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AGENCY FOR INTERNATIONAL DEVELOPMENT
UNITED STATES A. I. D. MISSION TO BELIZE
EMBASSY OF THE UNITED STATES OF AMERICA
BELIZE CITY, BELIZE, CENTRAL AMERICA

September 21, 1991

Mrs. A. Joy Grant
Managing Director
Programme for Belize
1 King Street
Belize City

Subject: Grant No. 598-0784.19-OPG-1004-00

Dear Mrs. Grant:

Pursuant to the authority contained in the Foreign Assistance Act of 1961, as amended, the Agency for International Development (hereinafter referred to as "A.I.D." or "Grantor") hereby grants to the Programme for Belize (hereinafter referred to as "PFB" or "Grantee"), the sum of four hundred eighty-one thousand U.S. dollars (\$481,000) to support a program for managing the Rio Bravo Conservation Management Area in a manner that combines conservation and development objectives. The program activities, more fully described in Attachment 1, entitled "Schedule" and Attachment 2, entitled "Program Description" will contribute to the prevention of global warming by carbon fixation, oxygen production and the conservation of tropical bio-diversity.

This Grant is effective as of September 15, 1991, and obligation is made as of the date of this letter and shall apply to commitments made by the Grantee in furtherance of program objectives during the period beginning with the effective date and ending September 30, 1994. The total estimated amount of this Agreement will be \$481,000 over the thirty-six month period.

This Grant is made to the Programme for Belize, on the condition that the funds will be administered in accordance with the terms and conditions as set forth in Attachment 1, entitled "Schedule"; Attachment 2, entitled "Program Description," and Attachment 3, entitled "Standard Provisions", which are herein agreed to by your organization.

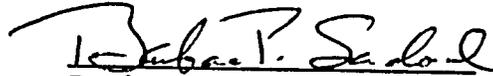
Mrs. A. Joy Grant

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By signatures of the authorized representatives below, this Grant is executed and acknowledged as of the date of this letter.

THE UNITED STATES OF AMERICA


Eugene L. Scassa
Ambassador


Barbara P. Sandoval
A.I.D. Representative

ACKNOWLEDGED:

PROGRAMME FOR BELIZE


A. Joy Grant
Managing Director

Enclosures:

- (1) Attachment 1 - Schedule
- (2) Attachment 2 - Program Description
- (3) Attachment 3 - Standard Provisions

Appropriation: 72-1111021
Budget Plan Code: LDSA-91-25505-IG12
Project No.: 598-0784.19-OPG-1004-00
Total Estimated Amount: US\$481,000
Total Obligated Amount: US\$481,000
Control No.: A110364

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A.I.D. GRANT No. 598-0784.19-OPG-1004-00SCHEDULE
RIO BRAVO CONSERVATION AND MANAGEMENT AREAA. Purpose of the Grant

The purpose of this Grant is to provide support for Pfb's management of the Rio Bravo Conservation and Management Area (RBCMA) by developing a land use study, consolidating property boundaries and staff additions, and by undertaking selected development actions.

1. Land Use Study

This activity will incorporate the suggestions and recommendations stemming from the May 1991 meeting on Pfb's work plan and produce an overall land use management plan that will guide future conservation programs and development activities in the RBCMA.

2. Boundary Consolidation

This activity represents a necessary first step to maintain and protect the accomplishments of all efforts undertaken in the RBCMA. Guard stations will be constructed, staff hired, trained and equipped and vehicles procured in order to monitor activity on Pfb's eastern property line where pressure from encroachment is greatest.

3. Staff Additions

Several new positions will be filled with the assistance provided by this Project. Three security guards will be hired under the Boundary Consolidation activity; a technical advisor will be hired to direct the land use study; two individuals experienced in park management and a person specifically responsible for the development activities will be hired to help manage the Research Station on the RBCMA.

4. Development Actions

Four sustained yield activities are contemplated--forestry, chicle, allspice, and a nursery. Each will, to varying degrees, build on previous work by various individuals and network closely with similar efforts in the region.

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B. Period of the Grant

The effective date of this Grant is September 15, 1991. The expiration date of this Grant is September 30, 1994.

C. Amount of Grant and Payment

1. The Agency for International Development (A.I.D.) hereby obligates the amount of US\$481,000 for the purposes of this Grant.

2. Payment shall be made to the Grantee in accordance with procedures set forth in Attachment 3, "Standard Provision", entitled "Payment-Periodic Advance", page 4C-11-12.

D. Grant Budget

Revisions to this Grant Budget shall be made in accordance with Standard Provisions of this Grant entitled "Revision of Grant Budget."

ILLUSTRATIVE BUDGET

	<u>FY 92</u>		<u>FY 93</u>		<u>FY 94</u>	
	<u>AID</u>	<u>PfB</u>	<u>AID</u>	<u>PfB</u>	<u>AID</u>	<u>PfB</u>
Boundary Consolid	76,500	0	15,900	21,600	0	57,830
Land Use Study	59,600	0	59,700	0	0	55,000
Staff Hiring	39,700	18,300	39,700	19,200	39,300	19,945
Devt Actions Subtotal	<u>0</u>	<u>1,000</u>	<u>24,900</u>	<u>1,000</u>	<u>29,600</u>	<u>3,000</u>
	175,800	19,300	140,200	41,800	68,900	135,775
Overhead	<u>26,370</u>		<u>21,030</u>		<u>10,335</u>	
Contingency	<u>17,350</u>		<u>13,970</u>		<u>6,875</u>	
Total	<u>219,700</u>		<u>175,200</u>		<u>86,100</u>	
LOP Totals (Life of Project)	<hr/>					
Total A.I.D.			481,000			
Total PfB			<u>196,875</u>			
Grand Total			<u>\$677,875</u>			

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E. Reporting and Evaluation

The Grantee shall provide to A.I.D.:

(1) a brief quarterly report which describes progress in meeting the project goals and purposes, problems encountered, etc. Copies of this report should be mailed to both USAID/Belize and LAC/DR. (Included in this report will be a financial section which provides the total amount of funds available by line item, the amount of funds expended for the reporting period, including explanatory notes as to purpose of the expenditures, the amount of funds expended to date, and the amount of funds remaining in the Illustrative Budget. The Illustrative Budget line items may serve as the format for the fiscal report table);

(2) one copy of the "Land Use Plan" for the Rio Bravo Conservation and Management Area that will be prepared with the support of this Grant; and

(3) special reports A.I.D. may reasonably request or which the Grantee may wish to provide A.I.D., in order to describe special problems or situations that need to be highlighted outside the usual quarterly reporting period.

Audits will be required in accordance with A.I.D.'s new auditing guidelines for non-profit Grantees which will be provided at a later date through the Controller's Office.

F. Special Provisions

Prior to further environmental review, funds will only be used for studies, surveys, and the development of a management plan, for the hiring and equipping of personnel, and for the construction of small buildings. No funds will be disbursed for the exploitation of natural or archaeological resources in the area, or for the construction or upgrading of roads until further review per 22 CFR Part 216. Under no circumstances will funds be disbursed for the procurement or use of pesticides, or in support of activities, projects or programs involving commercial timber harvesting in primary forests, unless the appropriate environmental reviews have been approved by the LAC Chief Environmental Officer.

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G. Indirect Cost Rate

As indicated in the proposal submitted by PFB, A.I.D. will reimburse for direct allowable costs and for indirect costs at the provisional rate of fifteen percent (15%) of total direct costs in accordance with the Illustrative Budget included in Section D, entitled "Financial Plan" of this Schedule and as presented on page 26 of the PFB proposal for this Project found in Attachment 2 to this Grant entitled "Program Description."

Programme for Belize will submit to A.I.D. audited financial statements for two years as soon as possible in order to provide the basis for determining a revised overhead rate for indirect costs eligible for reimbursement under the Project. The rate will be effective retroactively as of the start date of this Agreement.

H. Title to Property

Acquisition of property under the Project will be made in accordance with the Illustrative Budget and the title will be vested with the Grantee. Disposal of property acquired with Grant funds is subject to the conditions of Optional Standard Provision No. 18 in Attachment 3, Title To and Care of Property (Grantee Title).

PROGRAMME FOR BELIZE

PROPOSAL TO: United States Agency for International
Development
Attention: Mr. Jeffrey Allen,
Natural Resources Officer

PROJECT TITLE: Rio Bravo Conservation and Management Area

PROJECT LOCATION: Orange Walk District
Belize, Central America

TOTAL REQUEST: BZE \$ 962,000.00

PROJECT SPONSOR: Programme for Belize
1 King Street
PO BOX 749
Belize City, Belize

CONTACT PERSON: Mrs. A. Joy Grant
Tel. 501-2-75616
Fax 501-2-75635

ORIGINAL DATE OF SUBMISSION: June 03, 1991
REVISED DATE OF SUBMISSION : August 29, 1991

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**RIO BRAVO CONSERVATION AND MANAGEMENT AREA
ENVIRONMENT/GLOBAL CLIMATE CHANGE PROJECT PROPOSAL
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US AID Proposal: Rio Bravo

I. Rio Bravo: Project Purpose and Description

Today, Belize is unique in Central America in being relatively free from two overriding development problems so common in the region and typical of the tropics worldwide: a burgeoning population of people living in or near poverty level, and a badly deteriorating natural resource base that in some places will never recover. It is hoped that the Rio Bravo project will prove to be a significant force in helping Belize and its people maintain this advantageous socio-economic position.¹

Rio Bravo Conservation and Management Area (see Exhibit VI) is an innovative forest conservation and development project located in the Orange Walk District in northwestern Belize, Central America. Rio Bravo consists of 152,000 acres of subtropical moist forest. Protecting the forest to provide for continued contribution to the prevention of global warming by carbon fixation and oxygen production as well as the conservation of bio-diversity are two major objectives of the Rio Bravo project. Achieving these goals over time is envisioned as compatible with the orderly economic development of the region, including sustainable extraction of forest resources from the greater Rio Bravo Area (an area comprising approximately 500,000 acres comprised of 152,000 acres managed by PFB and 348,000 acres of privately held land). The success of melding conservation and development objectives depends on the quality of management at Rio Bravo and on the discipline to maintain the long-term objectives over the tendency to reap short-term profits.

Several components are necessary for the future success of this project. These includes:

- o An effective security program
- o A land evaluation project
- o A timber resource inventory
- o Implementation of several income generating projects

¹ 1990 Rio Bravo Management Plan

Rio Bravo area is being managed to maintain the forest and its abundant wildlife, to produce forest products which will financially support conservation efforts, to serve as ecological research and a model forest management area, and to become an important tourism and archaeological area in the region. Plans are being negotiated for forestry experiments and non-timber product harvesting. A modest research station is currently operating on the property, providing the information required for sound planning.

Rio Bravo is private land being held in perpetual trust for the people of Belize. It is held and managed by Programme for Belize, under an agreement with the Government of Belize. Rio Bravo is part of the formerly extensive landholdings of the Belize Estate and Produce Company. Today it remains covered in dense forest, primarily mahogany, cedar, and other hardwoods.

II. Project Sponsor

Programme for Belize ("PFB") is a private, nonprofit Belizean corporation whose primary purpose is to link conservation with sustainable economic development of Belize's natural resources. PFB has a number of objectives which, collectively, are designed to help achieve this goal. The principal objectives are:

To manage and conserve major areas of Belize's natural ecosystems and the wildlife and plant resources contained in these areas.

To help identify and implement conservation priorities in Belize, including protection and management of wildlife and the designation and management of protected areas such as national parks or other reserves.

To help train Belizeans in several fields, including but not necessarily limited to forestry, fisheries, marine and coastal zone planning, archaeology, wildlife biology, conservation, and agriculture.

To promote conservation awareness and respect for the environment through environmental education at all levels.

To promote natural history tourism and the development of tourism facilities that enhance the appreciation of natural resources by Belizeans and others.

To promote economic development in Belize, through innovative ways of financing development projects in tourism, agriculture, forestry, fisheries and management of natural resources. This will include investment promotion and identification of funding resources of these activities.

Funds for Programme for Belize and financing for the Rio Bravo project have initially been derived from a major campaign for donations from foundations, environmental organizations, government agencies, corporations, and individuals in the United States and the United Kingdom.

III. Sponsor Accomplishments

To date, Programme for Belize manages the Rio Bravo Conservation and Management Area and has started a Marine Division which will focus its efforts on protection of Belize's barrier reef, the second largest in the world.

PFB was created in 1988. Although it is a relatively young organization, its accomplishments to date have been significant. The following are five examples:

Government Assistance:

Within the first 18 months of its existence, PFB provided a consultancy to the Government of Belize ("GOB") which was partly responsible for the creation of important mangrove protection regulations and the establishment of a new Conservation Department within GOB.

Land Acquisition:

On a shoe-string budget, PFB staff worked to secure the 152,000 acres now known as the Rio Bravo Conservation and Management Area. Of these 152,000 acres, 110,000 were purchased by PFB (with the assistance of US AID, Massachusetts Audubon Society, The Nature Conservancy and fundraising from the U.K. and U.S.), and 42,000 were donated by Coca Cola Foods. With a staff of four, PFB effectively orchestrated this transaction within 24 months. In addition, PFB was originally designed to phase out after ten years and turn the project over to GOB. PFB realized that in order to ensure future project stability, perpetual ownership would be a necessity. In 1990, PFB staff negotiated an agreement with the GOB to hold Rio Bravo in perpetual trust for the people of Belize.

Scholarships and On-the-Job Training:

To date PFB has sponsored 14 On-the-Job training trainees. They have gained experience in the areas of surveying, field biology, eco-tourism, archaeology, and fisheries. In addition, PFB has provided scholarships to six students for higher education.

La Ruta Maya/ El Mundo Maya:

The Editor of National Geographic has initiated a plan called "La Ruta Maya" to foster tourism based on the amazing Mayan presence in the region. La Ruta Maya will be a network of archaeological sites located in Mexico, Guatemala, and Belize. PFB has been active in Belize to encourage this effort.

Environmental Education:

In coordination with an international environmental education organization, Save The Rainforest, PFB is providing five two-week summer courses on Tropical Forest Ecology, Archaeology, and Marine Biology. Approximately 125 American and Belizean students will spend one week at Rio Bravo and one week at South Water Caye. PFB anticipates expansion of this summer program.

Besides these tangible results, PFB has successfully achieved a perhaps more difficult intangible accomplishment: PFB is not only accepted but respected within its host country. PFB has an excellent working relationship with government agencies in Belize, the business community and both local and international non-governmental organizations. The acceptance and recognition by the former and present governments demonstrates the important role PFB plays in shaping the environmental and economic future of Belize. PFB's Board of Directors includes some of Belize's best-known and highly respected professionals which in itself lends stability and credibility to the organization (See Exhibit II for list of Board of Directors).

III. Rio Bravo: Completed Projects

La Milpa Research Station:

In September 1989, the first phase of the Research Station was completed. Facilities include 5 cabanas housing workers, property manager, principal ecologists, visiting scientists and ecology trainees. The station has power generated by solar panels, running water and a sanitary system.

PFB plans to expand the station by constructing a remote facility which will be used solely for scientific purposes. Due to the upcoming summer education courses and increasing numbers of visiting scientists, expansion is necessary. This Research Station will be located close to trails and several types of key habitats.

Scientific Research:

Through Manomet Bird Observatory in Massachusetts, PFB has hired two principal ecologists, Dr. Nicholas Brokaw and Dr. Elizabeth Mallory. They have completed a report on the Natural History of Rio Bravo and a Guide to the Trees of Belize. Current basic studies include: taxonomic inventories, habitat mapping and description, seasonal recording of resident and migrant bird distributions and abundances, analysis of forest dynamics, research on tree physiology, and continual monitoring of climate and seasonal activity of trees.

The goal of applied research at Rio Bravo is to find economic uses of the forest that are commercially viable but with minimum adverse impact on biological diversity. Applied research at Rio Bravo will help fulfill its role as a model of how conservation and development must serve each other in tropical forest areas. At Rio Bravo we should go beyond simply gaining income from the forest to a continuous commitment to research toward improving forest uses from both economic and conservation perspectives.²

Assisting the Principal Ecologists are four Belizean Trainees. These Trainees have been hired for a period of two years. They aid the Ecologists in collection of data while learning field biology skills.

Several visiting scientists have also conducted research at Rio Bravo. With their assistance the following research projects have been completed:

- o Mammal Census
- o Demography of Chicle
- o Inventory and Analysis of Timber in the Duck Ridge Area
- o Inventory of the Turtle Fauna of the Rio Bravo Conservation and Management Area

Archaeological Research:

Rio Bravo contains one of the largest discovered archaeological sites in Belize. La Milpa is a Preclassic and Classic Maya site of both national and international significance.

La Milpa was first discovered and named by Eric Thompson in March 1938. In the 1970's David M. Pendergast and H. Stanley Loten briefly visited the site. More recently mapping was carried out by the Rio Bravo Project (Guderjan 1989) and archaeological resource potential was studied by Dr. Anabel Ford and Dr. Scott Fedick. In a brief visit by Dr. Norman Hammond, identification of one fragmentary stela and information from Dr. Guderjan's field notes led him to believe that much of the major architecture is likely to be Preclassic. A visit by Dr. Vernon Scarborough resulted in the identification of two large depressions south of the main plaza

² Brokaw, Dr. Nicholas and Dr. Elizabeth Mallory, 1991. Ecological Research in the Rio Bravo Conservation and Management Area. Rio Bravo, Belize.

as reservoirs. ³

PFB is in the process of reviewing archaeology proposals. Projects will be reviewed by the Scientific Advisory Board for Archaeology and excavation work will begin in 1992.

III. Future Projects and Programs

Ideally this section should include a summary of programs and projects identified by the Rio Bravo Management Plan. PFB Staff are in the midst of revising the Management Plan. A Revised version should be complete in November 1991. As part of the revision process PFB held a Planning Workshop. Participants ranged from representatives from the Government of Belize, Belizean businesses, international environmental organizations, and scientists and archaeologists from Belize, the United States and the United Kingdom (See Exhibit III for participant list). Participants made many valuable recommendations many of which are included in the descriptions below.

Rio Bravo Management activities can be broken down into five main categories: Administration, Property Management, Land Use, Research, and Economic Development. The following description delineates activities that are planned for Rio Bravo over the next 2 years.

A. Administration

PFB Belize City Office:

Programme for Belize currently has a staff of five working out of the Belize City office. Personnel include the Managing Director, Education Coordinator/Research Assistant for Marine Division (this person will soon leave to get a Masters Degree), an Accountant, Executive Secretary, Driver and Project Coordinator (who is currently a full-time volunteer). PFB plans to expand its activities in several areas: Scientific Research, Archaeological Research, Environmental Education, and Marine Conservation.

Environmental Education:

Currently Environmental Education is done on an as-requested basis. PFB Staff have given informal talks and slide show presentations to a broad range of audiences including students, the general public and local environmental organizations.

³ Hammond, Dr. Norman, 1990. Proposal for Survey and Excavation at La Milpa, 1992. Boston, Massachusetts.

Within the next year PFB plans to strengthen its Environmental Education program in the following ways:

- o Create an Environmental Education Program for visiting schoolchildren and tourists at Rio Bravo Conservation and Management Area.
- o Sponsor nature programs on local radio and television stations
- o Assist the University College of Belize in the creation of an Environmental Education course for teachers.
- o Secure additional funding for the Belizean Scholarship and Training Program sponsored by PFB
- o Do regularly scheduled slide presentations for the general public and schoolchildren on environmental issues

Additional Staff such as an Education Director, an Assistant and secretarial staff will be necessary to coordinate these activities.

PFB plans to create an Environmental Education Program and visitor's center at Rio Bravo. The Environmental Education Program will be targeted towards Belizean students, and both Belizean and Non-Belizean tourists. Two Education Assistants will be necessary to perform interpretive and guide services (as the program grows and stabilizes additional employees will be necessary). The Education Assistants will go through a rigorous six week training, after which they will become part-time employees increasing to full time as needed. PFB aims to employ two residents from the nearby village of San Felipe for these positions. Employment of San Felipe villagers would meet a number of objectives: supply employment for local people, educate both the Assistants and indirectly the village of PFB's on tropical ecology principals and the goals of PFB.

Within one year the program should be up and running with three full-time staff.

Scientific and Archaeological Research:

The Coordination of Scientific Research has been, to date, conducted on an Ad Hoc basis. A Senior Scientist is needed to coordinate scientific activities at Rio Bravo. A similar post is needed to manage archaeological excavation and research activities at La Milpa. (See sections on Scientific Research Program Archaeology Program and for a detailed description).

Marine Division

A Marine Division has recently been created within PFB. The Marine Division has three employees two Co-Directors and a Research Assistant. The Marine Division will be responsible for policy, planning, education, and conservation relating to marine resources.

Rio Bravo:

Staff at Rio Bravo include, a Property Manager, Cook, Laborers, Two Principal Ecologists, and four Field Biology Trainees. Staff levels are hardly adequate to run such an ambitious conservation and management area. The following positions need to be created and filled: Assistant Property Manager, and three Security Guards. Education Director, Senior Scientist, and Archaeology Coordinator will spend most their time at Rio Bravo. Further explanations will be given below on the necessity of these positions.

B. Property Management:

Property management includes the general physical and administrative activities necessary to run a conservation and management area. Additional personnel are needed to perform ranger and warden responsibilities. Currently the Property Manager is responsible for running the Research Station, overseeing general maintenance and security issues, and providing guide services to VIP visitors. His work load is far too great for one person. PFB anticipates hiring an Assistant Property Manager who will assist in some of these responsibilities. (See Exhibit VII for Job Description).

Research Station Expansion:

PFB hopes that the Rio Bravo Research Station will become a scientific resource for the region. Its location in northwest Belize makes it accessible to, of course, Belize but also Guatemala and Mexico (See Exhibit IX). PFB plans to enhance this facility in order to make it a leading center of the region and in Central America as well.

Phase one of the Research Station, consisting of five cabanas, has until recently been adequate for activities at Rio Bravo. However, with the oncoming environmental education groups and increasing numbers of visitors and scientists, these facilities will be extremely overburdened. Already conflicts have arisen between visitors and scientists. Scientists need ample space and a conducive working environment.

There are many things to consider in selecting a site for a research station. Practical access by road and water supply are obvious. Beyond these matters, the research station should be in an area where several important and

representative habitats are accessible by foot. It should be sited such that other activities do not conflict with research. We have a location in mind near Rio Bravo in the northern part of the property. Road access would need to be developed; there are only overgrown logging roads now. It is desirable to have smaller facilities near distant areas of interest that deserve study, such as Booth's River Marsh, New Lagoon River, or the pine ridge and savanna. Environmental impact assessments should be carried out before facilities are planned.⁴

PFB would like to build a facility at another location which would be free from the intrusions caused by visitors and students. This facility would include a lab and data center, scientific reference library, living and dining quarters, and a conference room. It would be comprised of the following buildings: one building to house the lab, data center, library, and conference room; a building for a kitchen and dining area, and three cabanas for resident scientists.

In addition, there is currently no building which acts as the environmental education or visitor's center. School groups in the region are beginning to visit Rio Bravo. A building housing an interpretive center, a room for audio visual presentations and lectures, and office space is crucially needed. This facility would greatly assist PFB's environmental education objectives.

The phase one facilities will remain efficiently used by visiting scientists, archaeologists, and VIP visitors. Because the current research station has already exceeded its carrying capacity, PFB anticipates the construction of additional facilities during 1991-2. These facilities are absolutely necessary in order to conduct research and environmental monitoring, to promote scientific information exchange, and to foster environmental education and visitor services.

Boundary Demarcation:

Clearly delineate boundaries of the Rio Bravo Conservation and Management Area to ensure its inviolability from pressures of population, economics, and development. Patrol the property on a regular and systematic basis.⁵

⁴ Brokaw, Dr. Nicholas and Dr. Elizabeth Mallory, 1991. Ecological Research in the Rio Bravo Conservation Area. Rio Bravo, Belize.

⁵ Summary of Proceedings from the Administrative Group of the PFB 1990 Planning Workshop. Gallonjug, Belize.

The boundaries for the Rio Bravo Conservation and Management area are clear on paper, but hardly clear on the ground. PFB will establish boundaries both on the ground and on accurate maps. Marking the north and east boundaries are a top priority. Delineating boundaries is necessary for several reasons: PFB staff, adjacent landowners, and trespassers need to know property boundaries. Boundaries will be marked and signs will be posted in "hot spots" where illegal entry is frequent.

Security:

To date, the occurrence of illegal activities such as poaching, timber extraction, milpa farming and marijuana cultivation has been relatively infrequent yet not insignificant. Approximately BZE \$ 300,000 worth of timber has been stolen from the Duck Ridge area since PFB acquired the land. It is imperative that PFB establish a presence on the property. There are currently three gates which are manned by security guards in the north, south and east access points. There are, however, no patrols along the boundary lines. Security guards are needed to do systematic and regular patrols of PFB boundaries. Top priority will be given to hotspots (i.e. along the Eastern border near Duck Ridge where timber is being stolen). Current staff levels at Rio Bravo are inadequate to perform the function of security. In order to control access and to patrol critical border areas, additional guards and equipment are necessary.

Top priority is the hiring of three security guards to address immediate security issues. Two vehicles will be necessary to facilitate patrols. As additional funds become available, the security force will grow as needed.

PFB will request and negotiate an agreement with the Government of Belize to authorize the power to arrest for security guards (similar arrangements have been provided to the Belize Audubon Society).

Road Construction:

Improve access and road network; and to control traffic and visitation.⁶

Currently there is one road leading to the Research Station and several trails for use by scientists, archaeologists, and environmental education tour groups. Access is necessary to effectively patrol, use, and monitor the Conservation Area. A series of roads and trails must be constructed and maintained to

⁶ 1990 Rio Bravo Management Plan

achieve this goal. The current trail system includes overgrown logging roads and some transect lines recently created by petroleum exploration. After a Land Evaluation Study has been completed, and with the recommendations of the Principal Ecologists, trail and road systems will be expanded for use by conservation research scientists, tourists and educational groups, archaeological research and visitation, and security patrols.

An immediate priority is construction of an all-weather road to the Mayan archaeological site: La Milpa. The existing road is barely suitable for four wheel drive transportation and difficult by foot. Access to La Milpa is necessary to facilitate archaeological research and excavation, security, and access to abandoned logging trails for use by scientist, educational groups, and tourists.

To date, mapping of the La Milpa area has been conducted. Starting in February of 1992, an archaeological expedition will begin excavation in the area. A reliable road is needed to transport both equipment and archaeologists from the research station to the site (a three mile distance). In addition, this road will be used by ecological monitoring scientists and the visiting environmental education groups.

Research Station Dormitory

To use Rio Bravo as an opportunity and site for professional-level training and environmental education.

One of PFB's goals is to educate both Belizeans and Non-Belizeans on environmental issues. In order to facilitate use by school groups and other visitors, a dormitory is needed. Due to the remote location of Rio Bravo, local housing sources are nonexistent.

Facilities should include a dormitory, six rooms with bunkbeds, and bathroom facilities (showers, sinks, toilets). The dormitory will be located near the Research Station to maximize the benefits of existing infrastructure such as power, roads, water and sanitary system. Meals will be provided by the main lodge at the Research Station.

C. Land Use:

Based upon scientific research, a Land Evaluation Study and recommendations from adjacent landowners, a land use plan will be drawn up for management of the Greater Rio Bravo Area. This area encompasses the 152,000 acres of PFB property as well as 348,000 acres of adjoining property. The goal is to work with adjoining land owners to get them to voluntarily pledge to manage their property in accordance with guidelines created for the management of the Greater Rio Bravo Area. PFB also has plans to link Rio Bravo to the Maya Biosphere Reserve in Guatemala and the Rio Azul Reserve in Mexico, in effect, creating a tri-national park.

In addition, a land use plan will be created for the specific management of PFB lands. Based upon discussions at the 1991 Planning Workshop, and scientific research gathered from a Land Evaluation Study, use zones will be designated. Use Zones include: Strict Nature Reserve Zone, Conservation Research Zone, Forest Management Zone, and Special Use Zones.

Descriptions and Definitions:

Strict Nature Reserve Zone:

This zone includes a sample of each type habitat found on PFB land. These zones are necessary to ensure protection of bio-diversity meaning both component species and ecosystem processes. All riparian ways and wetlands are included in this zone. Certain types of non-manipulative research and low-impact hiking and camping may occur in this zone. Uses such as manipulative research, agriculture, logging, and other types of forest product harvesting may not occur in this zone.

Conservation Research Zone:

Non-manipulative research including observation, mist-netting, and collection of samples are activities which may occur in the Conservation Research Zone. The objective of this zone is to encourage research which will aid in the management of Rio Bravo. Environmental education and visitor trails will be developed in this zone. Examples of activities which may not occur in this zone include: introduction of species, use of pesticides and herbicides, forestry, agriculture, and any other activity which significantly alters the environment.

Forest Management Zone:

The purpose of this zone is for the development of economic activities such as agriculture, timber extraction, manipulative research, chicle extraction, etc. Environmental Impact Assessments will be conducted before the introduction of an activity. Standards and

guidelines will be developed to protect adjacent areas from possible negative effects.

Special Use Zones:

Special Use Zones may occur within other zones and include uses such as an archaeological sites. These areas will have appropriate guidelines to minimize impacts on and from adjacent zones.

These descriptions and definitions were drafted by participants from the 1991 Planning Workshop. PFB Staff will create specific standards and guidelines for guiding land use within these zones.

Zone Designation:

The 110,000 acre parcel which was purchased through the assistance of Massachusetts Audubon Society, the Nature Conservancy, US AID, and donations from the United Kingdom and the United States, will largely be managed as a strict Nature Reserve. Areas within this zone will be set aside for Conservation Research and Special Use Zones. Eco-tourism lodges are envisioned to be constructed on this parcel in the future.

To date, 10,000 acres of the 42,000 acre parcel, donated by Coca Cola Foods have been designated for Forest Management. PFB plans to conduct forestry experiments in this area. PFB chose this particular area based on the recommendations of four studies: a consultancy provided by a natural resource planner, Bill Burley, a study provided by Westvaco, a timber survey performed by Forester Martin Meadows and a field study conducted by a timber company, New River Enterprises. Scientists and foresters will monitor this area before, during, and after extraction occurs. The objective of the forestry experiment is to gain knowledge that will be useful in the management of Rio Bravo and for timber extraction projects throughout Belize and perhaps Central America.

Timber will be extracted in the form of a concession to a local Belizean timber company. Both the Board of PFB and the Government of Belize have approved this concession. In addition, the Belizean timber company who will buy the concession from PFB has the support of Rainforest Alliance, an American based environmental organization which operates the Smart Wood Project. The Smart Wood Project reviews logging operations in tropical rainforests. Those that they deem environmentally sound are certified by the Rainforest Alliance.

If at any point the results from this timber experiment are not supportive of PFB's primary objectives, timber extraction will discontinue.

PFB's forestry action plan consists of a three to five year examination of the resource by genuinely qualified experts working in close cooperation with the Government of Belize. To date, a preliminary study has been completed by a Swedish Consulting firm. If funding is secured, this consulting firm will perform an inventory of the property and will prepare a detailed forestry action plan.

Agriculture:

PFB plans to operate experimental agricultural plots within existing milpas. This project will get underway within the next few years. PFB welcomes proposals and project ideas for agriculture.

Land Evaluation Study:

It has been stated in both the Rio Bravo Management Plan and at the 1991 Management Plan workshop that in order to facilitate the wise use of Rio Bravo's natural resources, baseline studies must be completed. To further define areas which will be designated as specific use zones, additional research is needed. Workshop Participants recommended that a Land Evaluation Study be conducted to inventory existing natural resources and ecological systems. This information would lead to further designation and strengthening of the use zones and will also provide information to determine the most environmentally sound and productive activities for income generating projects. Part of this land evaluation study would include researching the range of possibilities for income generation, and will provide a market study to determine the feasibility of selling such products. The market study will look at a range of potential income generating projects (everything from timber, non-timber forest products, butterfly farming, nursery to other possibilities that PFB is unaware of). Participants of the workshop specifically recommended:

In the form of a Land Evaluation Study, inventory the existing soil, vegetation, and wildlife to evaluate future protection and use of these resources. The study shall include specific recommendations for use of natural resources which have viable markets.⁸

Top priority will be placed on evaluating the 42,000 acre parcel because approximately 10,000 acres, known as Duck Ridge, will be used for forestry experiments.

The Study will take approximately 8 months and will consist of

⁸ Summary of Proceedings from the Land Use Study Group of the 1991 Planning Workshop. Gallonjug, Belize.

the following team members: soil scientist, market economist, forester, botanist/ecologist, 2 local Belizeans with first-hand knowledge of the area, wetlands ecologist and a park planner.

D. Research:

Promote increasing communication among researchers for the exchange of ideas on a local level (at Rio Bravo), on a national level (throughout Belize), and on an international scale.⁹

This goal is the result of recommendations made at the May 1991 Workshop on the Rio Bravo Management Plan. Researchers acknowledged a weakness in the area of research information dissemination and coordination.

Scientific Research Program:

In response, Programme for Belize will create a Scientific Research Program ("SRP"). The SRP will oversee the coordination of research at Rio Bravo, review and approve research applications, collection and dissemination of reports, monitor the use of consistent methodology, prevention of unnecessary duplication of effort and ensure adherence to research standards and guidelines created to protect the bio-diversity of PFB lands. The SRP will consist of a research station consisting of lab facilities, a scientific reference library, conference room and a data center which will harbour research from Rio Bravo and other projects as well as a Geographic Information System. An organized system will be created to catalogue research and to disseminate information to interested entities and individuals.

Scientific Research Program Objectives:

- o Coordination of research at Rio Bravo
- o Coordination of research with the Government of Belize as well as with other conservation areas
- o Maximize the potential and efficacy of scientific research
- o Exchange research information with local, national and international entities and individuals
- o Incorporation of research information into PFB management decisions

⁹ Summary of Proceedings of the Research Group of the 1991 Planning Workshop. Gallonjug, Belize.

Immediate Priorities:

Immediate priorities for creation of the SRP include the expansion of research facilities including construction of a remote research station, scientific lab and data center, creation of a scientific reference library; hiring of a Senior Scientist, creation of policies, standards and guidelines for scientific research, day-to-day management of research operations, and creation of a research information exchange system.

SRP will be headed by a Senior Scientist and advised by the Scientific Advisory Board. The Advisory Board is an already existing entity which reviews and approves scientific research proposals. The Senior Scientist will update the Scientific Advisory Board on activities at Rio Bravo and assist them in reviewing applications. The Scientific Advisory Board will review and approve any policies, standards, and guidelines created to manage research. The Senior Scientist will be responsible for generating these types of documents. The Senior Scientist will also advise the Managing Director on matters pertaining to natural resource management. (See Exhibit VII for Job Description)

This program is necessary to ensure sound environmental monitoring of the Rio Bravo Conservation and Management Area and to provide effective coordination of scientific projects on a local, national and international level.

Archaeological Research:

Similar to the Scientific Research Program, archaeological research must be carried out in a well-planned and coordinated manner. Study of the La Milpa site will:

..endeavor to understand the distribution, history, and utilization of Rio Bravo lands with regard not only to culture history, culture process, but also with regard to applied aspects. Topical studies fall within these rubrics. It is axiomatic that the Maya occupation of the region must be studied against its ecological matrix through the relationship of human settlement to topography, communications, and resources.¹⁰

¹⁰ Adams, Dr. Richard, 1991. Proceedings from the Archaeological Study Group from the Programme for Belize Planning Workshop. 1991

Study of the archaeological resource base will occur in the form of:

- o broad ranging studies of single communities (ie. monumental centers and their surrounding settlements)
- o regional mapping and test excavations
- o examination of special problems and exploitation of special opportunities

Immediate priorities include:

- o continuation of regional surveys and assessment activities using all available means of data collection
- o investigation of the la Milpa Site which is one of the largest and most accessible ancient Mayan sites on PFB property
- o hire a archaeology coordinator to manage logistics and monitor adherence to sound archaeological and environmental standards

Plans must be made for future tourist use of the area.

E. Economic Development:

PFB is different from other environmental conservation organizations because it aims to make conservation self-sustaining through the vehicle of economic development projects. This unique objective is a difficult, yet attainable goal. PFB has identified several immediate and several longterm economic development projects. These projects may be altered or completely deleted depending upon the results generated by the Land Evaluation Study.

Immediate Projects:

Chicle:

By 1992, PFB plans to extract chicle from the western section of the 110,000 acre parcel. Chicle was extracted there in the past when Belize Estates and Produce Company owned the property. The most recent harvesting was seven years ago. Extraction in this area is absolutely necessary for security reasons. Chicle is harvested every seven to eight years. As of the summer of 1991, this area will be ripe for harvest and it is located next to the Guatemalan border. If PFB does not harvest the chicle, the Guatemalans will. If PFB leaves the chicle for the Guatemalans to harvest, extraction methods will not be monitored and other more serious security problems may arise which could endanger Rio Bravo

staff and visitors. PFB will be undertaking a study of the impact and sustainability of chicle extraction but tentatively plans on initiating a harvest program in 1992-1993.

Allspice:

PFB will also be studying the harvesting of All spice concurrent with the chicle study. The first year of operation is tentatively planned for the 1992-93 period.

Nursery:

PFB is studying the possibility of creating a nursery to grow seedlings forest trees and to grow plants for export. Tentative starting date to be late 1992.

II The project income stream from these three activities during the course of the next three years is as follows:

	year 1	year 2	year 3
CHICLE	--	44,000	45,000
ALLSPICE	--	44,000	44,000
NURSERY	--	10,000	20,000
TOTAL	--	<u>98,000</u>	<u>109,000</u>

Future Projects:

Eco-Tourism:

After sufficient base line studies have been completed, areas will be recommended and zoned for tourist use. PFB plans to construct and operate eco-tourism lodges. The number and location of lodges has yet to be determined. PFB is in the process of creating a development plan with an internationally recognized developer. Environmental impact assessments will be completed before construction begins.

Section IV

PROJECT ASSISTANCE

The Programme For Belize having acquired title for the 110,000 acres by purchase and the 42,000 acres as a gift now must embark on the proper management of the property.

The land must now be properly marked and the property has to be secured from illegal loggers, squatters and hunters.

There is the need to embark on research to ensure that there is no biological or other damage to the property by visitors or economic development while providing the information which will be used to provide a cash flow for operations.

Below we outline and explain our priority needs and the funding required to advance our agenda.

BOUNDARY CONSOLIDATION - It is imperative that PFB develop and maintain a boundary defense and security system. Current security is minimal and consists largely of a guard stationed at the North Gate who is in the employ of Gallon Jug Agroindustry, Ltd. and the activities of scientists and workers centered largely around the La Milpa Site. The plan that has been developed is as follows:

I The Security System

A. Road access control-

1. North Gate- There will be a single guard stationed at the gate. Because of its remote location, it would be desirable to create a small community here to provide added security and companionship for the guard and his extended family. When Gallon Jug Agroindustry move their guard to the northern end of its property, we have been assured that they will leave the present guard house. We will need to build two additional buildings at this time, which will be used as housing for the other guards or workers from La Milpa.

two houses (\$12,000 @)..... \$ 24,000

2. East boundary road- Initially, this road will be patrolled by a vehicle garaged at the North Gate Community or at the La Milpa Research Station, but eventually it will be necessary to have a guard permanently stationed on this road. Cost of housing construction, etc. will be deferred to the year two budget.

- B. Security Guards - It will be necessary to have three guards: One at the North Gate and two others that will be used for two man patrols throughout the property (especially the boundaries). These patrols will be done by vehicle and on foot, as necessary. These guards will also be used as backup for the operation of the North Gate.

three guards (\$4,000 @).....\$12,000

- C. Aerial Surveys- Aerial inspection of the property will be an essential part of the security system. We would plan to have one or more of the security guards overfly the property on six flights a year; the months that are critical are January, February, August and October,

plan rental (\$420 x 6).....\$2,600

Subtotal \$33,600

II Operation expenses

- A. Transportation - Although expensive to operate and maintain, it will not be possible to develop an adequate security system without the use of 4-wheel drive vehicle.

vehicle purchase..... \$20,000
 maintenance operation... 8,000
 \$28,000

- B. Communication - A reliable radio network is essential for an effective security system and the safety of the guards.

- C. Uniforms and equipment..... \$ 3,000
 equipment and maintenance..... 5,400

Subtotal \$36,400

- III Miscellaneous - Given that this is an estimated budget, it seems prudent to have a .02% contingency fund.

Subtotal \$ 1,500

LAND USE STUDY - As outlined in the proposal, PFB will require the

TOTAL: \$76,500

services of a technical advisor if we are to ensure the scientific integrity of the various land use studies that will be undertaken in the next few years. It is anticipated that PFB will have a well respected scientist filling this position in the near future for a period of six months with funds provided by PFB - UK. In addition to other duties (see job description attached), his initial responsibility will be to develop a land use plan while we are conducting a job search for a qualified individual to fill this position on a full-time basis.

I. Technical Advisor position (6 months) -

salary.....	\$ 20,000
vehicle.....	20,000
travel expenses	8,000
maintenance and operation....	6,000
equipment and other expenses..	5,600

Total....\$59,600

Staff Hiring - One of the most critical positions that PFB needs to fill is that of Station Manager for the Rio Bravo Conservation and Management Area. It's remoteness from the mainstream of Belizean activities mandates that its management be strengthened so that problems can be avoided and dealt with on the grounds. While a search for a qualified Belizean will be instituted, it seems unlikely that it will be successful, so what we propose is to:

1. Advertise for and hire a qualified individual who has extensive experience in the field of park management, and
2. Advertise for and hire a Belizean counterpart with the expectation that this person would assume the position of Station Manager in 3-5 years.

Station Manager salary (in part).....	\$ 21,700
Belizean counterpart salary.....	<u>18,000</u>
Total	\$39,700

DEVELOPMENT ACTIONS - There are a number of economic development

projects that PFB is studying to determine their capability for sustained yield production and/or that would be of a type that would have little or no effect on the ecosystem involved.

Forestry - PFB has recognized that the harvesting of timber should be preceded by a thorough study of the area impacted, and is about to embark upon a detailed two year study of the 110,000 acre tract. We are considering the possibility of a limited earlier harvest in the Duck Ridge section of the 42,000 acre parcel donated to PFB by Coca Cola Foods. PFB has had two inventory studies done by Belizean foresters and intends to have a further detailed assessment completed in the near future.

Chicle - Chicle extraction is a time honored utilization of a forest resource that is believed to have low impact on the forest ecosystem. However, there has been little scientific work done on the resource or to assess the impact on the trees tapped; PFB will initiate such a study within the next few months.

Allspice - PFB is currently considering the harvesting of Allspice and some investigatory work will be undertaken on the method of harvesting, impact on trees and marketing marketing.

Both the chicle and the allspice studies will be directed by a British botanist who will fund his own research expenses. Integral to the studies near and long-term success will be the assigning of a Belizean counterpart who will carry on these and other studies under the direct supervision of the botanist. In order to benefit from the experience of similar studies in the Maya Biosphere in Guatemala, PFB will undoubtedly derive great benefit by discussions (and possible coordination) with the USAID and other personnel involved.

Belizean Counterpart.....	\$18,000
Vehicle rental and operation ...	5,000
Travel and Misc. Expenses.....	<u>1,900</u>
	24,900

Nursery - PFB is interested in developing a nursery for:

- 1) The growing of economically desirable trees for reforestation or for forest product enhancement, and
- 2) Growing tropical plants for export. The Ecological impact of this activity on any proposed site will be studied and evaluated, as will be the marketing potential.

Endangered Conifers - PFB is considering a joint project with the Royal Botanic Garden, Edinburgh to provide a site for an arboretum for the ex situ propagation and conservation of endangered tropical conifers. In addition to its role in preserving genetic diversity, such a site should also prove to be a tourist attraction.

IV. Conclusion

Programme for Belize is a project which embraces the two primary goals of the US AID Environment/Global Climate Change Project: natural resource management and Global Climate Change mitigation. Conservation of this forested area will provide for continued contribution to the prevention of global warming by carbon fixation and oxygen production. Through the assistance of scientific research Rio Bravo will be wisely managed for conservation and sustainable economic development purposes. It is both the objective of PFB and the GCC project that the information generated by research be effectively exchanged on a local, national, and international scale. Research will be shared with local communities through the form of Environmental Education. And finally, PFB has proven record for completing significant projects with modest support from foundations and other funding agencies. Assistance from US AID would have a positive catalytic effect upon the efficacy of PFB.

RIO BRAVO: USAID PROJECT #(598-0784)
EXPENSE
SUMMARY BUDGET

	USAID	PFB	USAID	PFB	USAID	PFB
Boundary Consolidation:						
personnel	12,000	-	-	12,600	-	13,230
construction	24,000	-	12,000	-	-	12,000
equipment	3,000	-	-	500	-	500
vehicle & maintenance	28,000	-	952	8,000	-	2,800
communications	5,400	-	-	500	-	1,500
aerial survey	2,600	-	2,600	-	-	2,600
miscellaneous	<u>1,500</u>	-	<u>348</u>	-	-	-
Total	76,500	-	15,900	21,600	-	57,830
Land Use Study						
Technical Advisor sal.	20,000	-	40,000	-	-	40,000
vehicle	20,000	-	-	-	-	-
maintenance & operation	6,000	-	6,000	-	-	6,000
travel	8,000	-	8,000	-	-	6,000
experiment misc.	<u>5,600</u>	-	<u>5,700</u>	-	-	<u>3,000</u>
Total	59,600	-	59,700	-	-	55,000
Hiring Staff						
Station Manager	21,700	18,300	21,700	18,300	21,900	18,100
Belizean counterpart	<u>18,000</u>	-	<u>18,000</u>	<u>900</u>	<u>18,000</u>	<u>1,845</u>
Total	39,700	18,300	39,700	19,200	39,900	19,945
Development Actions						
chicle	-	-	23,000	-	20,900	-
allspice	-	-	1,900	-	3,600	-
nursery	-	1,000	-	1,000	3,000	1,000
arboretum	-	-	-	-	1,000	2,000
Total	-	1,000	24,900	1,000	28,500	3,000
Subtotal	175,800	19,300	140,200	41,800	68,900	135,775
Overhead	<u>26,370</u>		<u>21,030</u>		<u>10,335</u>	
Contingency	<u>17,350</u>		<u>13,970</u>		<u>6,875</u>	
Total	<u>219,700</u>		<u>175,200</u>		<u>86,100</u>	
Life of Project Totals						
Total A.I.D.			481,000			
Total PFB			<u>196,875</u>			
Grand Total			<u>\$677,875</u>			

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JOB DESCRIPTION

- (i) POSITION TITLE: STATION MANAGER
RIO BRAVO CONSERVATION
AND MANAGEMENT AREA (RBCMA)
- (ii) TITLE OF IMMEDIATE SUPERVISOR: MANAGING DIRECTOR
- (iii) DEPARTMENT: ADMINISTRATIVE
- (iv) SALARY: US \$40,000 range

GENERAL ACCOUNTABILITY

Reporting to the Managing Director, the Station Manager is accountable for the proper functioning of the research station and security of the property. The incumbent will assist in determining priorities for the RBCMA.

NATURE AND SCOPE

The Station Manager will directly manage up to a dozen employees. She/he will be responsible for supervising local labour for a variety of jobs, including building construction and upkeep of same, road and trail maintenance, and tree planting.

SPECIFIC ACCOUNTABILITIES

- (i) Liaise much local community leaders and other land owners in the area.
- (ii) Receive visitors and act as a host to them at the Research Station.
- (iii) Employ and supervise the staff at RBCMA.
- (iv) Maintain properly the Programme's vehicles and be accountable for the fixed assets.
- (v) Report periodically on the annual work plan and budget.

- (vi) Maintain a good working relationship with other NGO's and government ministries.
- (vii) Ensure that adequate measures are in place with regards to security.

JOB DESCRIPTION

IDENTIFICATION

- | | | |
|-------|--------------------------------|-------------------|
| (i) | Position: | Technical Advisor |
| (ii) | Title of Immediate Supervisor: | Managing Director |
| (iii) | Department: | Scientific |
| (iv) | Salary: | US \$40,000 range |

GENERAL ACCOUNTABILITY

Reporting to the Managing Director, the Technical Advisor is accountable for the proper screening and implementation of all scientific research. The incumbent will assist in determining priorities for the work to be done and ensure that quality standards are maintained.

NATURE AND SCOPE

The Technical Advisor will ensure that only relevant, well thought out research is done at the Rio Bravo research station. He will act as liaison between the Belize City office and the Research Station.

SPECIFIC ACCOUNTABILITIES

- (i) Define staff positions needed to provide the basis for management of the Rio Bravo Conservation and Management Area (RBCMA).
- (ii) Review and refine the work plan to reflect progress in forest management, tourism, research, land parcel title changes, and funding needs.
- (iii) Report at regular intervals to all supporting organizations on the progress of the development and implementation of the action plan.

- (iv) Review scientific proposal and oversee scientific research at RBCMA ensuring that research has clear practical applications.
- (v) Preserve biological diversity at Rio Bravo and ensure that vegetation and wildlife are not severely impacted by research activities, visitor use, or economic development of the forest.
- (vi) Development outline land use plan for the greater Rio Bravo area.
- (vii) Train the staff in proper land use planning and conservation techniques.
- (viii) Assist in drafting of proposals for scientific and management research.
- (ix) Assist in the consultation on research in progress.