Exhibit "A" attached to the Project Application dated _____ for Project No. _____."

"Parcel 2: (etc.)...."

The legal description of the land may be by legal subdivisions (as shown above) if surveyed by Government survey, or by metes and bounds if unsurveyed. Any discrepancies between the above description and Exhibit "A" should be explained. The date of the Project application and project number will be furnished.

3. Name of holder of title, quality of title, and the defects and encumbrances, if any, to said title. If no outstanding encumbrances exist, a statement to that effect must be made.

EXAMPLE:

"...The City of Colonia holds fee simple title to said land subject to the following defects and encumbrances (list all defects, as well as encumbrances including leases, easements, mortgages, judgments, liens, taxes, assessments, reservations of mineral rights, etc.)..."

The use of the term "good and merchantable title" is not acceptable.

4. The title opinion will be of material aid if it contains advice as to the action which should be taken under local law to remedy any defects in title arising from failure to follow statutory documentation requirements in one or more of the links in the chain of title. It is further necessary that the encumbrances listed above be explained to assist in determining whether they might interfere with the accomplishment of the project or the use and operation thereof. Advice from the District Attorney as to the manner in which these encumbrances may be extinguished or modified should be included.

The title opinion should be supported by the following documents:

- (1) Where the Government acquires an interest, a copy of the interest conveyance must be furnished. The opinion must contain a statement as to the nature and quality of the interest held by the grantor in the property affected by the grant. Any encumbrances to the title should be listed and explained in order that a determination can be made as to whether they will interfere with or abridge the rights granted.
- (2) Where the Government acquires a long-term lease for the development of all or part of the project, a copy of the lease must be furnished with the title opinion. The quality of title held by the grantor and any exceptions to or encumbrances against the title should be set forth and explained in the title opinion.
- (3) When donated land is involved, the title opinion must be supported by a copy of the deed.

The land covered by the title opinion should be physically inspected by District Office personnel to determine if there are any unrecorded easements or other interests affecting the property which are not covered by the opinion and which would interfere with the project or operation.

S A M P L E

TO:

I, John Doe, an attorney at law duly licensed to practice in the Trust Territory of the Pacific Islands, hereby certify that I have examined the public records of the District of Yap, as same relate to land designated as Tract No. _____ shown on Exhibit "A" to the Project Application which was incorporated in and made a part of the Grant Agreement for Federal-Air Airport Project No. _____ at the Yap District Airport located in Yap District, Trust Territory of the Pacific Islands. The examination covered the period of _____ years and from such examination I certify that as of the _____ day of _____, 19____, the Town of Colonia has fee, simple title to above numbered tract free and clear of all encumbrances except:

(List exceptions, if any. If there are no exceptions, indicate by stating "NONE.")

Attorney at Law

SURVEY GUIDELINES

The District Surveyor will prepare a final drawing (or plat) conforming to all published operations and technical instructions as issued by the Division of Lands and Surveys, based on a field survey of the parcel of land involved.

The drawing (or plat) will be recommended for approval by the District Surveyor and the District Land Management Officer will approve the drawing (or plat).

The District Surveyor will prepare a written legal description of the parcel of land surveyed to be submitted with the drawing (or plat) to the District Attorney. A sepia of the approved drawing (or plat) and one copy of the legal description will be submitted to the District Attorney (with the final package) for submission to Headquarters, Division of Lands and Surveys, for inclusion in the records' storage.

MEMORANDUM:

TO : District Administrator, Marianas
 District Administrator, Palau
 District Administrator, Yap
 Chief, Agriculture Division
 Chief, Marine Resources

THRU : Director, Resources and Development

FROM : Chief, Lands and Surveys

SUBJECT: Coconut Crab Management

DATE: March 23, 1971
 Serial: 18398
 File: 178-77.0

This Division has, through its Branch of Land Resources, been working toward the collection of information necessary to serve as a basis for a program of coconut crab management. This activity is being coordinated with the Division of Marine Resources. It is hoped that in time the management programs will result in coconut crab production becoming a significant commercial activity.

Dr. Ernst S. Reese of the University of Hawaii who has conducted detailed studies of the life history of these crabs has offered his help.

Although it is planned to conduct most of experimental phases of the program in the Mariana Islands, Dr. Reese would also like to visit Yap and Palau. He has submitted the following schedule:

Arrive Saipan	April 13, 1971
Depart Saipan to Guam	April 16, 1971
Depart Guam for Yap	April 19, 1971
Depart Yap for Koror	April 21, 1971
Return to Honolulu	April 23, 1971

We will make the necessary hotel reservations and transportation arrangements for his stay here in the Marianas. I understand that Peter Wilson has been notified and will make arrangements in Palau.

ORIGINATOR	
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2.

ORIGINATOR

ROUTING

If the District could make hotel reservations for his stay in Yape, it would be appreciated.

Paul D. Dennis

cc: Special Consultant

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TRUST TERRITORY OF THE PACIFIC ISLANDS

OFFICE OF THE HIGH COMMISSIONER
SAIPAN, MARIANA ISLANDS 96950

ONLY ADDRESS
MIGOT SAIPAN

MEMORANDUM:

DATE: March 23, 1971
Serial:LS8598
File:178.77.0

TO : District Administrator, Marianas
District Administrator, Palau
District Administrator, Yap
Chief, Agriculture Division
Chief, Marine Resources
THRU : Director, Resources and Development *MAJ*
FROM : Chief, Lands and Surveys
SUBJECT: Coconut Crab Management

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Paul D. Dennis

Paul D. Dennis

cc: Special Consultant

CONSERVATION COMMITTEE FOR MICRONESIA
(A Committee of the Pacific Science Board,
National Research Council)

A STATEMENT OF CONSERVATION PRINCIPLES FOR MICRONESIA (1)

Introduction

The primary aim of conservation in Micronesia is the health, survival, and self-sufficient life of the people of Micronesia in the real world of the foreseeable future. This aim must include, in this present world, a moderate but continuous contact with, and participation in, the network of world commerce and communication. On the contrary, we must not suppose that the welfare of the people of Micronesia can be promoted by a change of their way of life into preponderant or even substantial dependence on consumer goods or mechanized facilities.

The status of soil, plants, animals, water supply, or other natural resources in a program of conservation, over and above their functional interest to specialists, is clearly to be evaluated in its long run relation to human welfare. Any establishment of sanctuaries or other preservation of things as they are derives its value from one or both of two considerations. First, to permit the rounded and adequate taxonomic, physiologic and ecologic analysis of the ensemble of existing conditions that is still so fragmentary; second, to proceed with the utmost caution and circumspection in making changes in a network where we at present have such grave doubts of our capacity to make large-scale improvements safely.

One of the primary responsibilities of any current generation is to maintain the environment in such condition that they and their successors may find it a fit place to lead happy and satisfying lives. For this purpose it is necessary to consider both material and intangible or aesthetic and intellectual values. It would be ironic if we should, by our educational progress, develop in the Micronesians the capacity, more than they do at present, to appreciate and benefit from the beauty and interest in their surroundings, only to find that these features of their environment have become largely things of the past.

We recognize that our instruments and machinery with capacity for benefit to native aims and practices are equally the means by which irretrievable damage and irreversible change may be done; drugs, poisons, firearms, various forms of machinery. Even in our own culture these things are not all good, and destructive applications are the common. The more will this be the case when they are suddenly made available without the accumulation of generations which experienced them in part being.

We do not believe that the people of Micronesia can return wholly to their former way of life, either to their own contentment or in relation to unavoidable realities in the Pacific world.

178-771-8

We do believe that we can improve on the experience of the western world where exploitation has been too tardily followed by too little conservation. We believe that a truly efficient and stable utilization can only be developed by conservative and restrained action. To develop only after full consideration of collateral and ultimate consequences as well as immediate and principal objectives is true conservation.

Outline of Subject Matter

The chief groups of natural resources are: soils, water, minerals, plants and animals. With the latter comes man, his cultural heritage and material monuments and relics. As stated by Holt and others, these resources, both exhaustible and renewable, constitute an enormously complicated web, whose very existences may well be threatened by undue and ill-considered unraveling at any one point. It is a challenge to the various groups of biologists and other specialists that none should seek their desired ends without the fullest possible consideration of the collateral results of new tensions or relaxations in this web. It seems almost the nature of exploitation that its course is linear and its estimate of profit are the words of destruction of lands, soils, water resources and of worthy social fabric.

The recommended specific aims that follow are but a few whose outlines can at this time be discerned. Most important is continued investigation and education toward a more understanding code of conservational procedure that a future generation will write and read.

The Saving of the Soil

With certainty that agriculture in Micronesia will be intensified comes the obligation to avoid the destructive, shifting agriculture so common in the tropics. Wise conservation calls for avoidance of deep plowing and heavy tillage equipment (heavy tractors and moldboard plows), the use, alternately with crops, of some of the many leguminous plants found in the Trust Territory, avoidance of use of fire for general clearing and avoidance of every other practice which threatens the natural structure and humus of the soil. Use of tree crops is urged as far as possible since for them the necessary tillage is far less destructive of the soil. All these procedures will reduce and retard the need for commercial fertilizers which can probably be economically justified for but few crops. Practices that leave bare-ness on the land, or that erode soil erosion should be discouraged. Cultivation rows should follow the contour across the slope, rather than run up and down hill, whether made by plow or hand tillage. Where rows have been made on the slopes threatened by erosion, the area should be re-vegetated by planting leguminous plants.

Use and Evaluation of Water Supplies

Water supply available on a given island depends on rainfall, the nature of the soil and rocks and the island's size and relation to the sea. Runoff increased by disturbance of vegetation and soil is likely to decrease groundwater supplies. These supplies in many of the islands are chiefly in the floating lens which lies on the salt water just above and below sealevel. In small islands or in islands of porous or cavernous structure this lens is often in a delicate state of equilibrium which can withstand but a limited draft through wells or shafts without destruction by salt encroachment.

Providing for the increasing demands for water will require not only great caution in utilization but protection of critical watersheds. Because of the certainty of increasing demand and the impracticability of relying wholly on spot surveys, it is urged that provision be made for a territory-wide recording service for rainfall, water levels, station data on quantities and drawdown, and salinity, under the direction of a competent hydrologist.

Conservation and Use of Mineral Resources

"The conservation program, while safeguarding the mineral resources of Trust Territory against unwise exploitation, must provide for eventual utilization of these resources for the maximum benefit of all the people. This will involve close scrutiny of all proposals for exploitation, and the issuance of permits only after determination that such exploitation will in fact be in the best interest of the people." (Holt)

Establishment and Management of Public Forests

Remnants of former forest plantations exist on several islands, and, in some of these, fine timber species have reached the fruiting age. There is also much native forest in good condition. Using these trees as sources of seed, public forests should be established and provision made for their management. Value of such forests for water conservation and for the development of forest industries and handicrafts is self-evident and the latter group of enterprises appears more promising than any other that might depend on export of the products.

Control of Fire

"The greatest single hazard to the soils, vegetation, wildlife, ground water, and to the well-being of the people of the Trust Territory is the indiscriminate burning of vegetation." (Holt) Fire is certainly an increasing source of destruction and loss, owing in part to the greater concentration of structures, property, and crops under present conditions. Civil Administration Units have

already taken steps to curb the practice. Continued emphasis will be required, by regulations, by example and by education to cope with this ill.

Control of Grazing

Overgrazing is not at present a problem. Limited numbers of cattle and other domestic animals would be a desirable addition to native economy from dietary and other standpoints. Because of disastrous experience of tropical islands elsewhere, any proposal for commercial cattle raising should be very carefully examined. Any such enterprise should be permitted only under adequate safeguards as to rotation of pasture and range lands and adherence to all conservation principles.

Control of Pests

"Control of pests that damage desirable vegetation or interfere with the production of crops, or which are injurious to the welfare of humans and other animals, must be an integral part of any conservation program. Therefore continuing stress should be placed upon the formulation and enforcement of quarantine regulations; and on effective biological control of the giant African snail, the Marianne coconut beetle, and the rhinoceros coconut beetle. Chemical and cultural control of these and other pests should not be overlooked. Problems posed by heavy rodent populations demand solution. In addition, more active steps should be taken to eliminate or prevent the spread of noxious weeds that have already gained a foothold in the Trust Territory. In many cases, this might be done by early applications of effective herbicides. This should be tried with the infestation of sensitive brier (*Mimosa* or possibly *Shrankia*) on Rota." (Holt)

Conservation and Use of Marine Resources

Increase of population, development of marine industries, and the advent of destructive or doubtful methods of capture, all conspire to demand regulations to prevent wastage and depletion of marine food and other resources and insure their maintenance on a sustained yield basis. Further investigation and action are needed to bring about the establishment of profitable and permanent marine industries.

Preservation of Native Flora and Fauna

The establishment of preserves and sanctuaries for native flora and fauna, as well as to preserve natural scenic features, is desirable both on aesthetic and cultural grounds and on the ground that only in such a manner can desirable species be preserved and their characteristics and relation to other species and the environment be fully determined. The understanding and support of the people should be sought through an educational program. The history of most advanced peoples in this field shows the need of an early and

vigorous program unless irreparable losses are to be incurred. The possibility of providing open seasons for the taking of certain wildlife species may be considered when the preservation seems assured and sufficient data on habits are available.

With the preservation of native species should go an agricultural program for the improvement of these species as well as a carefully regulated introduction and improvement of species of plants and animals from similar environments. Neither an attitude of laissez faire nor one of complete prohibition will suffice. Work of former experiment stations of the Japanese will furnish a starting point and this work should be reactivated at the earliest possible moment to avoid further loss of continuity.

Rehabilitation of Construction Areas

Areas now covered by abandoned roads, air strips, paved housing and warehouse areas, and quarries are all needed within the foreseeable future for agriculture. To break up these areas by heavy machinery would perhaps be prohibitively expensive. An alternative method is to blast holes at favorable points, plant suitable tree species in creeks, and the like. The process could be a slow-moving one but provision should be made for starting it at selected points.

Management of Unsettled Government Land

"After the reservation of appropriate former Japanese lands, or lands on uninhabited islands, as forest preserves, territorial parks, and wildlife sanctuaries, much land undoubtedly will remain unsettled until needed for resettlement schemes or other types of native occupancy. Such land should be managed under definite plans to prevent despoilation by fire, unauthorized timber cutting, soil erosion, and so on. In no case should government land be assigned for private or clan use unless land capability investigations have shown the land to be suited to the uses proposed. Moreover, no government land should be alienated until it has been determined that such land would not better serve the long-term interest of the Trust Territory as territorial forest, park, wildlife sanctuary, or as some other public reservation." (Hole)

Preservation of Archaeological Remains

"While not a natural resource, there are archaeological remains of great general and scientific interest in Trust Territory that must not be lost to the world in general and to future generations of Micronesians in particular. The preservation of these remains must well be made a part of the conservation program. This may best be accomplished by designating them as archaeological remnants, and, after initial clean up, making responsibility for maintenance upon the municipalities concerned. This should not be done, however, until the programs have first been thoroughly discussed with the local officials and the reasons for this carefully explained.

Thereafter only occasional supervision by the Civil Administration Units should be necessary." (Holt)

Prohibition of Firearms

The restriction of firearms to a legitimate use by regularly constituted public safety agencies is greatly to be desired. There is no need for possession of firearms for general protection since there are no predatory animals of significance, and it appears quite unwise that a relatively primitive people should be provided with such a modern means of self-destruction. The preservation of various endemic birds and other animals would be far more insured if firearms could be restricted from general use.

Technical Information and Research

There is very urgent need for technical information on the relationship of the various resources that enter into the conservation picture. Information is needed both as to distribution and quantities of various resources and also as to the inter-relationships and replacement potentialities. There is need for translating and making available the results of Japanese research as well as need for prompt publication and distribution of findings as they are compiled. The studies should include native customs, languages, and attitudes if the Trust Territory officials are effectively to carry out the cultural mandates imposed on them. E. G. Holt has outlined these needs in greater detail.

Conservation Education of the Native Peoples

"Although stated last, the education of the indigenous people in the objectives, principles, and practices of resource conservation is the very crux of the entire conservation program. It is at once the most vital part of the program and the most difficult of accomplishment. It is essentially long range in time and Territory-wide in scope. Though the schools, the demonstration farms, and the extension agents must assume responsibility for most of the formal instruction, the execution of the program demands the devoted perseverance of every member of the staff and the closest possible coordination of every Trust Territory activity." (Holt)

- (1) Based largely on a Conservation program prepared by Ernest G. Holt, former Staff Conservation Officer, the Trust Territory of the Pacific Islands. (Written about 1950)

Jan. 6, 1971
 Serial:LS8154
 File:178.77.0

Dr. Ernst S. Reese
 Department of Zoology
 Edmonson Hall
 University of Hawaii
 2538 The Mall
 Honolulu, Hawaii 96822

Dear Dr. Reese:

Just a note to let you know that we are looking forward to your visit in April, for approximately two weeks. I feel that Peter Wilson, Chief of Marine Resources as well as personnel from the Marianas District Administration should be involved at least part of the time, therefore, could you advise me as to the dates involved. This will also be necessary for the preparation of reimbursement agreements, room reservations, transportation requests etc.

It may be possible to include one of your assistants; although this is not firm we should have his name.

There will be personnel available to assist you at all times in any of your work here.

As soon as we have received the above information we will finalize the necessary paper work.

Norman P. Knott
 Chief, Branch of Land Resources

cc: Wyman X. Zachary
 Paul Dennis
 Peter Wilson
 Manny Sproat
 Dwight Hiene
 Francisco C. Ada

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Director of Resources and Development
 Thru: Chief, Division of Lands & Surveys
 Chief, Branch of Land Resources

Coconut Crab Management

We are attaching hereto for your information (1) a proposal for coconut crab management (2) a letter from Dr. Ernst S. Reese of the University of Hawaii and (3) a copy of our reply to his letter.

In view of the rather depleted status of the crab population on Saipan, it will probably be necessary for some of the field work to be done on Tinian, Rota and Agincan Islands. The total cost involved can be borne within the budget of this Branch. I would propose that upon Dr. Reese's arrival we have a brief familiarization meeting with appropriate personnel from Headquarters and the District. After he has completed his field work we should have a meeting to develop in all detail possible, an action program. I feel that if at all possible Peter Wilson should be in attendance at this session.

Norman P. Knott

Attachments: a/s

cc: Francisco C. Ada
 Peter Wilson
 Manny Sprout
 Dwight Hlene
 Isaac Ikehara
 Dr. Robert Jones

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PROPOSAL FOR COCONUT CRAB
MANAGEMENT STUDY

PURPOSE:

To gain sufficient additional knowledge to permit the establishment of a management program aimed at increasing the harvest of crabs for personal use and to supply the local markets.

JUSTIFICATION:

The populations of this native species are extremely low on many of the islands having high human populations. Boats are going from Saipah to Anatahan to gather crabs with a depressing effect on the populations there. This occurs to a varying degree in other areas of the Territory.

Based on available knowledge of the life history of coconut crab it would appear that with a minimum of regulation and expense the populations could be returned to a maximum density or carrying capacity on each island resulting in a substantially increased harvest.

This would involve the prohibition of harvesting females with eggs; a closed season on both sexes during the breeding season and the possible establishment of a few small reserves.

It may be possible to increase the carrying capacity of any island thru certain minor habitat development projects.

If present indications are borne out this species could provide more food and recreation as well as becoming an available product in the local markets and a standard item on restaurant menus.

PROCEDURES

- I. Collect and analyse all available information concerning:-
 - a. growth rate
 - b. breeding season
 - c. land habitat requirements
 - d. marine habitat requirements
 - e. adult mortality factors
 - f. juvenile mortality factors
- II. Secure for each geographic area an analysis of body concentration of cesium 137 and strontium 90 to determine the safety of crabs for human consumption.
- III. Initiate an experimental program of artificial rearing of coconut crabs.
- IV. Establish a pilot management program in one area to determine population responses in relation to management regulations and techniques.

PRESENT STATUS AND NEEDS:

The process of gathering available information is under way. Contacts have been made with Dr. Robert Conard of Brookhaven National Laboratory, Dr. Howard Vogel, Jr. of the University of Tennessee and Dr. Ernst Reese of the University of Hawaii as well as others. Each of the above men have worked on some phase of coconut crab life history and each is enthusiastic about the possibility of a management program for the species. Technical data is being furnished by the others to Dr. Reese to provide coordination at an academic level.

Page 3.

Dr. Reese has offered to spend two weeks in the Mariana Islands District during April, 1971 to assist in structuring a pilot management program.

The costs involved would be transportation and per diem.

This visit should be coordinated with the Marine Resources Division and the District Administrator, to permit the development of future action programs.

Norman P. Knott 12/29/70

UNIVERSITY OF HAWAII

Department of Zoology

December 7, 1970

Mr. Norman P. Knott
Chief, Land Resource Branch
Trust Territory of the Pacific Islands
Office of the High Commissioner
Saipan, Mariana Islands 96950

Dear Mr. Knott:

Thank you very much for your letter of November 17 which, as you probably know by now, was sent to Dr. Conrad by mistake and I in turn received his letter. This worked out for the best since now Dr. Conrad and I are in touch with one another.

I am sorry that the reprints have not as yet arrived and I will send along another batch by air mail this time.

With regard to the management program, I have started looking at size descriptions of males and females to determine at what size females begin to carry eggs. I think it would be very helpful if I could visit the area in the Mariana Islands as you suggested. At the moment I envision no expenses beyond transportation, per diem. I would, however, like to bring with me one or two other persons who have worked with me in the Marshall Islands. I hope this is possible because I feel that we may wish to do some sampling. At the moment I don't see the need for a boat. However, if we start to look for possible islands for refuge sites, then we would probably need to arrange for some sort of transportation since these islands would preferably be uninhabited. It is difficult to say when the best time for such a visit would be but probably April would be the best for me, and also from my Eniwetok data that is when the coconut crab population begins reproductive activity.

I look forward to hearing of any further developments, and please let me know if you have further questions or ideas on these matters. Tentatively, I will begin to think in terms of a one or two week trip in April in 1971.

Best Wishes to Aloha,

Emmett L. Knott
Emmet L. Knott
Professor of Zoology

ESL:jl



Edmondson Hall-208 The Mall-Honolulu, Hawaii 96822 Cable Address: UNHAW

Action: Knott

178,770

DEPARTMENT OF FISH AND GAME

2 NINTH STREET
SACRAMENTO, CALIFORNIA 95814
G. Ray Arnett, Director



December 24, 1970

Mr. Norman P. Knott
Chief, Land Resources Branch
Trust Territory of the Pacific Islands
Office of the High Commissioner
Saipan, Mariana Islands 96950

How good, Norm---

--to hear from you and know where you are and what
you're up to.

That's some island you've got there. Would love to see
that part of the world again under present conditions, not
as it was when I was in the Marines during World War II
on Saipan and Guam.

I'm sending along some information on our experiences
with tilapia which I hope will be helpful to you.

Hope sometime I can accept your invitation to visit the
"lush" on the tropical island!

Best regards, and keep in touch.

Sincerely,

Ray
Director



Happy Holidays!

Biggs, Crouse, Hunter & I
had our annual sojourn to
Eastern Washington this past
Oct. Good therapy for all!!
Best regards

Action: Mr. Knott

1787710

ESTABLISHMENT OF *TILAPIA MOSSAMBICA* PETERS IN BARD VALLEY, IMPERIAL COUNTY, CALIFORNIA

On July 2, 1948, Franklin Hoover and Marshall Stevens, California Department of Fish and Game, verified the presence of *Tilapia* in two irrigation drains, the Apex Drain and the Reservation Main Drain, near Bard, Imperial County. The only other known free-living *tilapia* in California exist in a small ditch near the Hot Mineral Spa, Imperial County, approximately 75 miles northwest of Bards. St. Vincent, 1946.

Melvin Sheldon, Imperial Irrigation District, first informed us of the presence of *tilapia* in Bard Valley on June 28, 1948. Ethelwynn Treweyas, British Museum, Natural History, Zoological Department, provided positive identification of the *tilapia* as *T. mossambica*. Carl L. Hubbs, Scripps Institution of Oceanography, gave valuable assistance in the identification.

Tilapia were collected from the Apex Drain in July 1948, and from the Reservation Main Drain in July 1948 and February, May, and June 1949.

Tilapia are known to exist from these collections in approximately 15 miles of these drains.

Water temperatures in most groups of these ditches seldom drop below 60 F. (Melvin Sheldon, pers. comm.). This temperature is within the lower temperature limits of *T. mossambica* (Kelly, 1957).

The Arizona Game and Fish Department introduced *T. mossambica* in several drains near Yuma. The *tilapia* that were stocked in the Yuma canal system are *T. nilotica* and have been self-supporting in that area for some six years (M. E. Eskdale, pers. comm., 1948). We believe the *tilapia* now found in the Bard Valley originated from the *tilapia* introduced near Yuma and are the result of natural migration or unauthorized introductions.

Due to the popularity of *tilapia* as a sport fish, we anticipate its further dispersal in southern California as a result of unauthorized introductions by anglers.

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NOTES

ADDITION OF TILAPIA MOSSAMBICA PETERS TO THE CALIFORNIA FAUNA

Some tilapia that I described on January 3, 1964, in a 0.25-acre pond and its tributary 5 miles north of the Salton Sea, represent the first verified record of free-living tilapia in California.

The pond and tributary are on the eastern side of the Salton Sea, near the Hot Mineral Spa, Imperial County. Mosquitofish, *Gambusia affinis*, sailfin molly, *Poecilia latipinna*, and desert pupfish, *Cyprinodon maculatus*, are also present in this tributary.

My field identification of tilapia from Lowe's (1955) key was confirmed by Chen Foo Yan, Tropical Fish Culture Research Institute, Malacca. He states: "pers. commun. . . The fish are definitely *Tilapia mossambica* of Malaysian (or Javanese) origin and probably originated from consignments from Singapore."

Humphrey Greenwood, Ethelwynn Troway, and Ro McCannell, British Museum (Natural History, Zoological Department); Carl L. Hubbs, Scripps Institution of Oceanography; and G.W. Prowse, Tropical Fish Culture Research Institute, Malacca, gave valuable assistance in the identification.

D. J. Sargent, owner of Del Mancho El Sargent, a tropical fish farm located directly below the pond, has cultured tilapia on his property. This may have been the source of these specimens.

Tilapia could become established in the Salton Sea, because temperature and salinity ranges there are within their physiological tolerance, and I held juvenile and adult tilapia in Salton Sea water for more than a month. Experimental work at China Fisheries Base also showed that some tilapia can survive temperatures of 42 F.; the Salton Sea reaches a minimum temperature of 50 F. (Carpelan, 1961; Hickling (1963) stated that tilapia can exist in salt water, but high salinities may inhibit breeding; however, Brock and Takata (1954) reported that tilapia spawned in sea water having a salinity of about 34.85‰; the Salton Sea averages about 35.0‰, and has substantial areas of lower salinity off the mouths of the New and Alamo rivers at the Sea's south end.

Undesirable consequences of tilapia becoming established in the Salton Sea prompted an attempt to eradicate them from the pond and tributary with rotenone in January 1964. Over 5,000 dead tilapia (approximately 770 pounds) were removed from the pond, alone. A random sample showed these fish averaged 2.2 ounces each and ranged from 1.2 to 8.5 inches SL. In addition, the pond contained five channel catfish, *Ictalurus punctatus*, 12 to 15 inches long; one, 14 inch large-mouth bass, *Micropterus salmoides*; numerous mollusks, *P. latipinna* and *P. macrurus*, 0.5 to 2 inches long; and a single 2 inch angelfish, *Pterophyllum channa*.

The tributary flows through a dense growth of tamarisk, *Tamarix* sp., salt cedar, *Monothoeum* sp., bulrushes, *Scirpus* sp., and cattail, *Typha* sp. Complete extermination of the tilapia seemed improbable because of the near impenetrability of the vegetation and the devious nature of the water flow.

During a reinspection of the area on June 2, 1965, Paul Giguere, Walter Thomsen, and I captured a mature male tilapia in the tributary. We also observed numerous adult and juvenile tilapia in a shallow sump at the south end of Sargent's hatchery. There is no surface connection from the sump to the tributary; it apparently receives water through the soil from hatchery ponds. On June 16, 1965, Giguere and I observed several juvenile tilapia in the tributary and captured a mature female. From these observations, we concluded that a breeding population now exists in this small drainage.

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The Resources Agency of California
Department of Fish and Game

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TILAPIA MOSSAMBICA (PETERS)^{1/}

JAMES A. ST. ANANT and MARSHALL C. STEVENS
Region 5, Inland Fisheries

SUMMARY

This bibliography contains 213 selected references on Tilapia mossambica. All significant papers known to us dealing with this species are presented, as well as some reports that have application to work with this species. The sources for these references include the Bio-Medical Library of the University of California at Los Angeles, the Crookshank Hall Library of Pomona College, the Chico Fisheries Base Library, and the Resources Agency Library, Sacramento.

ACKNOWLEDGMENTS

Robert Carr assisted with the literature search. Marvin J. Whalls and Keith Anderson gave editorial advice.

^{1/} Submitted January 1967.
Inland Fisheries Administrative Report No. 67-3.

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The Resources Agency of California
Department of Fish and Game

PROGRESS REPORT OF THE CULTURE OF TILAPIA MOSSAMBICA (PETERS)
HYBRIDS IN SOUTHERN CALIFORNIA^{1/}

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SUMMARY

In December 1963 we initiated a study of the culture of Tilapia mossambica hybrids (Gambian x Javanese subspecies). The purpose of the study was to gain knowledge concerning the following: production of all-male hybrids, cultural and rearing requirements, growth rates, fecundity, temperature tolerances, optimum stocking size, catchability by anglers, and control of insects and plant nuisances.

We have developed successful techniques for culturing all-male hybrids. Hybrids held in holding ponds at the Chino Fisheries Base grow 1.0 to 2.4 inches per month.

It appears the hybrids can tolerate brief periods of temperature as low as 40° F., but normally cannot survive when low temperatures prevail.

Maximum production potential is yet to be determined. However, we believe under suitable hatchery conditions with a basic breeding unit of five females per male, 20,000 hybrids can be produced per unit per year.

Fingerlings should be stocked in the spring at a length of 2 to 3 inches, thereby obtaining sufficient growth to provide catchable-sized 6 inches or longer fish for the late summer and fall months. No problems are anticipated concerning catchability although angler acceptance is yet to be ascertained.

It appears the hybrids would not control midges but may control aquatic plants in small ponds through nest building activities.

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INTRODUCTION

The many scientists who are now fostering the culture of tilapia for protein or sport are participating in an ancient practice. Hickling (1963) states, "The earliest known representation of a fish-culture pond in history -- a bas-relief from an Egyptian tomb dating from before 2000 B.C. -- shows a pair of small fish that can be identified as Tilapia nilotica, a species still abundant in the Nile Valley."

It is not unlikely that when Simon, called Peter, and his brother Andrew cast their nets into the Sea of Galilee, their catch included tilapia. Gill (1907) mentions, referring to tilapia, "The same species and closely related ones are inhabitants of Palestine and undoubtedly were the chief products of the fisher disciples of Jesus Christ ..."

Another species, T. mossambica (sometimes called the large-mouthed kruper, bream, or African mouth breeder), is an ancient resident of Mozambique and the east coast of Africa.

Schuster in 1959, according to Vaas and Hofstede (1952), described a new species collected from the Serang River of East Java and named it ikan mudjair after its discoverer, Pak Mudjair. Other authorities later recognized the species as T. mossambica.

During World War II, the Japanese army of occupation disseminated the species throughout Java. Since that time, it has become an important source of protein in most of Indonesia and Malaysia. The fish is also popular in Taiwan and comprises a substantial proportion of the harvest from certain lakes in Ceylon according to Vaas and Hofstede (op. cit.).

Tilapia are now common in some countries of South and Central America. Granados (1964, personal correspondence) reported that the species is present in Mexico and that Auburn University, Auburn, Alabama, supplied them with stock of T. mossambica, T. nilotica, and T. melanopleura.

American workers in various southern states including Alabama, Texas, and Arizona have been culturing tilapia for experimental purposes, but have been generally cautious in respect to introduction in natural waters.

Hickling (op. cit.) and his associates obtained fertile, but exclusively male offspring from the crossing of two subspecies of T. mossambica. The intriguing development arose from the pairing of females from Java with males of a subspecies indigenous to the brackish swamps of Zanzibar. Their experiments were originally intended to develop sterile hybrids for use in the culture of tilapia in small ponds and rice paddies.

T. mossambica are maternal brooders, the eggs and fry being reared in the female's mouth. Spawning begins with the male building a nest or, if no bottom material is present, he will clean a particular area for the nest site. According to Simpson (1954) and Hickling (op. cit.), the female lays the eggs in the nest or spot designated by the male. After the male has fertilized the eggs they are collected by the female and held in her mouth. We have not seen the actual spawning act. The female holds the eggs, and subsequently the young fry, in her mouth continuously until they become free swimming.

Free swimming tilapia fry return to the mother's mouth upon being frightened. The fry swim near the mother who then picks them up. It is a cooperative action. The common conception is that the female opens her mouth and passively allows the fry to enter, and according to McConnell (personal communication), the fry will swim into an artificial (dummy) mother fish's mouth.

Most authorities agree that tilapia do not thrive at water temperatures below 50° F. Swingle (1957) experienced a total loss of tilapia at 41° F. during cold-room tests at Auburn University. Although tilapia could probably survive and prosper in many waters of southern United States, American fisheries workers have not been too enthusiastic about its future as a sport fish.

The fecundity of tilapia, combined with under harvest or insufficient predation, can result in rapid proliferation and started populations. Eickling's (op. cit.) experiences suggested to us that the use of the male tilapia hybrids might be of worth in some of the warmer waters of southern California.

In 1963 we learned that the Arizona Game and Fish Department had introduced T. mossambica (males and females) into canals and ditches tributary to the Colorado River. Region 5 personnel reported that the tilapia has survived. Roger Lanse, California Department of Fish and Game, has observed tilapia spawning activity in the Yuma Valley East Drain, three miles east of Yuma. It appeared likely that the species could, eventually, appear in the Colorado River and some of its California distributaries. The rapid spread of the threadfin shad, Dorosoma petenense, throughout the canals and wasteways of Imperial County, as well as its appearance in the Salton Sea, suggested the possibility of a similar experience with tilapia.

Therefore, it seemed essential that we prepare for management of the species if, and when, it appeared in California waters. We required a source of tilapia for controlled investigations which would enable us to study the adaptability of the species and to determine its possible effect upon the established ichthyofauna of southern California. We could, at the same time, explore the possibility of production and beneficial utilization of the male hybrids for sport, forage, and aquatic vegetation and insect control.

On November 12, 1963, the California Fish and Game Commission authorized the importation of T. mossambica (Javanese and Sabahari) for experimental purposes.

St. Amant (1966) subsequently reported that T. mossambica (Javanese) are established in a tributary of the Salton Sea, Imperial County, California.

In December 1963 we obtained 111 tilapia from Dr. William J. McConnell of the Arizona Cooperative Wildlife Research Unit at the University of Arizona in Tucson (Table 1).

We divided the tilapia study into three separate phases: laboratory, holding pond, and experimental stockings. The laboratory studies started from the need of initial stocks of tilapia hybrids and the development of culture methods which, if warranted, could be expanded into hatchery production. The pond studies were an essential extension of the laboratory phase. The stocking of hybrids under natural conditions was required to provide information on their adaptability to our waters.

TABLE 1

Tilapia Acquired in Arizona for Use in Region 5 Studies

Strain	Sex	Number	Total weight in ounces	Average weight in ounces
<u>T. mossambica</u> (Javanese) ^{1/}	Male	7	6.2	0.88
<u>T. mossambica</u> (Javanese)	Not determined	96	5.9	0.06
<u>T. mossambica</u> (Zanzibari) ^{2/}	Male	4	3.5	0.44
	Female	4		

^{1/} The T. mossambica (Javanese) were obtained by McConnell from the Tishomingo National Fish Hatchery, Oklahoma.

^{2/} The T. mossambica (Zanzibari) were obtained by McConnell from the Tropical Fish Culture Research Institute, Malacca, Malaysia.

ACKNOWLEDGMENTS

Marvin J. Whalls initiated the study. Robert G. Hulquist and Ira L. Sharp fabricated the aeration equipment utilized in the laboratory experiments and participated in other phases of the study.

Other Chino Fisheries Base personnel who took part in the study included Larry Puckett, John Dienstadt, Richard Jones, Robert Carr, and Robert Andrews. Lee Mills assisted in supervision of the Santee Pond Test.

Dr. Ernest Bay, University of California, Riverside, conducted the pond tests held at the U. C. R. experimental ponds.

Dr. McConnell, University of Arizona, supplied the original test fish and provided valuable suggestions.

Whalls and Paul Giguere gave editorial assistance.

LABORATORY STUDIES

Equipment

We converted a small storage room at the Chino Fisheries Base into a heated tilapia laboratory. Our original fish tanks consisted of a modified wooden hatchery trough and two 20-gallon glass aquaria. We soon encountered a need of additional small tanks for separation of sexes and subspecies.

We then improvised additional tanks from discarded refrigerator liners made of sheet steel. They were lined with polyethylene sheets to prevent leakage and corrosion. Their usable capacity varied from 46 to 58 gallons. We also borrowed a supply of 60-gallon polypropylene tanks from the University of California, Riverside, which appear to be ideal from the standpoint of resistance to leakage, breakage, and corrosion.

A Model X-2 Quincy air compressor with a 1 HP electric motor, pressure control valve, oil filter, and bleed valve provides sufficient air for all tank water. The manifolds and supply lines are of plastic tubing. Aeration stones are of the conventional type. Salt accumulation necessitated frequent replacement of the aeration stones. On one occasion, the dissolved oxygen in the various tanks ranged from 3.2 to 6.4 ppm. The lowest readings were associated with tanks having the stones in longest use.

Filtration and Cleaning of Tanks

In time we were able to avoid most of the tank cleaning chores and water replacements associated with the methods utilized by the Arizona workers. We maintained satisfactory water clarity and purity with activated charcoal aquarium filters.

Fish Cover

We prepared artificial cover, as recommended by McConnell, by cutting sheets of black polyethylene film into 1-inch wide strips and tying them together at one end to form mop-like bundles. When the bundles are weighted and placed in a tank, the free ends become loosely dispersed in an excellent simulation of natural vegetation.

Food Studies

The tilapia would not consume guinea pig pellets which were recommended by McConnell. We found that both rabbit and guinea pig feeds disintegrated. Only the smaller fish utilized the fragments. The use of rodent feeds originated in a belief that tilapia prefer and thrive on vegetable diets rather than feeds containing animal proteins.

We have since experimented with a variety of feeds which included filamentous green algae, *Cladophora*; frozen daphnia; mosquito larvae; cooked fish; chopped liver; hamburger; chicken; turkey; and canned dog food. Adults and juveniles accepted all of the above items. The adults would devour live mosquitofish, *Gambusia affinis*, and guppies, *Lebistes reticulatus*. The fingerlings also consumed fresh fish when they were small enough to be ingested. The Zanzibari and the hybrids are more piscivorous than the Javanese.

For convenience and economy, we finally adopted a standard diet of dry trout meal (crumbles or pellets) with occasional supplements of filamentous algae and frozen or live daphnia.

The particle size of the dry meal fed to tilapia of various size groups appears in Table 2. A typical analysis is presented in Table 3.

Uchida and King (1962) demonstrated that there was a significant difference in the growth rate of tilapia subsisting on livestock feed (white wheat middlings) and those living on dry trout feeds of high quality. The growth of tilapia on the trout meal surpassed that of the fish on the middlings diet. The authors, however, intimated that prolonged use of the higher quality diet might impair the spawning potential of brood stock. Our tilapia have been on the trout meal diet for approximately 16 months. Their growth has been excellent. As yet, we have not detected any impairment in maturation or fecundity which could be attributed to diet.

Normally, we feed the tilapia fingerlings and adults once a day at a rate equivalent to 3 to 5 percent of their body weight. Feedings in excess of 5 percent usually result in unutilized residues and consequent reduction in dissolved oxygen and water clarity.

As with most fry, the first 10 to 14 days is a critical period. The tilapia fry readily consume fine tropical fish meals, but we found that pulverized trout meal was a satisfactory substitute. There should be at least two, preferably more, feedings per day for fry less than 14 days old. Our feeding schedules represented a compromise with operating conditions rather than an effort to obtain maximum growth.

Tilapia Breeding

The immediate objectives of our tilapia culture were: (1) development of a broodstock reserve, and (2) production of sufficient hybrid fry for future investigations.

We obtained the first Javanese fry on February 11, 1964. The 19 fry were transported to a nursery tank. They were about 0.2 inches long. Their first food consisted of the fine meal, and gradually the diet was changed to coarser food (crumbles). We measured a sample of five fish on February 29 and all 19 on March 19. They had grown about 1 inch by the 16th day and 2 inches by the 38th day.

TABLE 2

Tilapia Feed Particle Size

Size of tilapia	California Department of Fish and Game standard numbers	U. S. standard screen size
Fry	Starter	
Advanced fry (2 weeks old to 2 inches long)	No. 1 crumbles	All through No. 16, all retained on No. 26
Fingerlings (2 to 3 1/2 inches long)	No. 4 crumbles	All through No. 12, all retained on No. 16
Fingerlings (3 1/2 inches long through large adults)	3/32-inch pellets	

TABLE 3

Typical Analysis, Dry Trout Feed

Constituent	Percent
Protein	37.0
Carbohydrate	35.0
Fat	5.0
Ash	9.0
Fibre	2.86
Moisture	10.0
Miscellaneous, additives such as vitamins	1.14

We observed another group of Javanese fry on February 24 in a 20-gallon aquarium which contained five females and one male. The young were prematurely released by the mother. We use the term premature to indicate that the yolk sac was still visible. Normally, the mother does not release the fry until after yolk sac absorption.

Four fry, placed in a 1-ounce jar of un aerated, unchlorinated tapwater, survived without feed or aeration for four days. They were still alive after seven additional days of similar conditions in a 1-quart jar. Such hardiness appears to be a characteristic of young tilapia.

Initial Production of Zanzibari Fry

We noticed the first sign of spawning by the Zanzibari on February 10, when a male prepared a nest by removing most of the sand from one end of the aquarium bottom. By February 20, the buccal cavity of the female was fully enlarged and contained eggs. We then removed the male from the tank. We discovered fry in the female's mouth on February 27. Two days later we removed 299 young. The female was about 5 inches long. The fecundity of tilapia becomes apparent when we consider that T. mossambica can spawn monthly.

Initial Hybrid Production

On March 13, 1964, following daily checks, we observed the first hybrid fry. They appeared in a tank containing four females Javanese and one male Zanzibari. There were only four fry in the tank. Two days later there were three. Later observations showed that insufficient cover was available to prevent cannibalism, resulting in the poor fry survival.

Tilapia Production: Improvements

For our next tilapia breeding studies, we employed the modified hatchery trough, which is 3 feet wide, 8 feet long, and 18 inches deep, with abundant plastic cover. We divided the trough into two parts with a net screen in order to prevent parental predation. We reasoned that the screen would permit escape from adults.

On April 1, 1964, we placed a male Zanzibari and four females Javanese in one portion of the trough. On April 22 we found fry in the mouth of a female. We then placed 2 inches of sand on the bottom of the trough to provide nest material. The male constructed a nest within a few days.

We observed no other evidences of breeding activity until June 29 when we again noticed fry in the mouth of a female. On August 13 we drained the tank and found 50 hybrid fingerlings of several size groups. It was obvious that we had failed to detect several spawnings. It further appeared that the adults had consumed most of the fry.

We decided that visual inspection alone in the trough would not insure prompt recognition of egg-carrying females. In addition it appears necessary to remove the mother holding the fry or the fry from the mother's mouth prior to the free-swimming stage to prevent parental predation. It is possible that predation could be minimized by increasing the feed during this time.

We then utilized the converted refrigerator liners for breeding tanks. The females were inspected in hand every 10 days. If eggs were present, the female was placed in a separate incubation tank. When the mother's mouth contained fry, we transferred the young to a nursery tank. The extraction of fry from the buccal cavity is a simple process. We merely hold the female just under the water surface of the nursery tank, open her mouth, and shake the fry free into the water.

The method of periodic in-hand inspection of females and early separation of fry and mother appears to be the most practical means of obtaining maximum survival of fry. Under the temperature conditions in the Chino laboratory, a 10-day inspection period would allow detection of eggs or captive fry. A larger production schedule with more uniform water temperatures would probably require daily inspection of females in incubator tanks to permit prompt removal of fry.

Further simplification for detecting eggs can be obtained by the use of glass aquaria for breeding tanks where females carrying eggs or fry can be readily observed.

Other Tilapia Production Methods

We found that we could successfully hatch tilapia eggs in jected jars. We had a 99 percent survival with one batch of 120 eggs. Although the Arizona workers (personal communication) experienced an average mortality of about 50 percent in similar tests, we believe tilapia eggs can be incubated in egg jars or hatching trays with circulating warm water and aeration. We made no effort to strip eggs from gravid females for hatching experiments, because we did not care to subject our limited brood stock to injury.

We began the study with 100 Javanese and 8 Zanzibari. The latter comprised half of the known stock in the United States. In December 1965 we had the following on hand at Chino Fisheries Base.

	<u>Adult male</u>	<u>Adult female</u>	<u>Fingerling</u>	<u>Fry</u>
Javanese	5	33	27	-
Zanzibari	3	3	-	-
Hybrid	250	-	310	1,450

Since March 23, 1964, the date of the first hatch of hybrid fry, we have produced over 5,000 young hybrids, none of which were females.

We were unable to maintain a satisfactory uniformity of water temperatures. Therefore, diurnal and tank-to-tank fluctuations did not permit accurate laboratory tests of food consumption, growth rates, and breeding or incubation periods. Room temperatures ranged from 73 to 116° F. Tank water temperatures ranged from 65 to 102° F. The highest room and water temperatures resulted from a readjustment of the manual gas heater controls on February 11. The tilapia showed no evidence of distress during their brief exposure to the higher temperatures. Actually, their activity and food consumption increased temporarily and then declined as the water became cooler. In contrast, there was a mortality of about 90 percent of the guppies held as tilapia food in the same room.

Despite the variations, our crude equipment did allow us to produce additional brood stock and to obtain a sufficient supply of hybrids for future work. In addition, our experiences are helpful in the planning of improved facilities.

There can be no question that temperature is an extremely important factor in the production of tilapia. North Viet Nam workers, Long, Giay, and Vinh (1961) concluded that 30° C. (86° F.) is the optimum water temperature for tilapia rearing. The upper lethal temperature is 43° C. (109° F.); the upper sublethal temperature is 37° C. (98.8° F.) to 38° C. (100.4° F.) and higher. The lower sublethal temperature is 16° C. (60.8° F.) to 20° C. (68° F.) and lower; the lower lethal temperatures is 6° C. (42.8° F.).

Allanson and Noble (1964) found the upper lethal temperature was 38° C. (100.8° F.

We found the upper temperature tolerance limit to be about 109° F., and the lower limit about 42° F.

Our laboratory is now equipped with thermostatic controlled natural gas heat. We will now be able to maintain our breeding and rearing temperatures near the desired 80° F. mark.

Mortality

Several female Javanese have been killed by Zanzibari males. The deaths occurred during comparative testing of spawning conditions in two 20-gallon aquaria. We had placed a 2-inch layer of sand on the bottom of one aquarium. The other contained no sand. There was a male Zanzibari and female Javanese in each tank. Four days after nest construction, the female, 3.8 inches long, in the sand-bottom tank displayed various injuries including lost scales and caudal fin damage. The male was approximately 5 inches long. We separated her from the male, but she soon died.

We then replaced the female with another which was 4.2 inches long. The male killed her within five days. The same behavior occurred in the tank without sand, but we saved the female by prompt removal. I believe the mate killing behavior occurred because the females were not ready to spawn, the male was larger, and there was no cover for the female. We have had no difficulty since we began providing an abundance of cover in the form of plastic strips.

Most other fish losses occurred because of escape from tanks by jumping out, from handling, and by predation. We have covered all aquaria and tanks with polyethylene film mounted on wooden frames. Although we installed the covers to prevent the fish from jumping out of the tanks, we discovered that the semi-opaqueness of the film reduced alarm activity caused by movements of personnel about the laboratory. Normally, the Zanzibari and hybrids are more subject to fright than the Javanese.

During the pond tests, two broods of tilapia were infected with fungus (*Saprolegnia*). One case resulted from handling during seining. The other, presumably, resulted from poor conditions associated with low water temperatures. All fish recovered completely after two dips of 30 to 60 seconds duration in a 1:15,000 solution of malachite green. Their prompt recovery indicated that a single treatment might have sufficed.

Deformities

We have observed only seven deformed fish in our entire production of hybrids. The malformations were confined to two batches of fish and amounted to less than 1 percent of each lot. The deformity appeared to be a curvature or shortening of the spine in four of the fish. Two fish lacked the right eye and one had no caudal peduncle or caudal fin.

Our experiences with T. mossambica indicate they are not readily susceptible to diseases and parasites. Chindic (1955) referring to the genus Tilapia in general states, "So far no serious diseases or parasites of Tilapia have been recorded." We have not encountered fungus outbreaks during warm water periods. Tilapia, it appears, are more susceptible to fungus attacks at the colder temperatures.

As yet we have not held the tilapia with other warmwater fishes to determine how susceptible they are to transmission of diseases and parasites.

Incubation and Fecundity

Under temperature conditions in the Ohio laboratory, fry normally hatch between 7 to 10 days after egg deposition. The fry become free swimming 3 to 5 days later. The water temperatures generally ranged from 60 to 80° F. The maintenance of uniform optimum temperatures would undoubtedly shorten incubation and fry development periods.

Fecundity of Javanese Females

Our present brood Javanese females produce an average of about 200 fry per spawning, but the number varies considerably in relation to the size of the parent.

We are now recording the length, weight, and fry production of all brood females. Table 4 provides data on production of individual fish. Note the difference in size and production of fish numbers 2 and 7.

Spawning Behavior in Unisexual Populations

Ripe Javanese females manifest typical maturation characteristics of mouth pouch development, oviposition, and storage of eggs in the buccal cavity even when males are absent. Under these conditions, the eggs are retained for a considerable period. We assume that the female eventually consumes the infertile eggs, for we have not observed discarded eggs or fragments during such behavior.

Mature male hybrids exhibit spawning characteristics including coloration and nest building despite the absence of females. Although other workers, Vaas and Hofstede (op. cit.) and Uchida and King (op. cit.), cite rare instances of male T. mossambica holding eggs and fry in their mouths, we have not observed such behavior.

Determination of Sex

We have utilized the external features illustrated in Figure 1 as a means of identifying the sex of tilapia. As a check upon our method, the author and a seasonal employee independently determined the sex of 87 young tilapia which ranged in size from 2.7 to 4.0 inches. Our determinations were in total agreement when the same group of fish became sexually mature, we repeated the process. The diagnosed number of males and females coincided with our initial determinations.

TABLE 4

Individual Hybrid Fry Production of Javanese Females

Number	Total length in inches	Weight in ounces	Number of fry
1	4.0 ^{1/2}	0.39	65
2	4.5	0.53	304
3	4.6	0.62	153
4	4.7	0.62	293
5	4.9	0.52	235
6	5.4	0.75	261
7	6.1	1.2	95

Average number of fry per female = 203

^{2/}* The 4.0-inch female was measured before spawning; the others after the fry were released.

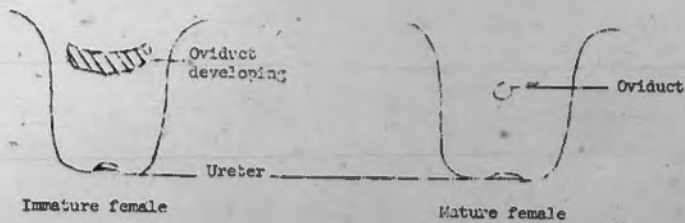
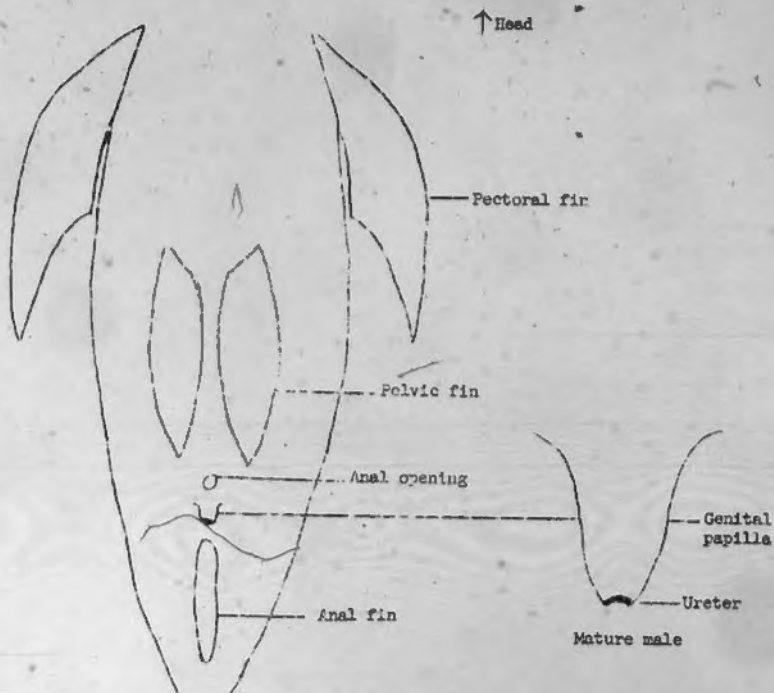


FIGURE 1. Sexual dimorphism of T. moseambica.

In 1964 we chemically treated a small pond and tributary stream in Riverside Court which contained tilapia. The tilapia are believed to have become established following unauthorized introductions (St. Amant, op. cit.). During the treatment, we examined a sample of 100 tilapia of varying sizes. Three members of our staff independently determined the sex of each fish. We were in complete accord.

We then examined each fish internally in the same order as the external inspection. There were no disagreements in the results of the two examinations. The determination of sex is difficult when the tilapia are smaller than 2.5 inches.

Visual Difference Between the Subspecies of T. mossambica:
Zanzibari and Javanese

According to Lowe (1955), T. mossambica can be distinguished from other species by the following key characteristics:

1. Dorsal fin 27-29 (rarely 25 or 30) spiny and soft rays.
2. Anal fin 12-15 spiny and soft rays.
3. Gill rakers 14-19 (rarely 20).
4. Outer teeth in jaws of mature male are unicuspid.
5. Lateral line series approximately 29-32 (rarely 33).
6. Variable color, dark brown, grey to silver grey, sometimes with about six vertical dark bars.

To prevent breeding the wrong combination of subspecies (i.e., Javanese male x Zanzibari female) it would be helpful to be aware of the visual differences between the two subspecies.

Dr. Prowse, Director of the Tropical Fish Culture Research Institute, Malacca, (personal correspondence) related some of the work conducted by Chen Foo Yan on the differences between the Zanzibari and Javanese subspecies. He states, "Coloration does differ but is not consistent. The yellowish color in the cheek and chin of the Javanese fish is usually slightly more intense and there is usually a spectacle mark across the nose of the fish. In the Javanese strain the vertical black bars of the female are usually more prominent. These color differences vary however, with food, light, etc." He further mentions that the pectoral fins of the Javanese placed horizontally reach the base of the third anal spine. The Zanzibari pectoral fins reach only to the genital papilla. Also the Javanese appear to have fewer gill rakers than the Zanzibari (14 to 16 and 21 to 33, respectively).

When a sufficient supply of both subspecies is available, we will examine these fish for additional differences and develop a key to the two subspecies.

POND STUDIES

We selected four ponds in which to conduct studies: Chino Fisheries Base holding ponds; Indio City Golf Course Pond; University of California, Riverside experimental ponds; and pond number two of the Santee County Water District.

Chino Fisheries Base Ponds

Reproduction

We tested the use of a spawning cage placed in a 1/8-acre holding pond. This cage consisted of a modified live car including a solid bottom for holding spawning material (sand). In this cage we placed one male Zanzibari and three female Javanese, the sex ratio recommended by Ucnida and King (op. cit.). By confining the parent stock in a cage, the possibility of offspring crossing with parents would be eliminated. Also the fry could escape predation.

The three females were placed in the cage on May 22, 1964. The male was placed in the cage on May 27. Water temperature in the pond during the test period May 22 to June 19 ranged from 70 to 75° F. Periodic examinations of the cage were made to check for indications of spawning. No signs of reproduction were found, so the fish were released into the pond on June 22 and the cage removed.

The failure of the tilapia to breed in the cage was probably due to low water temperatures. There is no other obvious reason why reproduction should not occur in this type of situation. It is doubtful that this method would be practical in the production of large numbers of hybrids because it is difficult to determine the number of fry being produced, and cannibalism might result because of different sized hybrids being in the same pond.

To determine the production of the brood fish released in this pond, it was drained on August 24 and we attempted to recover all of the fish. Those recovered were as follows:

Parent stock	Size planted		Size August 24	
	Inches	Ounces	Inches	Ounces
Male Zanzibari	6.1	1.2	6.8	3.7
Female Javanese	3.5	0.28	3.8	0.39
Female Javanese	3.7	0.30	4.0	0.50
Female Javanese	4.0	0.35	7.1	2.0

In addition, 56 hybrids averaging 1.76 inches long were recovered. They were not the total production, since some fish were lost in aquatic plant growth and mud during the process of draining the pond. However, even if large numbers could be produced in ponds, this method lacks the control necessary to consistently produce significantly large numbers of hybrids.

Growth

To determine the best size for stocking to obtain maximum survival, we stocked four holding ponds with various sized fry and fingerling hybrids (Table 5). As would be expected, larger, older fry had a higher survival rate than smaller, younger fry.

The largest hybrids we have obtained to date were fish measuring 8.7 inches. These fish were held in a pond for 5.7 months. Most of the growth was obtained in the first 3 months. Little growth was made in October or November due to low water temperature. Growth of fish held in the other ponds ranged from 1.0 to 2.4 inches per month. The best growth rate was obtained when the fish were held in ponds when the temperatures were the highest.

TABLE 5

Results of Stocking Various Sized Hybrid Fry in the Chino Fisheries Base Holding Ponds

Pond	Size (acres)	Date planted	Number planted	Size of fry	Date recovered	Number recovered	Percent survival	Pounds recovered	Average length (inches)
S1	1/8	5-27-64	206	Large ^{1/}	11-13-64	163	79	50.9	6.05
S1	1/8	6-6-64	66	Large	8-3-64	55	83	34.74	4.52
I3	1/4	7-20-64	842	Small ^{2/}	10-30-64	426	51	36.76	5.23
I4	1/4	7-31-64	275	Small ^{3/}	10-9-64	53	19	5.31	5.29
I1	1/4	8-24-64	257	Small ^{2/}	10-15-64	145	49	0.78	2.00

^{1/} Large fry indicates fry are free swimming and maternal care has ended.^{2/} Small fry indicates fry are free swimming but maternal care has not ended.^{3/} Indicates fry are not yet free swimming.

It appears that temperature is the main limiting factor for growth. Allason and Noble (op. cit.) found that *T. mossambica* do not feed extensively at temperatures below 60° F. Our observations are that feeding slows down when the water temperature is in the low 70's. Conversely, the higher the temperature the more active the fish become, within specified limits.

Hybrids held in a pond for 59 days with an average water temperature of 76.5° F. averaged 2.4 inches per month while hybrids held in a pond for 87 days, but with an average temperature of 71° F. averaged only 1.0 inches per month.

Pond Survival

The recovery of fish stocked in the Chico Fisheries Base ponds varied from 19 to 83 percent (Table 5). The fish were stocked as fry at different times and stocked at different rates in each pond. The highest recovery rates, 83 and 79 percent recovery resulted from ponds stocked with large fry. The lowest recovery rates, 1, 49, and 51 percent recovery occurred in ponds stocked with small fry. The lowest recovery, 19 percent, occurred in the pond where the fry were taken directly from the female's mouth and released into the pond. It appears that it is best to hold the young hybrids to at least the size of free swimming fry before stocking to obtain maximum survival.

Catchability

We did not conduct any catchability tests as such. However, on September 22, 1964 while spin fishing with worms as bait in the S3 pond, I captured the following fish within a few minutes:

<u>Total length in inches</u>	<u>Weight in ounces</u>
8.4	3.9
8.0	3.1
7.9	3.0

The water temperature was 74° F. and the fish readily took the bait.

An earlier attempt to hook tilapia with artificial flies failed to produce any strikes. The water temperature was not recorded.

McConnell (personal communication) found in Arizona that the tilapia hybrid readily accept both artificial flies and worms.

University of California, Riverside Pond

We conducted a test from September 17 to November 16, 1964, using the experimental ponds at the University of California, Riverside. Sixteen hybrids were placed in each of three ponds, 1/150 acre, 18 inches deep, equal to a stocking rate of approximately 205 pounds per acre. Controls consisted of three similar ponds without fish.

The purpose of the test was to obtain data on the effects of the hybrids in controlling insect populations. Larval midge (predominantly *Chironomus californicus*) populations were sampled twice weekly by removing two 1/4-square-foot bottom samples from each pond.

During the week prior to November 16, water temperatures dropped to lows of 42 - 43° F. and all of the fish died. Dr. S. Bay, who supervised this test found the hybrids did not appreciably reduce the number of midge larvae (Figure 2).

Although measurements of larval mosquito populations were not made, general observations indicate the tilapia did control these insects.

Measurements of the tilapia when stocked and at the termination of the test are as follows:

Size range when stocked September 17	Size range at termination of test November 16
4.1 - 5.0 inches	6.25 - 7.75 inches
0.57 - 2.3 ounces	1.0 - 2.8 ounces

Range of growth 2.15 - 3.65 inches.

Santee Pond

To obtain information on growth rates in an effluent pond, we introduced fingerling hybrids into one of the Santee ponds. The pond used in the study is one of five ponds managed by the Santee Water District in Sycamore Canyon, San Diego County. The ponds are being developed as recreational lakes using effluent water originating from the Santee sewage treatment plant. We selected Pond No. 2 since it is closed to angling and supposedly was devoid of fish (pond drained during the winter of 1964). All of the ponds at Santee are enclosed with a fence and the area is patrolled by Water District personnel. The test pond ranges in depth from 3.5 to 12 feet and covers 1/2 acre.

On June 7, 1965, we planted 1,140 fingerling hybrids. We collected samples of the hybrids monthly by seining and recorded the growth (Table 6).

A fish kill occurred on August 25, 1965, and again on September 8, 1965, in the test pond. An observer at the pond reports that on August 25 he found about 15 dead tilapia; several red-car sunfish, Lepomis microlophus; threadfin shad; and a largemouth bass, Micropterus salmoides, 11 inches long.

A second kill occurred in September which apparently resulted in the complete elimination of all fish. A heavy bloom of the algae Microcystis was noted during both kills.

A qualitative stomach analysis revealed the hybrids had been feeding on dragonfly and damselfly larvae; water boatmen adults; Ephemeroptera, mayfly larvae; and unidentified amphipods. A portion of the stomachs also contained unidentified adult insect parts.

Indio City Golf Course Pond

To obtain data on temperature tolerances, we began a test at the Indio City Golf Course pond. This is a 3-surface-acre pond with a maximum depth of 14 feet. An agreement was reached with the City whereby we had control of angling, fish introduction and removal, and chemical use. On November 2 we placed 30 tilapia hybrids from 5.0 to 5.6 inches long in a live car in the pond. On November 21 we released these fish into the pond and placed 20 additional hybrids from 2.2 to 8.3 inches long in the live-car. The test terminated on December 23, 1964, when

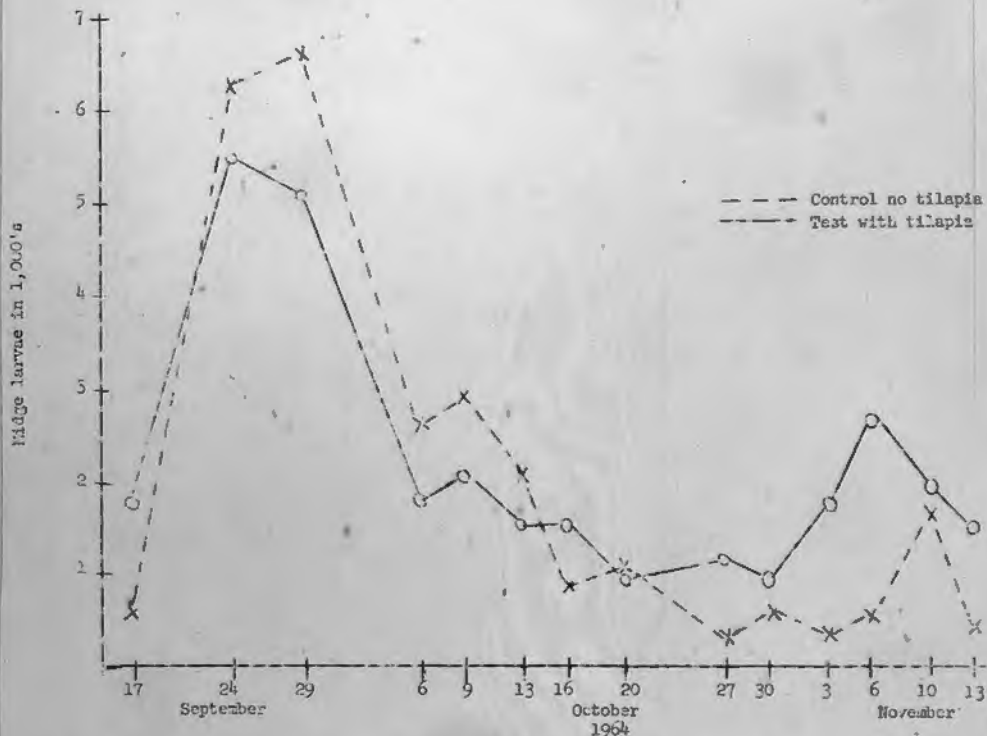


FIGURE 2. Results of test with tilapia in control of midge larvae.

TABLE 5

Growth Rate of Hybrids in Santee Pond No. 2

Date	Total length in inches	Weight in ounces	Average length in inches	Average weight in ounces
6-7-65 ^{1/}	0.7 - 2.3	0.002 - 0.055	2.4	0.006
7-7-65	1.5 - 4.0	0.02 - 0.88	2.6	0.17
8-10-65	3.5 - 5.6	0.26 - 1.3	4.5	0.65
9-8-65 ^{2/}	3.8 - 7.7	0.57 - 2.7 ^{3/}	6.6	2.0

^{1/}Date hybrid fingerlings were planted.

^{2/}Measurements of dead fish following fish kill.

^{3/}Weights are approximate since fish were in various stages of decomposition.

all of the live-car-held fish died and dead fish were found in the pond indicating all of the hybrids had succumbed to low water temperatures. Water temperatures during the test ranged from 70 to 42° F. Prior to the death of the fish in December, the minimum water temperatures stabilized between 50 and 55° F. The lowest temperature, 42° F., occurred on November 15 without affecting the test fish. Therefore, it appears the hybrids can survive low temperatures for a short time with no apparent harmful effects but cannot tolerate low temperatures of 50 to 55° F. for any extended time.

CONCLUSIONS

We have been successful in producing an all-male hybrid with the Zanzibari male and the Japanese female as has been reported by Hickling, (op. cit.) and McConnell (1966).

The culture and rearing requirements have been determined using conditions available at our Chino laboratory. Of various culture methods tested, the following technique has proven to be the most efficient:

1. A Zanzibari male is placed in aquaria with one to five Japanese females. The number of females used is not critical as long as sufficient cover is available and the fish are not crowded. Aquaria, no smaller than 20-gallon capacity, are recommended. No bottom material is required for spawning.
2. Aquaria should be checked daily for females carrying eggs or fry although 10-day checks may suffice.
3. Females carrying eggs should be placed in separate tanks. If the female is carrying fry, these should be removed from the female and placed in a separate tank. It is possible to remove eggs from the female's mouth and achieve high survival. This method has application for hatchery production.
4. Fry should be fed at least twice a day on finely ground trout meal until advanced fry size, then larger food should be provided.

The only disease that occurred during the study was fungus resulting from exposure to low water temperatures. Malachite green effectively controlled the fungus.

Maximum hybrid size obtained to date was 3.7 inches. Growth rates ranged from 1.3 to 2.4 inches per month at the Chino ponds and averaged 1.4 inches per month at the Santee pond.

Well-fed hybrid fry, held in heated tanks, can attain 3 inches in 2 to 3 months.

To obtain maximum growth and survival, during the warm months, the hybrids should be stocked as fingerlings at a length of 2 to 3 inches. By stocking the fingerlings in April, catchable-sized hybrids should be available for the angler by June or July, depending on water temperatures and available food.

Temperature is a limiting factor in the use of tilapia hybrids as a sport fish. Although they can tolerate lower water temperatures than previously believed for brief periods, they cannot tolerate temperatures below 57° F. for an extended time. However, it may be possible, by selective breeding, to produce hybrids that can survive through the winter in some of our reservoirs.

Results of tests conducted at University of California, Riverside, show that T. mossambica are not an effective biological control animal for larval midges.

Observations of the hybrids in controlling aquatic plants suggest they are no more effective than carp. Aquatic plant control is realized mainly through their nest building activities.

No problems are expected concerning the angler catchability and acceptance of the hybrids as a sport fish. Spin fishing with earthworms for bait proved to be an effective method.

FUTURE PROGRAMS

The study will continue at least through 1966. Future investigations are planned to develop parent stock of both the Tanzibari and Javanese subspecies by selective breeding that can produce low temperature tolerant hybrids.

We have begun production of hybrids to supply 10,000 to 20,000 fingerlings for introduction into a southern California water that receives heavy angling pressure. This introduction, along with providing data on catchability, angler reception, and growth rates, should give information on the effects the hybrid has on California ichthyofauna and how the hybrid is affected by other fishes.

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December 14, 1970
 Serial:LS8066
 File:178.77.0

G. Ray Arnett, Director
 California Department of Fish and Game
 The Resource Agency
 1415 9th Street
 Sacramento, California 95814

Dear Ray:

As I recall we last met in our offices in Olympia and enjoyed a small pouring in honor of your new position or some such occasion. Shortly thereafter, having put in 30 years, I decide to retire and let some one else handle the Land Management program for Bigg

Having reached that decision we decide next to see some completely different part of the world. The 2,000 plus islands making up Micronesia are scattered over an area as large as the lower 48 states but in total comprise only about 700 square miles. Cultures are several and varied ranging from the topless grass skirt types right thru to the latest state side fashions. Although there is considerable wildlife here in one context, there is very little in the way of fish and game except for marine species. Here in the Marianas Island the locals enjoy hunting for and eating the large fruit bats. In the Ponape district of the Carolines deer have been introduced from the Philippines. There is limited hunting for feral pigs, goats and for native pigeons in nearly all of the districts. These obvious shortages are to a degree off set by the availability of beefsteaks at \$2.00 with other brands being priced accordingly. I am beginning to understand the origin of the term "a lush tropical island".

There are a few lakes here which were planted with tilapia many years ago. I am trying to collect any information related to the management of these fish and seem to recall that your organization did do some work with tilapia. If any of your men have copies of reports or publications that they could send me I would be deeply appreciative.

Should you ever feel the urge to enjoy a truly unique and interesting vacation catch a plane to Guam and on to Saipan. We will roll out the red carpet.

Sincerely yours,

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BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, L. I., N. Y. 11973

TEL. AREA CODE 516 YAPHANK 4-6262

REFER

MEDICAL DEPARTMENT

November 25, 1970

Mr. Norman P. Knott
Chief, Land Resources Branch
Trust Territory of the Pacific Islands
Saipan, Mariana Islands 96950

Dear Mr. Knott:

I have complied with your request stated in your letter of 17 November regarding information on the coconut crab for Dr. Reese.

The enclosed copies of letters are self-explanatory. If I can be of any further assistance, please let me know.

Sincerely yours,

Robert A. Colard
Robert A. Colard, M. D.

RAC:ls
Enclosures



Action: Mr. Knott

November 25, 1970

Dr. Ernst S. Reese
Associate Professor of Zoology
Edmondson Hall
University of Hawaii
2538 The Mall
Honolulu, Hawaii 96822

Dear Dr. Reese:

Enclosed is an original of a letter to you from Mr. Knott which was sent to me by mistake I believe. Mr. Knott wrote me and asked for information concerning material on the coconut crab. I am enclosing a copy of some references which might be of help. Also, I am enclosing a copy of a letter to Dr. Howard Vogel who was at Eniwetok recently carrying out some observations on the life of the coconut crab. Some of his observations might be very apropos to what you are doing.

I am also enclosing a copy of our latest medical report on the Rongelap people who were exposed to fallout radiation in 1954.

The coconut crab is the only item of diet which we forbid them to eat due to its peculiar ability to concentrate on ^{137}Cs and ^{90}Sr . I am very much interested in the project you have in mind and would appreciate it if you would keep me informed of your progress.

With best wishes,

Sincerely,

Robert A. Conard, M. D.

RAC:ls
Enclosures
CC: Mr. Knott
Dr. Howard Vogel

175-77

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, L.I., N. Y. 11973

TEL. AREA CODE 516 YAPHAMK 4-6252

REF ID: A66848

MEDICAL DEPARTMENT

November 25, 1970

Dr. Howard J. Vogel, Jr.
The University of Tennessee
College of Medicine
Department of Radiology
62 South Dunlap
Memphis, Tennessee 38103

Dear Howard:

Enclosed is a copy of a letter to Dr. Reese at the University of Hawaii in regard to his anticipated establishment of a program for management of the coconut crab in Micronesia. It is interesting that this should come up at this time since when I saw you two weeks ago, we were discussing the feasibility of some such program.

Would you please send Dr. Reese a preprint of the paper on your observations that you carried out on Eniwetok. I am sure this would be very helpful to him.

I certainly enjoyed seeing you in Memphis and appreciated your hospitality.

With best regards,

Sincerely,

Robert A. Conard, M. D.

RAC:ls
CC: Dr. Ernst Reese

THE OCEANIC FOUNDATION

October 1, 1970

178-77-c

Mr. Norman P. Knott
Chief, Branch of Land Resources
Division of Lands and Surveys
Trust Territory of the Pacific Islands
Saipan, Mariana Islands 96950

Dear Mr. Knott:

I enjoyed our discussion on aquaculture in the Trust Territory very much and I appreciate your taking the time to meet with me.

I will check on the information regarding the coconut crab you requested and get something to you as soon as possible.

Should you be in Hawaii, please plan on visiting us at Makapuu.

Sincerely,



William H. Vandling
Associate
Oceanic Peoples

WHV:ko



United States Department of the Interior

OFFICE OF TERRITORIES
WASHINGTON, D.C. 20240

Hon. Edward E. Johnston
High Commissioner
Trust Territory of the
Pacific Islands
Saipan, Mariana Islands 96950

Dear Mr. Johnston:

This is in further regard to the Johnny Horizon program about which Mr. Heller wrote you on July 24.

We enclose a copy of a July 24 memorandum received yesterday from the Johnny Horizon Coordinator, Bureau of Land Management, which offers Johnny Horizon Litterbags for sale. Since a deadline of July 30 is set for placing orders for the bags, we had no opportunity to write and inquire if you wanted any and if so, in what quantity.

We have, therefore, taken the liberty of ordering sent to you 200 small and 100 large Johnny Horizon Litterbags, which we believe you can use on a sample basis. We will bear the nominal cost for these. We are confident that if you need more of these in the future, we will be able to obtain them for you.

Sincerely yours,

Elizabeth P. Farrington
Director

Enclosures

United States Department of the Interior

130

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

July 24, 1970

Memorandum

To: /Assistant Secretary, Public Land Management
Assistant Secretary, Fish and Wildlife and Parks
Assistant Secretary, Water and Power Development
Assistant Secretary, Water Quality and Research
Assistant Secretary, Mineral Resources

Attn: Bureau Johnny Horizon Coordinators

From: Johnny Horizon Coordinator

Subject: Johnny Horizon litterbag purchase

A good exchange of ideas, problems and solutions was voiced at the meeting of Johnny Horizon program coordinators on July 23.

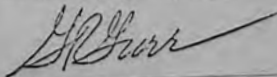
One point of major concern was how and with what do we get started in the program. The two Johnny Horizon polyethelene litterbags provide an immediate point to begin acquiring materials for distribution through your respective Bureaus. The current invitation to bid on litterbag purchases, being circulated by the BLM, does not provide a "ride on" clause.

However, an addendum for additional quantities of litterbags can be issued to the invitation prior to the bid opening date of August 6, 1970.

If the Bureaus participating in the Johnny Horizon program have need for litterbags we must obtain the following information prior to COB 7/30/70:

- (1) number of litterbags by size
 - a. 16" x 18" double wall drawstring
 - b. 9" x 12" car knob
- (2) delivery point or points
- (3) Memorandum from Bureau signifying payment will be made upon delivery.

All Johnny Horizon litterbags will be identified with the Departmental seal only. Your immediate attention would be greatly appreciated.





United States Department of the Interior

OFFICE OF TERRITORIES
WASHINGTON, D.C. 20240

28 1970

Memorandum

To: Mr. G. R. Gurr, Johnny Horizon Coordinator
Bureau of Land Management

From: Director, Office of Territories

Subject: Johnny Horizon Litterbag Purchase

In compliance with the request in your memorandum of July 24, subject as above, will you please send 200 small and 100 large litterbags to each of the people whose names and addresses are listed below:

Hon. John H. Haydon
Governor of American Samoa
Pago Pago, Tutuila
American Samoa 96920

Hon. Edward E. Johnston
High Commissioner, Trust
Territory of the Pacific Islands
Suva, Mariana Islands 96920

Hon. Carlos G. Camacho
Governor of Guam
Agaña, Guam 96910

Hon. Melvin H. Evans
Governor of the Virgin Islands
St. Thomas, Virgin Islands 00801

Payment for the above order will be made by this office.

[Sgd.] Elizabeth P. Farrington

Elizabeth P. Farrington

cc: Gov. Haydon
Gov. Camacho
Gov. Evans
Mr. Johnston

October 20, 1970

William A. Vandling, Associate
Oceanic Peoples,
The Oceanic Foundation
Maka puu Point
Waimanalo, Hawaii 96795

Dear Bill:

Thanks much for the follow up and the information. Since talking with you, I have had a reply from Dr. Reese at The University of Hawaii regarding coconut crabs. His response has definitely increased my opinion concerning the possibility of managing this species.

If at any time we here may be of assistance to you, please drop us a line.

Norman P. Knott
Chief, Land Resources

Serial: 1041
File: 170.07.0

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United States Department of the Interior

OFFICE OF TERRITORIES
WASHINGTON, D.C. 20240

SEP 8 - 1970

Hon. Edward E. Johnston
High Commissioner
Trust Territory of the
Pacific Islands
Saipan, Mariana Islands 96950

Dear Mr. Johnston:

By copy of our memorandum of July 29 to the Bureau of Land Management, you were advised of our order of 300 Johnny Horizon litterbags for each of the territorial governments.

This order has been placed and the bags should be available in about sixty days.

Sincerely yours

Elizabeth P. Farrington

Elizabeth P. Farrington
Director



Return Mr. Knott

18 77.0

Aug. 30, 1970

Serial: L57480

File: 178.77.0

Dr. Ernest S. Reese
Department of Zoology
2638 The Mall
University of Hawaii
HONOLULU
Hawaii 96822

Dear Dr. Reese:

We are giving serious consideration to the development of a program aimed at management of the coconut crab both through protective regulation and through habitat protection. We find, however, that we have insufficient information concerning the life history or habitat requirements of the species to serve as a base for such a program.

We are writing at this time to solicit your ideas as to the essential components of a coconut crab management program and seek any information concerning the species that you may have available for distribution.

Additionally, we would welcome any suggestions you may have concerning additional sources of information.

Sincerely yours,

Norman F. Knott
Chief, Land Resources Branch

cc: Francisco C. Ada, District Administrator, Marianas
Gabriel Dela Cruz, Land Classification Trainee

NKNOTT: dbs

ORIGINATOR

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Pacific Scientific Information Center
BERNICE P. BISHOP MUSEUM

Honolulu, Hawaii 96819. Telephone 835-951

Mailing Address: P.O. Box 6137, Honolulu, Hawaii 96818

Xavier High School, Truk
Sunday Aug 16, 1970

Mr. Werman P. Knott,
Chief, Land Resources Branch,
T.T.P. 1, Saipan, M.I. 96950

Dear Mr. Knott,

Just as I was leaving my Honolulu
office to come here to Truk (at the request
of Mr. Peacock), I received a letter from
the Head Librarian, Hoover Institution, Stanford,
with regard to the request in your letter of
June 23 (Serial LS 7075, File 175.77.0)

"I regret that we have been unable to
locate English translations of the Japanese
publications relating to Micronesia which you list."

When I get back to my office I will
continue to search for copies of such translations.

Yours very sincerely,

Edwin H. Bryan, Jr.

Manager

80

Summary of Achievement

178.77.0

Action: Mr. Knott

ORIGINAL
NKNOTT:mtq

ROUTING

August 12, 1970
Serial: 70-111C
File: 170.77.0

Mr. A. B. Costin
Division of Plant Industry
CSIRO
P.O. Box 100
Canberra City, A.C.T. 2601
Australia

Dear Mr. Costin:

Reference is made to your letter dated June 26, 1970 concerning my participation in Symposium A-10.1 of the Tenth Pacific Science Congress.

You ask if it would be possible for me to emphasize the conservation aspects in my presentation. I assure that, it is not only a possibility but that it would be impossible for me to do other wise. Our basic premise is that land and its resources should be used to meet the environmental requirements of man and that many of the inborn needs are as concerning as the needs for food, water and shelter.

Our approach to land capability inventory at all times recognizes that the pursuit of the obvious and the lack of recognition of the inborn environmental requirements of man has repeatedly placed societies in the position of becoming self-destructive.

You further ask if it will be possible for me to arrange my own finances for attending the conference. This is to assure that it will be possible.

I will look forward to hearing further from you or the organizing secretary as your plans progress.

Yours truly

Norman P. Knott
Chief, Land Resources Branch
Division of Lands and Surveys

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Conservation Legislation

We are enclosing here with two original drafts of a proposed
Micronesian Conservation and Outdoor Recreation Act. These have
been approved by the Attorney General.

We have also prepared a proposed letter of transmittal for your review and consideration.

Excess copies of each are forwarded for your files.

Wynne I. Zachary

NKNOTT:nta

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TRUST TERRITORY OF THE PACIFIC ISLANDS

Office of the High Commissioner, Saipan

TO : Chief, Lands and Surveys

DATE: July 21, 1970

FROM : Director, Resources and Development

SUBJECT: Your June Monthly Report

I note that your June monthly report lists several items under the heading "Outdoor recreation and tourism". Please be advised that "tourism" activities fall under the jurisdiction of the Economic Development Division and will be reported from there for the Department.

Wyman X. Zechary
Wyman X. Zechary

Are we not supposed to report what we worked on or with during the month? PLO

ACTION: Knott 770
178 477



TRUST TERRITORY OF THE PACIFIC ISLANDS

Office of the High Commissioner, Saipan

TO : Chief of Lands and Surveys

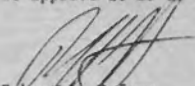
DATE: July 24, 1970

FROM : Attorney General

SUBJECT: Proposed Micronesian Conservation and Outdoor
Recreation Act

Reference is made to your memorandum of July 15, Serial LS 7251, which forwarded for our review as to legal form a bill which supersedes and replaces S. B. 61 and H. B. 77.

We have reviewed the bill, and we approve it as to legal form and sufficiency.


Robert A. Refner

Attachment



Action Mr. Knott

A BILL FOR AN ACT

To authorize and direct the High Commissioner to assure the retention, protection and proper management of the desirable environment and natural resources of Micronesia.

BE IT ENACTED BY THE CONGRESS OF MICRONESIA:

Section 1. This act is known and may be cited as the Micronesian Conservation and Outdoor Recreation Act.

Section 2. Definitions: where ever used in this act the following words shall have the meaning set forth here-in-after,

- (1) Natural Resources; the soils, minerals, non-agricultural plants, wild animals, wild birds, fish and the waters of Micronesia.
- (2) Environment; the sum of external conditions that affect or influence the livelihood, behavior or development of an organism, including man.
- (3) Organism; any living thing.
- (4) Habitat; the kind of place where an organism normally lives.
- (5) Conservation; planned management for continuing use and protection from waste.
- (6) Micronesia; that geographic area included within the Boundaries of the Trust Territory of the Pacific Islands.

Section 3. The High Commissioner or his designated representative is hereby authorized and directed to investigate:

- (a) The various Public Lands, to determine the suitability of such lands for retention in public ownership for the common benefit and enjoyment of the people of Micronesia; such investigation shall among other things give full consideration to:

- (1) The value of such lands for agriculture, forestry, watersheds, recreation and tourism, or as habitat for wild birds, animals, fish or plants, and
- (2) The suitability of such lands for the location of public facilities such as schools, hospitals, governmental offices, communication stations, power stations and agricultural and resources management experiment stations; and,

(b) The potential use capabilities of the land and shallow water areas of Micronesia.

All information arising from such investigations shall be compiled into reports of public record and made available to all governmental agencies and interested citizens of Micronesia for use in achieving the best possible utilization of the limited land areas of Micronesia.

Section 4. The High Commissioner shall, following the conduct of such investigation of any island, district or related group of islands, and following consultation with the appropriate Land Advisory Board or Boards, set aside by formal order, from disposal to private ownership, any of the public lands found to be of significant value for the protection, preservation and management of the natural resources of Micronesia or for use for any other public purpose.

Any such order shall describe the area being retained as public land, by size, location, boundaries and proposed use or uses.

Section 5. Any area so designated can not be used for any purpose contrary to the uses proposed in the order setting the lands

aside, except with the formal approval of the Legislature of the district in which the lands are located and the approval of the Congress of Micronesia.

Section 6. The High Commissioner or his designated representative is authorized and empowered to accept gifts, and negotiate land exchanges, leases, easements or purchases to add desirable and necessary areas to the public land in order to fulfill the intent of this act.

Section 7. The High Commissioner or his designated representative is authorized and empowered to accept gifts and negotiate land exchanges, leases, easements or purchases as may be necessary to provide public rights of way for access to and from areas established in accordance with this act.

Section 8. The Director of Resources and Development shall with the approval of the High Commissioner promulgate rules and regulation necessary to implement this act, which rules and regulations shall have the force and effect of law. The subject matter of such rules and regulations may include but not be limited to:

- (1) Establishing the time, place and manner of taking, harvesting or removing any natural resources of Micronesia;
- (2) Prohibiting the taking, harvesting or removal of any of the natural resources of Micronesia;
- (3) Regulating any action of any person while on

1 any public lands of Micronesia.

2 Section 9. Any person found to be in violation of any
3 rule or regulation issued under the provision of Section 8 of this act
4 shall be guilty of a misdemeanor and shall be subject to a fine of not
5 less than \$10.00 and not more than \$300.00 and imprisonment of not more
6 than 60 days, or both; provided however, that any person found guilty
7 of unlawfully removing, taking, harvesting, killing or seriously
8 damaging any resources having a known commercial value, may in addition
9 to any such fine or imprisonment, be found liable for payment of an
10 amount equal to three times the known commercial value of such resources
11 removed, taken, harvested, killed or seriously damaged. Any money so
12 received shall be collected by the Treasurer of the Trust Territory and
13 deposited in the General Fund of the Congress of Micronesia.

14 Section 10. The Director of Resources and Development
15 shall be responsible for the operation, management, development,
16 improvement, protection, preservation and maintenance of those areas
17 of public land and their resources, set aside for the management and
18 protection of natural resources, outdoor recreational use and
19 environmental protection or enhancement, under the provision of this
20 act.

21 In the performance of these duties he may, within the limits of funds
22 available for such purpose from any source, employ necessary personnel,
23 purchase materials and supplies, enter into performance contracts or
24 cooperative agreements with governmental organizations, corporations
25 or individuals as may be necessary to fulfill his responsibilities in

HNKNOTT:mtg

Serial: 2237

File: 178.77.0

The Hon. Amata Kabua
President of the Senate
Congress of Micronesia
Capitol Hill
Saipan, Mariana Islands 96960

Dear Mr. President:

With this letter I am submitting to the Senate a bill for an Act to be known and cited as the "Micronesian Conservation and Outdoor Recreation Act".

The intent of this bill is the same as Senate Bill 61 introduced during the Second Regular Session, 1969 of the Congress.

The bill being submitted herewith however, while including all of the subject and intent of said Senate Bill 61, additionally provides for a review of the use values of Micronesian lands, the participation of local people either through District Land Advisory Boards, Municipalities or District Legislatures and further makes provision for the regulation of use, development and management of Conservation and Outdoor Recreation Areas either by the Department of Resources and Development or at a local level by agreement between that Department and Districts, Municipalities or citizens groups.

Although I recognize the merit of Senate Bill 61 I urge your favorable consideration of this proposal as a substitute therefor.

Sincerely yours,

Edward E. Johnston
High Commissioner

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DIVISION OF
PUBLIC DOCUMENTS

UNITED STATES GOVERNMENT PRINTING OFFICE
WASHINGTON, D.C. 20402

Thank you for your inquiry which is enclosed. We are unable to identify the publication you requested as one on sale by this Office. Perhaps your local librarian can be of assistance to you. Librarians are professionally trained in the techniques of answering difficult research questions, and they usually have access not only to Government publications but also to non-Government source material which is not available in this Office.

If you have reason to believe the publication is or has been offered for sale by this Office, we shall be glad to make a further attempt to identify it upon receipt of additional information such as Catalog Numbers, date of publication, and issuing agency. If you do make further inquiry regarding the publication, please enclose this notice with your correspondence and return to:

Inquiries Section
Post Office Box 1533
Washington, D.C. 20013

The large number of orders and letters of inquiry received each day by this Office makes it impossible for us to write you a personal letter. We hope you understand that we value your inquiry despite the necessity of our answering in this form.

Sincerely,

Carper W. Buckley
Superintendent of Documents

~~18770~~ 18770

April 30, 1970

Serial:LS6822

File:178.77.0

Superintendent of Documents
United States Gov't Printing Office
Washington, D.C. 20402

Sir:

We are interested in securing 10 copies of "The Vegetation of
Micronesia" by F. R. Fosberg - 1960. Bulletin 19, American Museum
of Natural History.

Could you please furnish us with a price per copy so we may submit
an order.

Yours truly,

Norman F. Knott
Chief, Land Resources Branch

Attorney General
Thru: Director, Resources & Development

Chief, Division of Lands and Surveys

**Proposed Micronesian Conservation and Outdoor
Recreation Act**

In accordance with the instructions contained in your letter of July 6, 1970, we are enclosing herewith two original drafts of the proposed Micronesian conservation and outdoor recreation act.

Your letter also makes reference to S.B.61 and its companion H.B. 72 of the Second Regular Session - 1969 of the Congress of Micronesia. Although we feel that these are good legislation we believe that the enclosed proposal is more inclusive; that it provides for local participation and more clearly specifies the responsibilities of the Trust Territory Government where there is an absence of specific Micronesian Legislation and therefore merits consideration.

Paul D. Dennis

Enclosure: a/s

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July 15, 1970	
Serial: 157251	
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TRUST TERRITORY OF THE PACIFIC ISLANDS
Office of the High Commissioner
Saipan, Mariana Islands



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Office of the High Commissioner
Saipan, Mariana Islands



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June 11, 1970
Serial: 157026
File: 178.87.0
17877.0

Robert P. Owen
Chief of Entomologist
KOROR
Palau, Caroline Islands 96940

Dear Bob:

I have just completed reading the copy of your report of May 11, 1970 entitled "A Conservation Program for the Trust Territory" that you sent to me via Johnathan Koshiba. I want to thank you, not only for having furnished me a copy but more particularly for having written the report.

The things that you say so well need being said. I hope that your report can be widely distributed for the thoughts you express need to be constantly in mind if the limited land areas of Micronesia are to continue to have an environment capable of meeting the habitat requirements of human beings. Not only constantly in the minds of a few but in the minds of each and every person in any way deciding the uses to be made of land water or their resources.

Certainly Micronesia is no exception to the fact that the ultimate future of a people is more dependent upon the concepts which form the guide lines of land and resource management than any other factor.

It would further appear that I owe you an apology for not having sought your council and advise more freely on program formulation etc., I do feel that we should coordinate our efforts and will try to keep you more fully advised in the future. To this end I am enclosing for your information and comment - (1) the program outline of this Branch and (2) a draft of Legislation proposed for submission to the Congress of Micronesia. I am also, although somewhat hesitantly, including the preamble to a report of proposed environmental legislation I prepared for the State of Washington. This perhaps expresses my personal feelings more fully than can be done by letter. I will look forward to helping you in any manner in your efforts to secure the protection and retention of the Micronesian environment in this changing world. Thanks again.

Truly yours,

Norman P. Knott
Chief, Land Resources Branch

Enclosure

cc: Chief, Agriculture Division
Director of Resources & Development

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TRUST TERRITORY OF THE PACIFIC ISLANDS

Office of the High Commissioner, Saipan

TO : Chief, Division of Lands and Surveys

DATE: July 6, 1970

FROM : All Policy General

Form Ref. HS 6692

178-77-0

SUBJECT: Trust and Micronesian Conservation and Outdoor Recreation Act. Draft #1

Attached is a legislative bill in proper form. In making a final draft of the subject bill please use this form. Also enclosed is part of another bill; please use this form for pages subsequent to the first. (Note this is a bill which amends sections of the Code, thus new verbiage is underlined; this need not be done for the subject bill). Title headings should be underlined with one line; this denotes that the initial letter of each word is to be capitalized.

After completing the final draft of the bill, send two originals to this office for approval; we will return them to your office and if they have received our approval, send them to the Office of Political Affairs for approval by the High Commissioner and transmittal to the Congress. (Note the Congress demands two originals, not one and a carbon or xerox copy).

We propose the following changes in the interest of precision:

Article 8. Amend to Read:The High Commissioner may from time to time make reasonable rules and regulations necessary to implement this act, the subject matter of which may include but not be limited to.....

Article 14. Amend to Read:with any other acts, the provisions of which are specifically addressed to, the same subject matter.

There is pending before both houses of the Congress, legislation on the same subject as your proposed legislation (House Bill 77 Senate Bill 6). First reading 7-29-69. You may want to "substitute" your Bill for that one or amend that Bill. We have enclosed a copy of that Bill.

If we can possibly render further assistance, we are at your disposal.

Resubmitted
7/15/70
LHK

Robert A. Heffer

Attachment



178-77-0

June 23, 1970
 Serial:LS7075
 File:175.77.0

Edwin H. Bryan, Jr.
 Pacific Scientific Information Center
 Bernice P. Bishop Museum
 P.O. Box 6037
HONOLULU
 Hawaii 96816

Dear Mr. Bryan:

While you were in Saigon we discussed the possibility of your contacts at Stanford University locating translations of certain Japanese publications.

There is reason to believe that the articles on the attached list were translated by the Natural Resources Section of the Far East Command in conjunction with Stanford.

We would appreciate any information concerning a possible source of copies of these publications.

Sincerely yours,

Norman P. Knott
 Chief, Land Resources Branch

Attachment

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PUBLICATION SOUGHT BY: Norman P. Knott

Hoso Kawa, Takahide

- (a) 1934 - Preliminary Account of the Vegetation of the
Mariana Islands Group.

- (b) General View of the Flora of Kusaie.
Bot. Zool. Sci. Appl. 2 (8) 1421-1423

- (c) 1934 - Palms of Micronesia.
Trop. Hort. 4 (2): 1822

Kanohira, Ryozo

- 1936 - The Forest Plants of Rota Island; Peculiarities in
Geographical Distribution.
Bot. Zool. Sci. Appl. 4(1) 63,70

Ogura, Yuzakura

- 1940 - Mangroves of the South Seas.
Nat. Sci. Mus. 11 (5) 4-12

Okabe, Masayoshi

- 1911 - Drugs used by the Islanders of Palau.
Jour. Anthropol. 56 (8) 413-426

Sasaki, Naotomo & Azusa Uehara

- 1942 - Plants of the South Seas.
(Minami no Shokubutsu) 267 pp. Kofukun, Tokyo.

Sawada, Hiroshi

- 1940 - Tannin-bearing plants of the South Sea Islands.
Ind. South Sea 3 (10): 8-14

Takamatsu, Masahiko

- 1942 - The Mangrove Swamp Zone.
Sci. Knowledge 22 (4)

Yoshihito, Takashi

- 1934 - On the Derris Root Produced in the South Seas.
Ind. South Sea Is. 4(5):24-34

Adachi, Satoru

Applied Microbiological Soil Studies of the South
Sea Islands.

1. Microbiological Soil Characteristics on Saipan
Jour. Soc. Trop. Agr. 13 (3): 248-260
2. Microbiological Soil Characteristics on Tinian
13 (4) 311-320

Esaki, Teizo & Shiro Murakami

- 1939-1940 - Check list of the Animals of the Palau Archipelago.
South Sea Sci. 1 (3): 128-137, 2(1) 9-15, 3(2): 82-95

PUBLICATION SOUGHT BY: Norman P. Knott

Hoso Kawa, Takahide

- (a) 1934 - Preliminary Account of the Vegetation of the Mariana Islands Group.

(b) General View of the Flora of Kusaie.
Bot. Zool. Sci. Appl. 2 (8) 1421-1423

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- 1941 - Drugs used by the Islanders of Palau.
Jour. Anthropol. 56 (8) 413-426

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Ind. South Sea 3 (10): 8-14

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Yoshiho, Takeshi

- 1934 - On the Derris Root Produced in the South Seas.
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Jour. Soc. Trop. Agr. 13 (3): 248-260
2. Microbiological Soil Characteristics on Tinian
13 (4) 314-329

Esaki, Teiso & Shiro Murakami

- 1939-1940 - Check list of the Animals of the Palau Archipelago.
South Sea Sci. 1 (3): 128-137, 2(1) 9-15, 3(2): 89-95

Asano, N.

- 1938 - On the dugong of Palau.
Bot. Zool. Sci Appl. 6(6) 1047-1051;
(7) 1219-1228

Oshima, H.

- 1942 - Dugongs.
Sci. Illus. 1(7): 19-25

Abe, T.

- 1938 - On the plants used in fishing on Palau.
Aool. Mag..50 (1): 44

Hasebe, K.

- 1942 - The Ladrões
Jour. Antrop. 57 (7): 297-302

Abe, S.

- 1894 - Local Customs of Saipan in the South Seas.
Jour. Antrop. 9 (102): 462-464

Kiyono, K.

- 1942 - Ecology of Peoples in the South.
(Nanpo Minzoku No Seitai) - 118 pp.
Rokkō Shokai, Tokyo.

The Hon. Bethuel Henry
Speaker, House of Representatives
Congress of Micronesia
Capitol Hill
Saipan, Mariana Islands 96960

Dear Mr. Speaker:

With this letter I am submitting to the House a bill for an Act to be known and cited as the "Micronesian Conservation and Outdoor Recreation Act".

The intent of this bill is the same as House Bill 77 introduced during the Second Regular Session, 1969 of the Congress.

The bill being submitted herewith however, while including all of the subject and intent of said House Bill 77, additionally provides for a review of the use values of Micronesian lands, the participation of local people either through District Land Advisory Boards, Municipalities or District Legislatures and further make provision for the regulation of use, development and management of Conservation and Outdoor Recreation Areas either by the Department of Resources and Development or at a local level by agreement between that Department and Districts, Municipalities or citizens groups.

Although I recognize the merit of House Bill 77 I urge your favorable consideration of this proposal as a substitute therefor.

Sincerely yours,

Edward E. Johnston
High Commissioner

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Handwritten signature

NKNOTT:mtq
Serial: 7371
File: 178.77.0

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A BILL FOR AN ACT

To appropriate the sum of \$75,000.00 out of the General Fund of the Congress of Micronesia, not otherwise appropriated, to supplement the funds allocated by the Administration of the Trust Territory of the Pacific Islands, for the purpose of defraying the operation and contingent expenses of the administration of the District Customs and Tax Offices, and for other purposes.

BE IT ENACTED BY THE CONGRESS OF MICRONESIA:

Section 1. The sum of \$75,000.00, or so much thereof as shall be found necessary, is hereby appropriated, to defray the administrative costs of the District Customs and Tax Offices. The said sum to be apportioned according to the following schedule:

(1) Salary of six (6) C-4 Customs and Tax Officers	\$29,400.00
(2) Salary of six (6) B-10 Deputy Customs and Tax Officers	\$13,800.00
(3) Salary of six (6) B-7 Clerks	\$ 9,700.00
(4) Purchase of six (6) Vehicles	\$12,400.00
(5) Other Costs	\$10,100.00

Section 2. The sum hereby appropriated shall be expended by the District Administrators, for the purpose specified by this act.

Section 3. This act shall take effect upon the approval by the High Commissioner, or upon its becoming law without such approval.

Date: _____ Introduced by: _____

BY REQUEST

1 Section 14. Criminal Penalties. (a) Any Employer who willfully
2 violates any of the provisions of this act or any of the rules and regulations
3 issued pursuant thereto shall be guilty of a misdemeanor and, upon conviction
4 thereof, shall be fined not more than \$2,000 or imprisoned for not more than
5 six months, or both. (b) Any nonresident worker who fails to comply with
6 the provisions of Section 7 (f) of this act shall be guilty of a misdemeanor
7 and, upon conviction thereof, shall be fined not more than \$50 or imprisoned
8 for not more than 5 days, or both.

9 Section 15. Injunctions. In addition to any of the other penalties
10 prescribed by this act, the Attorney General may bring action in the Trial
11 Division of the High Court of the Trust Territory to enjoin violations of
12 the provisions of this act or any of the rules and regulations issued pursuant
13 thereto.

14 Section 16. Nonresident workers in the Trust Territory on the Effective
15 Date of this act. Any employer in the Trust Territory who has nonresident
16 workers in his employ on the effective date of this act, shall submit a list
17 of such workers to the Director within thirty days after such effective date,
18 containing the following information: name, citizenship, country of origin,
19 and expiration date of entry permit. The Director shall then, within thirty
20 days, provide each such nonresident worker with an identification certificate
21 as defined in Section 8(f) of this act. Upon the expiration of the entry
22 permits of such workers, the employer shall either arrange for their
23 repatriation or submit an application to authorize their employment under the
24 provisions of this act.

25 Section 17. Temporary provisions. During such time as the duties

A BILL

For an act, here-in-after to be known as the "Micronesian Conservation and Outdoor Recreation act", authorizing and directing the High Commissioner to assure the retention, protection and proper management of the desirable environment and natural resources of Micronesia.

BE it enacted by the Congress of Micronesia;

SECTION I. Definitions; where ever used in this act the following words shall have the meaning set forth here-in-after.

1. Natural Resources
2. Environment
3. High Commissioner
4. Conservation
5. Outdoor Recreation
6. shallow Water Areas
7. Habitat
8. Resource Management

*These and/or others
To be defined in
Subsequent drafts*

SECTION II. The High Commissioner or his designated representative is hereby authorized and directed to investigate the various Public Lands,

To determine the suitability of such lands for retention in public ownership for the common benefit and enjoyment of the people of Micronesia.

Such investigation shall among ^{other} things give full consideration to the value of such lands for agriculture, forestry, watersheds, recreation and tourism, or as habitat for wild birds, animals, fish, or ~~plant~~

Such investigation shall also give full consideration to the suitability of such lands for the location of public facilities such as schools, hospitals, governmental offices, communication stations, power stations and agricultural and resource management experiment stations.

SECTION III. The High Commissioner or his designated representative is here by authorized and directed to conduct such investigations as may be necessary to determine the potential use capabilities of the land and shallow water areas of Micronesia. All information arising from such investigations shall be compiled into reports of public record and made available to all governmental agencies and interested citizens of Micronesia for use in

achieving the best possible utilization of the limited land areas of Micronesia.

SECTION IV. The High Commissioner shall, following the conduct of such investigation of any island, district or related group of islands, and following consultation with the appropriate Land Advisory Board or Boards, set aside by formal order, from disposal to private ownership, any of the public lands found to be of significant value for the protection preservation and management of the natural resources of Micronesia or for use for any other necessary purpose.

Any such order shall describe the area being retained as public land, by size, location, boundaries and proposed use or uses.

SECTION V. Any area so designated can not be used for any purpose contrary to the uses proposed in the order setting the lands aside, without the formal approval of the Legislature of the district in which the lands are located and the approval of the Congress of Micronesia.

SECTION VI. The High Commissioner or his designated representative is authorized and empowered to accept gifts, and negotiate land exchanges, leases, easements or purchases to add desirable and necessary areas to the public lands in order to fulfill the intent of this act.

SECTION VII. The High Commissioner or his designated representative is authorized and empowered to accept gifts and negotiate land exchanges leases, easements or purchases as may be necessary to provide public rights of way for access to and from areas established in accordance with this act.

SECTION VIII. In the absence of any specific, appropriate Legislative action, the High Commissioner may from time to time make reasonable rules and regulations found to be necessary to properly fulfill the intent of this act and may by such action:

- (a) Establish the time, place and manner of taking, harvesting or removing any of the natural resources of Micronesia.
- (b) Prohibit the taking, harvest or removal of any of the natural resources of Micronesia.
- (c) Regulate any action of any person while on any public lands of Micronesia.

SECTION IX. Any rule or regulation issued under the provision of section VIII of this act shall:

- (a) Become a part of the Conservation and Recreation Code of Micronesia.
- (b) Be numbered in sequence commencing with number one.
- (c) Remain in effect until revoked or superseded by regulation.
- (d) Be filed with the Clerks of Court, the Attorney General and the District Administrator at least two weeks prior to the effective date of such regulation.
- (e) Have the full force and effect of Law.
- (f) Be enforced by the Insular Constabulary in the same manner as any other Law.

SECTION X. Any person found to be in violation of any rule or regulation issued under the provisions of section VIII of this act shall be guilty of a misdemeanor and shall be subject to fine of not less than \$10.00 and no more than \$300.00 and/or imprisonment of no more than 60 days; provided however, that any person found guilty of unlawfully removing, taking, harvesting, killing or seriously damaging any resources having a known commercial value, may in addition to any such fine and/or imprisonment, be found liable for payment of an amount equal to three times the known Commercial value of such resources removed, taken, harvested, killed or seriously damaged. Any money so received shall be an income to the Congress of Micronesia.

SECTION XI. The Director of Resources and Development shall be responsible for the operation, management, development, improvement, protection, preservation and maintenance of those areas of public land and their resources, set aside for the management and protection of natural resources, outdoor recreational use, and environmental protection or enhancement, under the provision of this act.

In the performance of these duties he may, within the limits of funds available for such purpose from any source, employ necessary personnel, purchase materials and supplies, enter into performance contracts or cooperative agreements with governmental organizations, corporations or individuals as may be necessary to fulfill his responsibilities in carrying out the intent of this act.

SECTION XII. Any District Legislature, District Land Advisory Board or any Municipality desiring the High Commissioner to take any specific actions as provided for in sections IV, VI, VII, or VIII shall submit a resolution to the High Commissioner recommending such specific action be taken .

SECTION XIII. The provisions of this act shall control if any of them are in conflict with any other acts relating to the same subject matter.

SECTION XIV. This act shall take effect upon approval by the High Commissioner.

A BILL

For an act, here-in-after to be known as the "Micronesian Conservation and Outdoor Recreation act", authorizing and directing the High Commissioner to assure the retention, protection and proper management of the desirable environment and natural resources of Micronesia.

Be it enacted by the Congress of Micronesia;

SECTION I. Definitions; where ever used in this act the following words shall have the meaning set forth here-in-after,

1. Natural Resources; the soils, minerals, non-agricultural plants, wild animals, wild birds, fish and the waters of Micronesia.
2. Environment; the sum of external conditions that affect on influence the livelihood, behavior or development of an organism, including man.
3. Organism; any living thing.
4. Habitat; the kind of place where an organism normally lives.
5. Conservation; planned management for continuing use and protection from waste.

SECTION II. The High Commissioner or his designated representative is hereby authorized and directed to investigate the various Public Lands, to determine the suitability of such lands for retention in public ownership for the common benefit and enjoyment of the people of Micronesia.

Such investigation shall among other things give full consideration to the value of such lands for agriculture, forestry, watersheds, recreation and tourism, or as habitat for wild birds, animals, fish, or plants.

Such investigation shall also give full consideration to the suitability of such lands for the location of public facilities such as schools, hospitals, governmental offices, communication stations, power stations and agricultural and resource management experiment stations.

SECTION III. The High Commissioner or his designated representative is hereby authorized and directed to conduct such investigations as may be necessary to determine the potential use capabilities of the land and shallow water areas of Micronesia. All information arising from such investigations shall be compiled into reports of public record and made available to all governmental agencies and interested citizens of Micronesia for use in achieving the best possible utilization of the limited land areas of Micronesia.

SECTION IV. The High Commissioner shall, following the conduct of such investigation of any island, district or related group of islands, and following consultation with the appropriate Land Advisory Board or Boards, set aside by formal order, from disposal to private ownership, any of the public lands found to be of significant value for the protection, preservation and management of the natural resources of Micronesia or for use for any other public purpose.

Any such order shall describe the area being retained as public land, by size, location, boundaries and proposed use or uses.

SECTION V. Any area so designated can not be used for any purpose contrary to the uses proposed in the order setting the lands aside, except with the formal approval of the Legislature of the district in which the lands are located and the approval of the Congress of Micronesia.

SECTION VI. The High Commissioner or his designated representative is authorized and empowered to accept gifts, and negotiate land exchanges, leases, easements or purchases to add desirable and necessary areas to the public lands in order to fulfill the intent of this act.

SECTION VII. The High Commissioner or his designated representative is authorized and empowered to accept gifts and negotiate land exchanges, leases, easements or purchases as may be necessary to provide public rights of way for access to and from areas established in accordance with this act.

SECTION VIII. In the absence of any specific, appropriate legislative action, the High Commissioner may from time to time make reasonable rules and regulations found to be necessary to properly fulfill the intent of this act and may by such action:

- (a) Establish the time, place and manner of taking, harvesting or removing any natural resources of Micronesia.
- (b) Prohibit the taking, harvest or removal of any of the natural resources of Micronesia.
- (c) Regulate any action of any person while on any public lands of Micronesia.

SECTION IX. Any rule or regulation issued under the provision of section VIII of this act shall:

- (a) Become a part of the Conservation and Recreation Code of Micronesia.

- (b) Be numbered in sequence commencing with number one.
- (c) Remain in effect until revoked or superceded by regulation.
- (d) Be filed with the Clerks of Court, the Attorney General and the District Administrator at least two weeks prior to the effective date of such regulation.
- (e) Have the full force and effect of law.
- (f) Be enforced by the Insular Constabulary in the same manner as any other law.

SECTION X. Any person found to be in violation of any rule or regulation issued under the provisions of section VIII of this act shall be guilty of a misdemeanor and shall be subject to fine of not less than \$10.00 and no more than \$300.00 and/or imprisonment of no more than 60 days; provided however, that any person found guilty of unlawfully removing, taking, harvesting, killing or seriously damaging any resources having a known commercial value, may in addition to any such fine/or imprisonment, be found liable for payment of an amount equal to three times the known commercial value of such resources removed, taken, harvested, killed or seriously damaged. Any money so received shall be an income to the Congress of Micronesia.

SECTION XI. The Director of Resources and Development shall be responsible for the operation, management, development, improvement, protection, preservation and maintenance of those areas of public land and their resources, set aside for the management and protection of natural resources, outdoor recreational use, and environmental protection or enhancement, under the provision of this act.

In the performance of these duties he may, within the limits of funds available for such purpose from any source, employ necessary personnel, purchase materials and supplies, enter into performance contracts or cooperative agreements with governmental organizations, corporations or individuals as may be necessary to fulfill his responsibilities in carrying out the intent of this act.

SECTION XII. Any District Legislature, District Land Advisory Board or any Municipality desiring the High Commissioner to take any specific actions as provided for in section IV, VI, VII, or VIII shall submit a resolution to the High Commissioner recommending such specific action be taken.

SECTION XIII. The provisions of this act shall control if any of them are in conflict with any other acts relating to the same subject matter.

SECTION XIV. This act shall take effect upon approval by the High Commissioner.

ORIGINATOR
JAN 5 1970
Serial: LS6980
File: 173.77.0

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Rev. 3-10-40

The Historic Sites Act (P. L. 3-34) provides for historic site preservation but makes no provision for outdoor recreation or resource management. A review of the T. T. Code indicates that the Chief of the Division of Lands and Surveys (Sec. 926) or the District Land Offices or the District Administrators (Sec.s 927 and 928) may now possess most of the authorities contained in this proposal. Further the High Commissioner undoubtedly has the requested authorities at this time. It is however my belief that the basis of any outdoor recreation or land resource management programs should be clearly set forth and concurred with by the Congress of Micronesia.

Wyman X. Zachary	AD		
Director, Resources and Development	CS		

July 15, 1970
Serial:LS7252
File:178.77.0

National Museum of Natural History
Smithsonian Institution
1000 Jefferson Drive S.W.
Washington, D.C. 20560

Attn: Dr. F. Raymond Fosberg

Dear Dr. Fosberg:

We have been attempting to secure copies of your report on the vegetation of Micronesia, as you can see from the attached, our efforts have been futile to date.

We are also interested in locating sources of any available information on the flora, fauna or soils of Micronesia. If any publication or translations of a Japanese or German publications of value were located we could arrange to have them microfilmed.

Could you be of any assistance to us.

Sincerely yours,

Norman P. Knott
Chief, Land Resources Branch

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JUL 14 1970

Jack C. Parker
Marine Advisory Specialist
Texas Agricultural Extension Service
Texas A & M University
College Station, Texas 77843

Dear Mr. Parker:

We understand that you have been coordinating a Sea Grant Project on shrimp farming which involves assistance from Dow Chemical Co., and Texaco.

Here in the Trust Territory of the Pacific Islands (Micronesia) are many thousand acres of shallow lagoon. In general these are sand bottom areas separated from the ocean by a coral reef. On certain islands there are estuarine areas, less extensive, but bearing a general resemblance to such areas along the Gulf Coast.

We are particularly interested at this time in securing information that would be helpful in determining if we can meet the environmental requirements for the production of shrimp. We assume that maximum temperature tolerances, optimum temperatures, spawning requirements, water depth, and bottom materials as well as other factors would all enter into such determination.

Any information you can furnish, as well as suggestions for securing additional information will be most welcome.

A map is enclosed so that you may know where we are in the world.

Yours truly,

Wyman X. Zachary
Director of Res. & Dev.

Encl.

File:178.77.0
7/8/70
NKNOTT:dba

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25 JUN 1970

Elizabeth P. Farrington
Director, Office of Territories
United States Department of the Interior
Washington, D. C. 20540

Dear Mrs. Farrington:

Your letter of May 27, 1970, along with the brochure highlighting the national program for gathering data on earth resources by remote sensing from automatic earth-orbiting satellites, has been circulated and considered by several of our resource people.

We find that the information submitted was sufficient to stimulate our thinking but does not contain enough detail to answer our questions. We therefore are furnishing you with a list of proposals which may or may not be feasible and ask the assistance of your office in securing additional information.

1. Tuna and pelagic fish - If possible, we would like to secure a map of the major concentrations of ocean fishes within Trust Territory waters at regular intervals of 30 days or less for a period of at least one year.

We believe that such information would be of great assistance, particularly if in addition to revealing seasonal concentrations and movements of fish it could give indications of numbers.

2. Weather - Any additional weather information that would be of value in predicting storm formations and paths.
3. Coconut Disease - The detection of the spread and damaging concentrations of rhinoceros beetle is now dependent upon "after the fact" visual observation. Any advance information would facilitate early control programs.
4. Breadfruit Disease - Although the causative organism is unknown and treatment is uncertain, a method of early disease detection would permit alternate food source planning.

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Chief, Land Resources Branch

Although the attached discussion draft was submitted thru your office to the Attorney General for comment, the record indicates that you have not personally had an opportunity for review or comment.

Attachment: A Bill

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A BILL

For an act, here-in-after to be known as the "Micronesian Conservation and Outdoor Recreation act", authorizing and directing the High Commissioner to assure the retention, protection and proper management of the desirable environment and natural resources of Micronesia.
BE it enacted by the Congress of Micronesia;

SECTION I. Definitions; where ever used in this act the following words shall have the meaning set forth here-in-after,

1. Natural Resources
2. Environment
3. High Commissioner
4. Conservation
5. Outdoor Recreation
6. Shallow Water Areas
7. Habitat
8. Resource Management

These words are defined as follows:
Conservation defined as
Subsistence and development

SECTION II. The High Commissioner or his designated representative is hereby authorized and directed to investigate the various Public Lands,

To determine the suitability of such lands for retention in public ownership for the common benefit and enjoyment of the people of Micronesia.

Such investigation shall among other things give full consideration to the value of such lands for agriculture, forestry, watersheds, recreation and tourism, or as habitat for wild birds, animals, fish, or plants.

Such investigation shall also give full consideration to the suitability of such lands for the location of public facilities such as schools, hospitals, governmental offices, communication stations, power stations and agricultural and resource management experiment stations.

SECTION III. The High Commissioner or his designated representative is hereby authorized and directed to conduct such investigations as may be necessary to determine the potential use capabilities of the land and shallow water areas of Micronesia. All information arising from such investigations shall be compiled into reports of public record and made available to all governmental agencies and interested citizens of Micronesia for use in

achieving the best possible utilization of the limited land areas of Micronesia.

SECTION IV. The High Commissioner shall, following the conduct of such investigation of any island, district or related group of islands, and following consultation with the appropriate Land Advisory Board or boards, act aside by formal order, from disposal to private ownership, any of the public lands found to be of significant value for the protection, preservation and management of the natural resources of Micronesia or for use for any other necessary purpose.

Any such order shall describe the area being retained as public land, by size, location, boundaries and proposed use or uses.

SECTION V. Any area so designated can not be used for any purpose contrary to the uses proposed in the order setting the lands aside, without the formal approval of the Legislature of the district in which the lands are located and the approval of the Congress of Micronesia.

SECTION VI. The High Commissioner or his designated representative is authorized and empowered to accept gifts, and negotiate land exchanges, leases, easements or purchases to add desirable and necessary areas to the public lands in order to fulfill the intent of this act.

SECTION VII. The High Commissioner or his designated representative is authorized and empowered to accept gifts and negotiate land exchanges, leases, easements or purchases as may be necessary to provide public rights of way for access to an area established in accordance with this act.

SECTION VIII. In the absence of any specific, appropriate Legislative action, the High Commissioner may from time to time make reasonable rules and regulations found to be necessary to properly fulfill the intent of this act and may by such action:

- (a) Establish the time, place and manner of taking, harvesting or removing any of the natural resources of Micronesia.
- (b) Prohibit the taking, harvest or removal of any of the natural resources of Micronesia.
- (c) Regulate any action of any person while on any public lands of Micronesia.

SECTION IX. Any rule or regulation issued under the provision of section VIII of this act shall:

- (a) Become a part of the Conservation and Recreation Code of Micronesia.
- (b) Be numbered in sequence commencing with number one.
- (c) Remain in effect until revoked or superseded by regulation.
- (d) Be filed with the Clerks of Court, the Attorney General and the District Administrator at least two weeks prior to the effective date of such regulation.
- (e) Have the full force and effect of Law.
- (f) Be enforced by the Insular Constabulary in the same manner as any other Law.

SECTION X. Any person found to be in violation of any rule or regulation issued under the provisions of section VIII of this act shall be guilty of a misdemeanor and shall be subject to fine of not less than \$10.00 and no more than \$300.00 and/or imprisonment of no more than 60 days; provided however, that any person found guilty of unlawfully removing, taking, harvesting, killing or seriously damaging any resources having a known commercial value, may in addition to any such fine and/or imprisonment, be found liable for payment of an amount equal to three times the known Commercial value of such resources removed, taken, harvested, killed or seriously damaged. Any money so received shall be an income to the Congress of Micronesia.

SECTION XI. The Director of Resources and Development shall be responsible for the operation, management, development, improvement, protection, preservation and maintenance of those areas of public land and their resources, set aside for the management and protection of natural resources, outdoor recreational use, and environmental protection or enhancement, under the provision of this act.

In the performance of these duties he may, within the limits of funds available for such purpose from any source, employ necessary personnel, purchase materials and supplies, enter into performance contracts or cooperative agreements with governmental organizations, corporations or individuals as may be necessary to fulfill his responsibilities in carrying out the intent of this act.

SECTION XII. Any District Legislature, District Land & Survey Board or any Municipality desiring the High Commissioner to take any specific actions as provided for in sections IV, VI, VII, or VIII shall submit a resolution to the High Commissioner recommending such specific action be taken.

SECTION XIII. The provisions of this act shall control in any of them are in conflict with any other acts relating to the same subject matter.

SECTION XIV. This act shall take effect upon approval by the High Commissioner.

File:17B.77.0

31K:

Could you please furnish us with a price per copy so we may submit an order.

Yours truly,

Norman P. Knott
Chief, Land Resources Branch

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UNITED STATES DEPARTMENT OF INTERIOR
TRUST TERRITORY OF THE PACIFIC ISLANDS
OFFICE OF THE HIGH COMMISSIONER
SAIPAN, MARIANA ISLANDS

COMMERCIAL
CABLE ADDRESS
HICOTT SAIPAN

April 15, 1970
Serial:LS6755
File:178.77.0

University Press
University of Hawaii
Honolulu, Hawaii 96822

Gentlemen:

We desire to secure 5 copies of:

"Bibliography of Micronesia"
Compiled by Huzio Utinomi - 1952

Would you please advise us of the cost including airmail postage, so
that we may place an order.

Yours truly,

Noraman P. Knott
Noraman P. Knott
Chief, Land Resources Branch

157 pages

Out of print

April 18, 1970
Serial:LS6786
File:178.77.0

University Press
University of Hawaii
Honolulu, Hawaii 96822

Gentlemen:

We desire to secure 5 copies of:

"Bibliography of Micronesia"
Compiled by Euzio Utinomi - 1962

Would you please advise us of the cost including airmail postage, so
that we may place an order.

Yours truly,

Norman P. Knott
Chief, Land Resources Branch

University of Kansas
Publications Office
Lawrence, Kansas 66044

Gentlemen:

I am writing to determine the availability of and the price of
your museum of natural history publication volume 5, No. 2, June
12, 1961 entitled "The Avi Fauna of Micronesia, its Origin, Evolution
and Distribution" by. Nellie H. Baker.

Yours truly,

Norman F. Knott
Chief, Land Resources Branch

KNOTT:dbz

January 28, 1970
Serial: 18877
File: 179.12-220

179-77-0

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Honolulu, Hawaii 96822

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We desire to secure 5 copies of:

"Bibliography of Micronesia"
Compiled by Eusebio Utinemi - 1952

Would you please advise us of the cost including airmail postage, so
that we may place an order.

Yours truly,

Norman P. Knott
Chief, Land Resources Branch

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April 15, 1970
Serial: L24755
File: 178.77.0

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Chief, Division of Lands and Surveys

Attached hereto are 3 copies of a preliminary draft of proposed Legislation which we believe to be desirable and necessary.

We would appreciate your comments and suggestions concerning both the content of this proposal and procedures for securing its introduction into the Congress.

Paul B. Dennis

Attachment: n/a

NKNOTT: dba

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National Wildlife Federation

1412 Sixteenth Street, N.W., Washington, D.C. 20036

Phone: 202-232-8004

March 18, 1970

Dear Conservationist:

Thank you for your recent inquiry about the CONSERVATION DIRECTORY. The 1970 edition is available at a cost of \$1.50 a copy. This charge is made to help defray publication and handling expenses. If you would like to order the 1970 DIRECTORY, please fill out and return the form printed below.

P.S. Please note that when a single copy is ordered, a check, cash, or money order should accompany this form.

TO: CONSERVATION DIRECTORY
National Wildlife Federation
1412 16th St., N.W.
Washington, D.C. 20036

(To have your DIRECTORY sent by first-class mail, please enclose an additional 80¢ for postage.)

First class please

Please send 1 copy/copies of the 1970 CONSERVATION DIRECTORY at \$1.50 a copy.

+ \$1.35 first class postage

Enclosed is \$ 2.85 Bill me (Indicate by checking. For two or more copies only.)

MAIL TO: _____

Kennerly Smith
Signature



178.77.0

March 8, 1970
Serial: L58848
File: 178.77.8

National Wild Life Federation
1413 18th Street, N.W.
Washington, D.C. 20036

Dear Sir:

I am interested in securing a copy of your "Conservation Directory",
will you please advise me of the price.

Thanking you in anticipation.

Sincerely yours,

Norman P. Scott
Chief, Land Resources Branch

TRUST TERRITORY OF THE PACIFIC ISLANDS

Office of the High Commissioner, Saipan

TO : Chief, Division of Lands and Surveys

DATE: February 25, 1970

FROM : Chief, ~~Land~~ Resources Branch

Serial: LS6489

File: 178.77.0

SUBJECT: Proposed Conservation and Recreation Legislation

Attached is a discussion draft of certain legislation I feel is badly needed as a working companion with the Historic Sites act (P.L. 3-34).

A review of the code of the Trust Territory indicates that your office (sec. 926) or the District Land Office or District Administrator (sec. 927 and 928) maybe held to possess most of the authorities proposed in this suggested legislation, further the High Commissioner undoubtedly hold most of the proposed authorities at this time. It is however my belief that the authorities should clearly be supported and concurred in by the Congress of Micronesia if a meaningful program is going to be undertaken.

Norman P. Knott
Norman P. Knott

Attachment: a/s

*Looks ok to me with maybe a couple
of deletions. Let's send it to A.G.'s
office for review as is.*

PKD

Chief, Division of Lands and Surveys

Chief, Land Resources Branch

Proposed Conservation and Recreation Legislation

Attached is a discussion draft of certain legislation I feel is badly needed as a working companion with the Historic Sites act (P.L. 2-34).

A review of the code of the Trust Territory indicates that your office (sec. 255) or the District Land Office or District Administrator (sec. 227 and 228) maybe held to possess most of the authorities proposed in this suggested legislation, further the High Commissioner undoubtedly hold most of the proposed authorities at this time. It is however my belief that the authorities should clearly be supported and concurred in by the Congress of Micronesia if a meaningful program is going to be undertaken.

Samuel P. Shott

Attachment: a/s

NRHOTT:dbs

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Chief, Division of Lands and Surveys

Chief, Land Resources Branch

MEMO

February 20, 1964

Serial: 105000

File: 170.77.0

Proposed Conservation and Recreation Legislation

Attached is a discussion draft of certain legislation I feel is badly needed as a working companion with the Historic Sites Act (P.L. 85-624).

A review of the code of the Trust Territory indicated that your office (sec. 200) or the District Land Office or District Administrator (sec. 207 and 208) might hold to possess most of the authority proposed in this suggested legislation, further the High Commissioners undoubtedly hold most of the proposed authority at this time. It is however my belief that the authority should clearly be supported and exercised in by the Congress of Micronesia if a meaningful program is going to be undertaken.

Samuel F. Hunt

Attachment: 1/2

MEMO: 2/20

National Wild Life Federation
1412 18th Street, N.W.
Washington, D.C. 20036

I am interested in securing a copy of your "Observation Directory" will you please advise me of the price.

Sincerely yours,

Harmon P. Elliott
Chief, Land Resources Branch

DEARLAN: dbe

Nov. 7-13-44



UNITED STATES DEPARTMENT OF INTERIOR
TRUST TERRITORY OF THE PACIFIC ISLANDS
OFFICE OF THE HIGH COMMISSIONER
SAIPAN, MARIANA ISLANDS 96959

COMMERCIAL
CABLE ADDRESS
HICOTT SAIPAN

January 28, 1970

Serial:LS6277

File:178.24100

77-0

University of Kansas
Publications Office
Lawrence, Kansas 66015

Gentlemen:

I am writing to determine the availability of and the price of
your museum of natural history publication volume 3, No. 1, June
12, 1951 entitled "The Avi Fauna of Micronesia, its Origin, Evolution
and Distribution" by. Rollin H. Baker.

Yours truly,

Norman P. Knott
Norman P. Knott
Chief, Land Resources Branch

This is available for the cost of \$5.00. We can mail it to you postage
paid, for surface mail. Please order from this office:

Museum of Natural History
Attn: Mrs. Eva Hudson
Dyche Hall
University of Kansas
Lawrence, Kansas 66044

This is the price we have available, you might check with the
Museum for correctness. Thank you.

January 30, 1970

Serial: 15629h

File: 178.77.0

Peter Wilson
Acting Chief, Marine Resources
Palau District 96910

Dear Mr. Wilson:

During our previous discussions we touched on the fact that although there are apparently several unique, and in fact, endangered species of animals and plants in Micronesia, there is probably insufficient factual information upon which to base a proposal and request for non-federal funding for detailed investigations of ecology and habitat requirements. Certainly this is the case, there is insufficient data upon which to base management programs, request the retention of key habitats or propose the adjustment of programs of progress which endanger critical habitats or throw askew delicately balanced ecological relationships.

Upon reviewing Secretary Rickel's memorandum of December 12, 1969, requesting each employee to serve as a part of the "Environmental Early Warning System", and report environmental crises both large and small before they become an accomplished fact, I was tempted to send a one word report, "Micronesia".

In a more lowly attempt to get started on gathering of factual data without creating an undue burden on money and manpower budgets, I have contacted the Peace Corps; copies of the correspondence are attached.

In my opinion we can recruit, not only some new graduates, but probably "name" personnel. The question then follows - for what project?

Should recruitment be directed to people interested in unique and/or declining species or should areas such as reef and lagoon ecology receive equal or top billing.

If you could give me your overall reactions, as well as two or three high priority proposals, I will volunteer to coordinate and pursue this.

Yours truly,

Norman P. Knett
Chief, Land Resources Branch

Attachments: P/C Letters
cc: Director, Resources & Dev.
Chief, Division of Lands and Surveys
Chief, Division of Agriculture
Mr. Nachsa Siren - Headquarter Health Services

MEKNOTT:jfc

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Rev. 7-10-68

January 30, 1970

Serial: L86296

Filed: 70-77-0

Robert F. Owen
Chief, Entomologist
Entomology Laboratory
Koror, Palau, Caroline Is. 96940

Dear Mr. Owen:

During our previous discussions we touched on the fact that although there are apparently several unique, and in fact, endangered species of animal and plants in Micronesia, there is probably insufficient factual information upon which to base a proposal and request for non-federal funding for detailed investigations of ecology and habitat requirements. Certainly this is the case, there is insufficient data upon which to base management programs, request the retention of key habitats or propose the adjustment of programs of progress which endanger critical habitats or throw asides delicately balanced ecological relationships.

Upon reviewing Secretary Hickel's memorandum of December 12, 1969, requesting each employee to serve as a part of the "Environmental Early Warning System", and report environmental species both large and small before they become an accomplished fact, I was tempted to send a one word report, "Micronesia".

In a more laudable attempt to get started on gathering of factual data without creating an undue burden on money and manpower budgets, I have contacted the Peace Corps; copies of the correspondence are attached.

In my opinion we can recruit, not only some new graduates, but probably "name" personnel. The question then follows - for what project?

Should recruitment be directed to people interested in unique and/or declining species or should areas such as reef and lagoon ecology receive equal or top billing.

If you could give me your overall reactions, as well as two or three high priority proposals, I will volunteer to coordinate and pursue this.

Yours truly,

Norman P. Kuehl
Chief, Land Resources Branch

Attachments: P/C letters
cc: Director, Resources & Dev.
Chief, Division of Lands and Surveys
Chief, Division of Agriculture
Mr. Nachea Siren - Headquarter Health Services

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UNITED STATES GOVERNMENT

Memorandum

TO : Mel Mirkin, EAP

DATE: January 28, 1970

FROM : Dana Rodgers, EAP

SUBJECT: PC/M Special Placement Request for Research Ecologists

Bob Currie's comments on the request for ecologists to study rare plants and birds are well taken. It is possible that some graduate students would like to engage in such activity and with the increasing awareness of the need to be aware of and conserve the earth's natural ecology, it would seem appropriate that Peace Corps engage in such activity.

If Mr. Knott can develop a job description and an indication of how (if at all) such people might be trained, and whether they'd be welcome any old time, we can put them up as admittedly low priority special placements.

If Knott is really interested, his best bet is to independently recruit some young ecologist and then the candidate could apply to Peace Corps.

We could also recruit rare birds. Indeed, such people are presently at work in Peace Corps, Washington.

cc: Bob Currie, DPCD/Microne



Leave return to Project Officer -

PEACE CORPS MANUAL

SUBJECT Project Description Format (104) TL #167	DATE: 12/3/69	SECTION: 351
	OFFICE: PDER	PAGE NO. 1
	SUPERSEDES: Manual Section 351 dated 10/21/68	

I. INTRODUCTION

This Manual Section contains a reprint of the Project Description Format (104) revised by the Office of Program Development, Evaluation and Research with the cooperation of the Regional Program Officers. The revised format is to be implemented beginning with the project descriptions for Summer 1970 training.

II. EFFECTIVE DATE

This Manual Section shall become effective upon date of issuance.

SUMMARY OUTLINE FOR PROJECT DESCRIPTIONS

TITLE

- Specification*
1. Brief Summary (including number of PCVs requested, by skill, and proposed implementation schedule.)
 2. Project Objectives
 3. Volunteer Job Description
 4. Selection Criteria
 5. TRAINING
 - a. Language
 - b. Technical Skills
 - c. Cross-Cultural Understanding
 - d. Special Needs
 - e. Long-range Training Plans
 - f. Field Selection
 - g. Training Institution
 6. LOGISTICS
 - a. Accommodation
 - b. Food
 - c. Transportation
 - d. Medical Services
 - e. Supplies and Equipment
 - f. Communication



PEACE CORPS MANUAL

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12/3/68

SUBJECT Project Description Format (104)	DATE 12/3/68	SECTION 351
	OFFICE PUER	PAGE NO. 1
	SUPERSEDES Manual Section 351 dated 10/21/68	

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SUMMARY OUTLINE FOR PROJECT DESCRIPTIONS

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Sample Title:

Project Description
India Environmental Health*
Summer 1970
DRAFT (on first draft)
386-68-xx-xx-x-02 (on final draft)

*(Project name should be consistent with the project category labels outlined in attachment A of PC Manual Section 322)

State the specific development problem this project seeks to attack. Describe the project briefly, including the manner in which it will attack the development problem involved.

List the numbers of Volunteers requested in each skill category, using the appropriate Selection skill title. Indicate the proposed implementation schedule and length of service.

For example:

Project calls for 60 Volunteers, with following skills:

1 Registered Nurse - Male
11 Registered Nurses - Female
18 A. B. Generalists - Female
30 A. B. Generalists - Male
Married Nurses acceptable with special placement for spouse

PEACE CORPS MANUAL

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Proposed implementation schedule:

U. S. training June 15, 1970

In-country training August 15 to September 15, 1970

(If training dates are flexible, give the range of dates.)

Length of service including training: 27 months

3. Project Objectives

- a. Describe the specific development needs that this project will address in sufficient detail so that all those not in the host country (recruiters, applicants, selection personnel, etc.) will understand what host country problem is to be addressed and what the Peace Corps hopes to do in relation to it. Describe the importance of this project within host country development plans and indicate its relationship to other programs attacking the same problem.
- b. Suggest criteria for evaluating the relative success or failure of the project.

3. Volunteer Job Description

Summary: The job description should give a clear statement of what the Volunteer will be doing and what he is expected to accomplish. It should describe his relationship to host country agencies, the support he can (or cannot) expect from them, the nature of his immediate supervision, a description of the potential problems he may expect to meet. The following outline may be helpful in describing the job in relation to the project objectives previously stated.

1. I will not be a member of the Communist Party.
2. I will not be a member of the Soviet Union.
3. I will not be a member of the United States of America.
4. I will not be a member of the United Nations.
5. I will not be a member of the World Bank.
6. I will not be a member of the International Monetary Fund.
7. I will not be a member of the World Health Organization.
8. I will not be a member of the World Trade Organization.
9. I will not be a member of the World Intellectual Property Organization.
10. I will not be a member of the World Bank Group.
11. I will not be a member of the International Labour Organization.
12. I will not be a member of the United Nations Development Programme.
13. I will not be a member of the United Nations Children's Fund.
14. I will not be a member of the United Nations Educational, Scientific and Cultural Organization.
15. I will not be a member of the United Nations Environment Programme.
16. I will not be a member of the United Nations Human Rights Council.
17. I will not be a member of the United Nations Security Council.
18. I will not be a member of the United Nations General Assembly.
19. I will not be a member of the United Nations Economic and Social Council.
20. I will not be a member of the United Nations Commission on Human Rights.
21. I will not be a member of the United Nations Commission on the Status of Women.
22. I will not be a member of the United Nations Commission on the Rights of the Child.
23. I will not be a member of the United Nations Commission on the Status of Women.
24. I will not be a member of the United Nations Commission on the Rights of the Child.
25. I will not be a member of the United Nations Commission on the Status of Women.
26. I will not be a member of the United Nations Commission on the Rights of the Child.
27. I will not be a member of the United Nations Commission on the Status of Women.
28. I will not be a member of the United Nations Commission on the Rights of the Child.
29. I will not be a member of the United Nations Commission on the Status of Women.
30. I will not be a member of the United Nations Commission on the Rights of the Child.

What are the major topics for the project? (List the topics and indicate the number of hours for each topic.)

Will the volunteers be assigned to specific tasks or will they be assigned to general groups?

Describe as completely as possible the project sites in which volunteers will be assigned. In what sort of environment will they be living?

How will the volunteers be housed and will they stay in one place, or move from site to site?

4. Selection Criteria

Indicate for each of the skill components in the project the minimum optimum and maximum numbers acceptable. State the basic selection requirements for volunteers in regard to each of the topics listed below. If the selection requirements in any single topic are the same for all skill components, they may be described collectively. If the selection requirements are different for the various skill components in regard to a given topic, please describe the selection requirements for each skill component for that particular topic.

a. Educational requirements

Indicate whether a degree or certificate is required. Are "equivalents" acceptable? (total college education and work experience equals 4 years, minimum 21 years old.) If a college degree is necessary, specify AA, BS, MS, PhD, etc. Indicate whether an academic major, minor or combined number of hours in a general subject area are required. When outlining educational requirements state desired level and, wherever possible, indicate the range which is acceptable.

b. Skills/Experience

If not covered under educational requirements, indicate primary and secondary skill requirements. If experience is required, stipulate type, level, and length. With technical skill requests, precise and

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complete information is necessary. Wherever possible, state both the desired level of skill experience and the range which would be acceptable.

c. Sex

Indicate number of males and females for each skill. If ratio is not important please state that this is the case.

d. Marriage status

If couples are acceptable indicate maximum number of each type:

- 1) Traditional (both PCVs match skills requested in matrixed programs and have no dependents.) - Indicate suitable skill combinations.
- 2) Non-Matrix spouse (where the skills of only one member of the couple meet the requirements of an existing program and where an individual assignment must be arranged in-country to utilize the skills of the spouse.)
- 3) Married Volunteers with families (Indicate specific skill categories.)

e. Short tour PCVs

If a tour of less than 24 months is acceptable for any of the skilled Volunteers, indicate the number of months (12-18 months) and the number of Volunteers needed. Indicate any special selection criteria.

f. Personal Information

Indicate the number of Volunteers who are married, divorced, widowed, or have children. Indicate the number of Volunteers who are single.

But... the... on the... that level?

Technical Skills

What skills are primary and which are secondary? At what skill level will the Volunteers be able to operate effectively overseas? Is this level required at the completion of training? (If not, what level is required?)

Will there be a program of in-service training for Volunteers in this project?

If selection requirements indicate that trainees will already be highly skilled technically, what, if any, additional training in skills is required?

Describe any particular training methods you wish to see employed.

c. Cross-Cultural Understanding

How much emphasis should be placed on knowledge of the assignment area and its culture? What are the major problems which will confront the Peace Corps Volunteers in the area of cross-cultural understanding? What special knowledge of the culture must they have in order to apply their technical skills most effectively in the area of assignment?

d. Special Issues

Are there other training factors which should be considered for this project?

What must Volunteers know about possible health problems before entering the country?

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e. In-country Training Plans

If in-country training is desired, what are the plans for such training? What resources are there - sites, facilities and personnel? Which segments of the training will be covered in-country and which during U. S. training? To what extent will the U. S. training institution be involved in-country?

A tentative budget for in-country training must be appended to the training document.

Will people enter in-country training as trainees or Volunteers?

f. Field Selection

Explain the field selection plan, including: Overseas participation of FAO or FSO, type of midboards (decision making or diagnostic), and who will conduct final boards.

g. Training Institution

Do you recommend a particular training institution? Explain.

6. Appendix

a. Volunteer Support

(Cover each point in this section; if not applicable or a negative answer, so state.)

1) Technical Support and Staff Requirements

If the addition of this project will require additional country staff for general or technical support, explain. State amount and source of technical support and an initial list of the country staff.

needed for this project. If they are, state the number to be purchased, and whether new or replacement.

5) Special Medical Considerations

Explain any special medical considerations.

b. Factors in Implementation

(Cover each point in this section; if not applicable or a negative answer, so state.)

1) Host Government Request

Briefly state whether a host government request has been received for this project, from whom and when, and whether oral or written. If a written request has been received please attach. If not state when it is expected.

2) Clearance with other U. S. Agencies

State the date this project request was cleared with the U. S. Ambassador, and the form (oral, memorandum, at a Country Team meeting, etc.) Provide the same information on clearance by any other U. S. Agency which is directly involved in the project.

3) Program Note; Project Agreement

If the Peace Corps program in the country is covered by a program note, cite the date of this. If a project agreement for this type of project has been concluded, cite this.

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c. List Current Peace Corps Projects in Host Country

	<u>No. PCVs</u>	<u>Entered Training</u>	<u>Return U. S.</u>
<u>Agriculture</u>	<u>133</u>		
Ag Extension/Poultry	48	7/68	6/70
Ag Cooperatives	45	5/70	6/72
Ag Public Works	40	5/68	7/70
<u>Health</u>	<u>100</u>		
Environ. Health	50	7/70	10/72
Special Disease Pro.	35	7/68	7/70
Family Planning	15	7/67	7/69
<u>Education</u>	<u>100</u>		
Tchr. Trng. Inst.	30	6/68	6/70
Secondary TEFL	38	6/66	6/70
Secondary TEFL	32	6/66	8/71

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9

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Special Disease Pro.	35	7/68	7/70
Family Planning	15	7/67	7/69
<u>Education</u>	<u>100</u>		
TEFL - TAFEI Inst.	30	6/68	6/70
Secondary TEFL	38	6/68	6/70
Secondary TAFEI	32	6/65	6/71

UNITED STATES GOVERNMENT

Memorandum

TO : Mel Mirkin, EAP

DATE: January 20, 1970

FROM : Dana Rogers, EAP

SUBJECT: PC/E Special Placement Request for Research Biologists

Bob Currie's comments on the request for ecologists to study rare plants and birds are well taken. It is possible that some graduate students would like to engage in such activity and with the increasing awareness of the need to be aware of and conserve the earth's natural ecology, it would seem appropriate that Peace Corps engage in such activity.

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(If Knott is really interested, his best bet is to independently recruit some young ecologist and then the candidate could apply to Peace Corps.

We could also recruit rare birds, and indeed, such people are presently at work in Peace Corps/Washington.

cc: Bob Currie, DPCD/Micronesia ✓

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January 11, 1944

Mr. Tolson

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FROM: Mr. Tolson
SUBJECT: Mr. Tolson

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