

# The Kanuku Mountains Protected Area Process

## The Community Resource Evaluations

May to December 2002



# **Kanuku Mountains Protected Area Process**

## **Community Resource Evaluation Master Report**

**May to December 2002**



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## Acknowledgement

The information contained in this report is the result of a collaborative effort by the CRE Workshop participants, the Conservation International team members and the leadership and members of the eighteen communities that use the resources of the Kanuku Mountains.

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## **Executive Summary**

During eight months of fieldwork, preceded by thirteen months of stakeholder consultations, training, education workshops, and collaborative planning, a common ground among all stakeholders has been the need to preserve the biological and cultural diversity of the Kanuku Mountains. One of the national treasures of Guyana, the Kanukus have been identified by the Government of Guyana as one of five priority sites in need of immediate protection.

From May to December 2002 community representatives and the Conservation International team conducted Community Resource Evaluations in the eighteen communities that directly interact with the Kanuku Mountains. The CRE workshops focused on creating opportunities and tools that would enable the participants and the community at large to share their knowledge and to gather information to produce a profile of what resources are used, when and where that use occurs, and the threats that exist to the continued use of resources.

This collaborative effort involved 417 community participants and ten CI team members who engaged in an interactive participatory methodology to produce tools to share their knowledge and gather information about their resource use in farming, hunting, fishing, and gathering. These tools included lists of all resources used; seasonal calendars that expressed the annual cycle of resource use activities; and sketch maps that created a spatial representation of the village use areas.

Using these tools as a base, the teams collectively traversed over 3,000 miles of bush and mountain terrain during 51 field trips. The community participants identified routes that would reach the most important and the furthest areas of use as indicated on the sketch maps. The field teams observed and took location or geo-reference readings at 899 sites, and completed 1,375 data records on the characteristics of resource use at those sites. In the communities, workshop participants interviewed 557 community members to gather information on resource use from a representative sampling of the eighteen communities. All of the work produced during the CREs was presented to the school children and at a public meeting, to ensure the involvement of the entire community.

The results of the CREs indicate a combined subsistence and income generating focus of resource use, heavily influenced by seasonal variations and site accessibility. Zones of use were defined to distinguish the type, scope, and extent of resource use in the savannah, bush, the foot of the mountains, and up into the mountains extending to the furthest areas used by the communities. The discussions also explored social issues influencing resource use patterns, such as changing social structure of the community, the growth of a cash economy, population growth, out-migration to Brazil, and the loss of traditional skills in resource use and management. The information that was shared and gathered during the workshops was presented from the community perspective to build the understanding of other stakeholders about how the communities using the resources of the mountains express their knowledge, and what events influence their patterns of use.

The data gathered during CREs was compiled into individual reports and digitised map records of field trips for each community. This summary report presents an overview of the results and a profile of the use of the mountains as a whole, with accompanying maps that

record all field observation sites in both eastern and western ranges of the mountains, by resource type, community, and zone of use. These maps complement the community sketch maps, which document all resources and resource use areas accessed by the community. All data was repatriated to the community representatives for verification and feedback.

The results of the CREs provide the final data set required for the process leading to a proposal and management plan for a protected area in the Kanuku Mountains.

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## **List of Abbreviations**

CI	Conservation International
CIG	Conservation International Guyana
CRE	Community Resource Evaluation
EPA	Environmental Protection Agency
GCF	Global Conservation Fund
GOG	Government of Guyana
GPS	Global Positioning System
ISV	Initial Site Visits
KMPA	Kanuku Mountains Protected Area
NAG	National Advisory Group
NGO	Non-governmental Organization
NPAS	National Protected Areas System
PA	Protected Areas
RAG	Regional Advisory Group
USAID	United States Agency for International Development

## WORDS AND PLACE NAMES

In the writing of this report we have made every attempt to use the names of places and resources most commonly known in the region. Both Macushi and Wapishana are oral languages in their original form. Projects are now underway to create a written form of both languages. During such a transitional period, it can be difficult to find agreement for word usage and spellings.

The resource lists and seasonal calendars are reproduced largely as the participants recorded them. When the same resource item was spelled in different ways, the most commonly known spelling was used. This was assisted by the feedback from the participants during the Results Feedback Workshops held in each community, and by the Macushi and Wapishana members of the CRE team.

The spelling of place names was standardized in the text of the Village Reports, again using the most commonly recognized spelling, as best it could be determined. In the list of the geo-referenced resource use sites, the place names are shown as the team members recorded them.

In addition to the community and CRE team members, we also relied on the “*Scholars Dictionary and Grammar of the Wapishana Language-Tominpainao Ati’o Wapichan Paradan Parada-karu na’iki Paradauzo-kara Kaduzu*”, as compiled by the Wapishana Language project in cooperation with Wapichan Wadauniinao Ati’o. Wapishana Language Project, Rupununi, Guyana (August 2000) and “*Makusipe Komanto Iseru: Sustaining Makushi Way of Life*”, edited by Janet Forte, commissioned by the Iwokrama Rainforest Program, copyright by North Rupununi District Development Board, 1996. These works provided valuable guidance in common names, word usage, and spellings.

# CONSERVATION INTERNATIONAL

Conservation International (CI) is a global leader in conservation – working to preserve threatened ecosystems in more than thirty countries on four continents. CI has focused its energy where the needs are the greatest: biodiversity hotspots, major tropical wilderness areas, and key marine ecosystems. Hotspots are areas rich in biodiversity but severely threatened by human activities. Tropical wilderness areas are also rich with life but are relatively intact, and among the last places where indigenous people can maintain traditional lifestyles.

CI has been active in Guyana since 1990 and has led research expeditions, media events and educational activities. The strategic plan of CI Guyana (CIG) is to promote the conservation of biodiversity and the protection of critical ecosystems, through a process comprised of scientific research based on priority setting, collaboration with partner NGOs and state agencies, and consultation with communities and other stakeholders.

In 2000, the Government of Guyana, through the Environmental Protection Agency, invited CI Guyana to perform the role of lead agency in the process of establishing a protected area in the Kanuku Mountains, one of the five priority sites identified for conservation. CI Guyana is committed to a process that involves and seeks participation of all stakeholders at the national, regional, and community levels.

## PROJECT OVERVIEW

In May of 2000, Conservation International Guyana was asked by the Government of Guyana (GOG) to serve as the Lead Agency in guiding the process leading up to the declaration of a protected area in the Kanuku Mountain Region. In pursuing this mandate CIG's work has been divided into three main areas: stakeholder engagement, information gathering, and environmental education and awareness programs.

The participation of stakeholders has been identified as being critical to the process. Therefore between April 2000 and April 2001, consultations were held with regional and national stakeholders to develop a program of consultations and activities. Advisory committees were formed at both levels, the Regional Advisory Group (RAG) and National Advisory Group (NAG).

The RAG includes representation from local government institutions, Village Captains (Touchaus) and members of their Councils, the Touchaus Council, Women and Youth Groups, Indigenous Advocacy Groups and other interest groups functioning in Region Nine.

Significant contributions of the RAG included:

- The identification of the eighteen communities to be directly involved in the consultation process;
- The identification of two Indigenous Knowledge Advisers to the consultation teams to ensure that culturally appropriate processes were followed, through which community members were able to express their views;
- The identification of two interpreters - one Macushi and one Wapishana, to accompany the consultation teams;
- The endorsement of a Community Coordinator programme in which each community identified a person to function as a liaison or communications link between the community and Conservation International.
- The endorsement of the programme of consultations, and the representation of the regional stakeholders on the National Advisory Group.

The RAG also made recommendations for the improvement in the proposed programme of consultations, education and awareness engagements and training, and the scheduling of consultations.

The National Advisory Group was comprised of representatives of the natural resources sectors, other relevant agencies of GOG, the Human Rights Association, all Indigenous Advocacy Groups, other environmental NGOs, opinion leaders and Parliamentary Opposition Political Parties, among others.

Significant contributions of the NAG include:

- Recommendations to improve the proposed programme of consultations, education and awareness engagements and training;
- Endorsement of the final programme for consultations;
- Identification of the natural resources sectors which were to be more directly involved in the consultations;

- Recommendation of the datasets to be made available for the design of the protected area; and
- Provision of a forum for the concerns of the representatives from the RAG to articulate the views and concerns of the stakeholder groups that they represented.

Initial Site Visits (ISVs) were conducted during June and July of 2001 in all of the eighteen communities to provide information on Conservation International, the protected area process, and the proposed Community Resource Evaluation. These visits were organized as public meetings in the eighteen communities identified by the RAG. They provided an opportunity for questions and feedback from community members on the proposed consultation process. At this forum, the communities agreed to select a Community Coordinator to work with CI throughout the consultations, and agreed to participate in a Community Resource Evaluation to share and gather information about the use patterns of the Kanuku Mountains.

The CREs were scheduled to begin in October of 2001. However, at the annual Amerindian Heritage Month meetings held in September of 2001, the issue was raised that consultations on establishing a protected area should not go forward until the process of demarcating and titling of Amerindian lands was completed. A letter was written to the President of Guyana requesting that the process be stopped. In December 2001, the Minister of Amerindian Affairs personally visited each of the eighteen communities and held public meetings to hear the concerns of the people and receive their feedback on the consultations. As a result of these meetings, all but one of the communities requested that the consultation program be resumed.<sup>1</sup> With this agreement, the CREs were rescheduled to begin in May 2002.

In addition to the CREs, several complementary studies were carried out. These included, digital over flights, scientific research for biological data (CI Rapid Assessment Program in 1993, 2001) and a CI commissioned Socio-Economic Survey (Gordon Forte, 2000). The information obtained from the CRE represents the final set of data that is required to develop management objectives leading to the proposal of the appropriate type of protected area in the vicinity of the Kanuku Mountains.

Recognising the need for an informed stakeholder group, an approach based on education and awareness was developed to build the capacity of community members to participate effectively in the consultation activities. This core group was composed of the community leadership (Touchau and Village Council), community educators, and the Community Coordinator. A series of three Community Leadership Workshops were held for this group between March and November of 2002. These workshops focused on the consultation program and CRE methodology, as well as the process for establishing protected areas in Guyana. Further information on the concepts and benefits of protected areas was also shared. These activities brought leaders together in clusters, or geographic groupings, to encourage the sharing of ideas and concerns. Interpretation and use of the local language was an integral part of the activities.

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<sup>1</sup> In March of 2002, the touchau of the community of Sand Creek met with CI regional staff to request that a Community Resource Evaluation be done in his community. Sand Creek formally resumed participation in the PA consultations, including the Community Leadership Workshop held in April 2002.

Workshops on environmental education, involving a teacher from each of the participating communities, were conducted in cooperation with the Ministry of Education in February of 2002 and 2003. Environmental camps brought students and teachers together to study and explore the biodiversity of the region. The education workshops and camps are planned as ongoing annual events to involve all communities with whom CI works for biodiversity conservation. Environmental camps are also being implemented at the national level.

The Community Coordinators participated in two training sessions about protected areas, in addition to the leadership workshops. This group served as the information link between the community and CI during the consultation and the CRE. Their role included distributing newsletters, holding meetings, house-to-house visits, and assisting with the CREs, in order to provide information to the general community about protected areas and the consultation program.

These activities laid a foundation of communication and understanding that contributed to the success of the information sharing and gathering activities of the Community Resource Evaluations.

## Introduction

The Kanuku Mountains in Region Nine of southwest Guyana (see map on pg.13) are a diverse area of biological and cultural richness. Located in the northern most part of the Amazon Basin, in what is known geographically as the Guyana Shield Region, the mountains cover an area approximately one hundred kilometers east to west and fifty kilometers north to south. The Rupununi Savannahs flank the mountains on three sides, and the Kwitaro River flows along the eastern side. The Rupununi River bisects the Kanukus into western and eastern ranges. A variety of eco-systems, from savannah grasslands to montane evergreen rainforests, provide habitat for an impressive array of neo-tropical flora and fauna. The mountains are home to over 350 species of birds - half the population found in Guyana, including the endangered Harpy Eagle. Scientific studies sponsored by Conservation International in 1993 and 2001, and a feasibility study supported by the European Development Fund in 1993<sup>2</sup>, recommended that the Kanuku Mountains be considered for immediate protection.

Scientists have begun the task of identifying and cataloging the flora and fauna of the Kanukus, but information about the Indigenous people who inhabit the Kanuku Mountain Region, and how they depend on its resources for their subsistence livelihood, is also essential to the study of the Kanukus as a possible protected area (PA). It is equally essential that the Indigenous people build their capacity to understand and communicate their resource use and management issues to the other stakeholder groups who will take part in the decision making process. They must be able to participate in both designing and managing a protected area in the Kanuku Mountains. Therefore, gathering information on resource use must involve the Indigenous people who have both knowledge and experience about the use of the area.

The Kanukus are home to two of the nine Amerindian tribes living in Guyana, the Macushi and the Wapishana. The Macushi people are of Carib descent and number approximately 7,750 in Guyana. They generally populate the areas on the northern side of the mountains. The Wapishana, an Arawak people, are located on the southern side of the mountains. Their population is estimated at 6,900<sup>3</sup>. Subsistence farming, hunting, and fishing are the chief means of livelihood for both peoples.

Out of the forty-six Indigenous communities in Region Nine, a committee of regional stakeholders, the Regional Advisory Group (RAG), advising Conservation International on the protected area process, identified eighteen villages and settlements<sup>4</sup> that directly use the resources of the Kanuku Mountains. Of the eighteen, five are predominantly Wapishana,

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<sup>2</sup> Agriconsulting. 1993 Unpublished Report. European Development Department; T.A. Parker, R.B. Foster. L.H. Emmons, P. Freed, A.B. Forsyth, B. Hoffman, and B.D. Gill (eds.), 1993 A Biological Assessment of the Kanuku Mountain Region of Southwestern Guyana, RAP Working Papers 5. Conservation International, Washington, D.C.; Jensen R, Montambault, Olivier Missa (eds.), 2002. A Biodiversity Assessment of the Eastern Kanuku Mountains, Lower Kwitaro River, Guyana, RAP Working Papers 26. Conservation International, Washington, D.C.

<sup>3</sup> Population figures from National Development Strategy 1996-online edition: [www.guyana.org/NDS.html](http://www.guyana.org/NDS.html)

<sup>4</sup> Katoka, Yupukari, Kaicumbay, Parishara, Nappi, Hiowa, St. Ignatius, Kumu, Quarrie, Moco Moco, Parikwarinawa, Shulinab, Quiko, Meriwau, Sand Creek, Rupunau, Shea, Maruranau.

eleven Macushi<sup>5</sup>, and two have mixed populations. They range in size from approximately 120 to 614 persons representing an estimated total population of 6,400. The communities vary in distance from the mountains. Some travel many miles to access the more fertile soil along riverbanks and at the base of the mountains.

In April 2001, Conservation International agreed to work with these communities to produce a profile of Indigenous resource use in the Kanuku Mountains as one of the data sets necessary to inform the study of the mountains as a possible protected area. A core principal driving all activities in this process was the meaningful participation of Indigenous stakeholders. This required the design of a participatory methodology that brought out Indigenous knowledge and developed a means to communicate that knowledge. There were several key objectives:

- To create a process that was participatory, involving representation of different age and gender groups within the community, and that produced results that could be understood by both the community and the other regional and national stakeholders involved in the decision to propose a protected area.
- To build the capacity of the Indigenous people to participate in creating tools that could bridge the communication gap in sharing Indigenous knowledge with other stakeholders in the process. Communication was a key issue. While the official language of Guyana is English<sup>6</sup>, the first language of the Macushi and Wapishana in Region Nine is their tribal language. Therefore interpretation, conducting activities in the local language, and developing a common understanding of concepts underlying the process would be necessary.
- To engage in a process that evaluated land use without reference to boundaries. This had to be accomplished within the context of the on going process to demarcate and title Amerindian lands. It was important to go beyond the issue of landownership to focus on land use, and to build understanding that sharing resource use information with all stakeholders could contribute to a broader understanding of the land management issues involved in establishing a protected area.
- To build the capacity of the CI staff team composed of representatives from the Indigenous communities and from wider Guyanese society, to facilitate the CRE activities and to train the participants in gathering information on resource use.

What tools would be effective in the communities to gather information and communicate knowledge about what resources they use, and when and where this use occurs? How can the community work together with the CI team to apply these tools as a basis for data gathering in the field? In the context of these objectives, this study presents the methodology and findings of the Community Resource Evaluations (CRE) of the eighteen Indigenous communities directly using the resources of the Kanuku Mountains.

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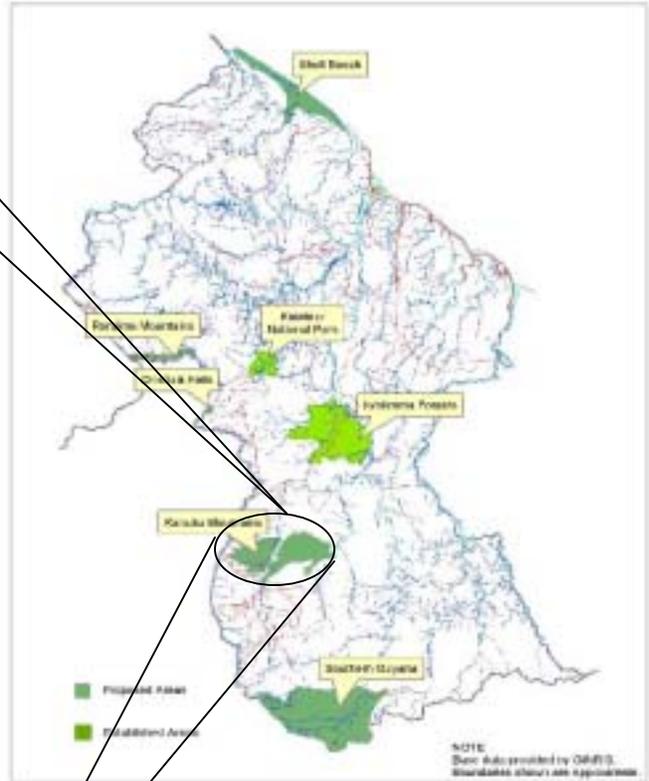
<sup>5</sup> There are multiple spellings of both Wapishana and Macushi. The version used throughout this study is that most commonly used by the communities involved in the Community Resource Evaluations.

<sup>6</sup> A legacy of British colonial rule, Guyana is the only English speaking country in South America.

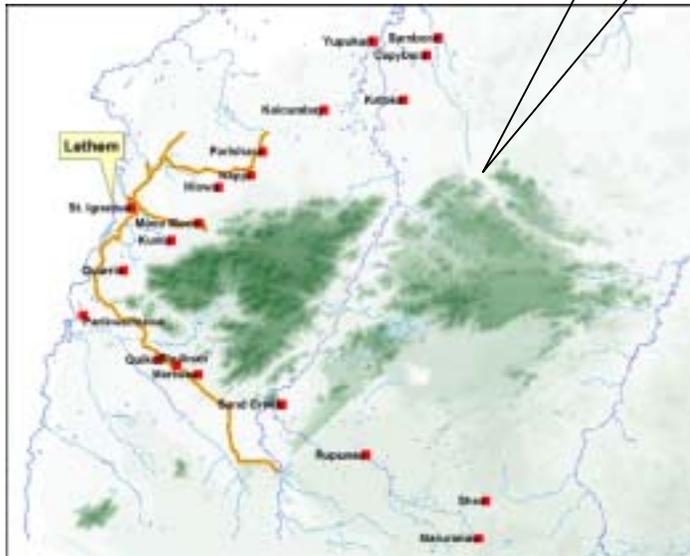
**Figure 1: Map of the Guyana Shield in South America**



**Figure 2: Map of Guyana**



**Figure 3: The CRE Communities**



**The eighteen villages that were studied use the resources of both the western (12) and eastern (3) ranges of the Kanukus. Three riverain communities access resources on both sides of the Rupununi River, their activities taking them into both ranges of the Kanukus.**

## Literature Review

The literature review in preparation for this study, focused on three areas: background material on Macushi and Wapishana traditional resource use, participatory methods in resource mapping and use, and the role of Indigenous people in protected areas.

In the first area there are several studies by noted explorer/anthropologists, primarily dating from the late 1800's to the early 1900's. William C. Farabee's accounts of his explorations of southern Guyana between 1913 and 1916 and his studies of the ways of life of the Amerindians provide detailed descriptions of the Macushi in *The Central Caribs* (1924) and of the Wapishana in *The Central Arawaks* (1918). Noted anthropologist Walter Roth produced numerous studies in the early twentieth century, as did explorer Richard Schomburgk, who conducted several expeditions into the interior of Guyana in the first half of the nineteenth century, generally under the auspices of the Royal Geographic Society. Since these early accounts, limited research exists on either the Macushi or Wapishana. A recent work, *Makusipe Komanto Iseru: Sustaining Makushi Way of Life*, edited by Janet Forte (1996) is a thorough examination of resource used by the Macushi of the northern savannahs at the edge of the central rainforest, just north of the Kanuku Mountains. The work is the result of a research project in which community women, trained in research techniques, gathered information from local informants, and is an excellent resource on Macushi lifestyle and resource use. Agronomist Rene van Dongen's, *Eco-Farming in Guyana* (1995) provides good background material on Amerindian farming practices, which are similar throughout Guyana. Conservation International commissioned a socio-economic study of sixteen of the communities using the Kanuku Mountains. *Preliminary Socio-Economic Survey of Amerindian Communities in the Kanuku Mountains Area*, (Forte, 2000) is a more recent work, and provides detailed information on population and general lifestyle habits.

*The Participatory Rural Appraisal Handbook* (1994) was used as a reference for information on the application of Participatory Rural Appraisal tools. This work contains specific rationale and clear examples for the use of these tools. The field of resource mapping is in the early stages of development. Literature ranges from the traditional PRA technique of simple sketch mapping to the evolving field of ethno-cartography, in which local participants work with government cartographers to produce formal, recognized maps of land use areas. A seminal work in this area is *Indigenous Landscapes: A Study in Ethnocartography*, Chapin and Threlkeld, (2001), an extensive report on three mapping projects in Honduras, Panama, and Bolivia. The authors' candid discussion, and critical evaluation of lessons learned in these projects, was very helpful in understanding the challenges inherent in land use mapping. *The Manual on Participatory 3-Dimensional Modeling*, Rambaldi and Callosa-Tarr, (2000) explores a further adaptation of participatory mapping in the creation, by community participants, of scaled and geo-referenced information in a three dimensional model.

Literature is extensive on Indigenous people and protected areas. Particularly valuable is the series of essays in *Conservation Through Cultural Survival: Indigenous Peoples and Protected Areas*, edited by Stan Stevens (1997), chronicling case studies on Indigenous involvement in the creation and management of protected areas. *Parks in Peril: People*,

*Politics, and Protected Areas* (Brandon, Redford, Sanderson) examines nine neo-tropical parks. Part three of this work contains informative evaluations of the social contexts in which protected areas must co-exist. “*Tropical Forest Peoples Today*”, Vol. I of *Tropical Forests, Human Forests: An Overview*, Bahuchet, et.al, (2001) explores forest peoples’ relationship to their environment and the value of protected areas as a forest management option. The above works provide information that sets the issues of the Guyana scenario in a global context. Also informative are the online contributions to the World Bank e-discussion on “Parks and Participation” from the Participatory Conservation Digest – parks\_participation @ lists.worldbank.org.

## Research Methodology

Preliminary to the description of the methodology it is important to understand how the core principle of participation was integrated into design, capacity building, and the roles of the team and the community in the implementation of the methodology.

The design of the methodology was the joint effort of a team that included Andrew Demetro, who was at that time Touchau (chief) of Nappi Village, one of the study communities, the CI Regional coordinator, George Franklin-a lifelong resident of Region Nine with extensive experience in working with the Amerindian communities, and Susan Stone, the CI project facilitator. The approach was developed over an intensive five-day period during which Indigenous knowledge, local experience, and technical advice were combined to develop the concept of the Community Resource Evaluation (CRE). The proposed methodology was then reviewed at meetings of the Regional Advisory Group, including the leaders of the CRE communities, in April 2001, and the National Advisory Group (NAG) composed of stakeholder representatives at the national level, in May 2001. This enabled the design team to receive feedback on the appropriateness of the methodology from the stakeholders who would participate in the project and to whom the findings would be delivered. After feedback was integrated into the final design, and the team assembled and trained, a pilot CRE workshop was conducted in Katoka Village in August 2001. After completing the pilot, adaptations were made to the methodology in consultation with the CRE team, and the Community Resource Evaluation methodology was finalised for implementation.

The CRE team was designed to provide a two-team approach to the completion of the CREs. Each team would consist of a lead facilitator, an Indigenous advisor, an interpreter, a technical lead for GPS and photography, and a field team leader. Each team member would learn to facilitate activities, deliver mini-lectures, lead field teams, and operate all equipment, including the Global Positioning Units (GPS). The double team approach encouraged brainstorming and cross training in the role. Macushi and Wapishana Indigenous advisors and interpreters, selected by the RAG from the communities within the study group, were on each team. They were assigned so that both teams included a native speaker of each language. The entire team participated in a two-week training workshop, prior to the pilot, and an additional one-week cross training session before the start of the CREs in May of 2002. All decisions regarding implementation of the CREs were made in consultation with the full team.

At the beginning of each CRE, a public meeting was held to review the purpose of the workshop with the community and to answer questions. The village was asked to identify twenty-five persons to represent them in the CRE. The selections were made prior to the team's arrival, with the criteria that all community groups were represented, (including women, youths, and a range of age groups) and that persons with knowledge of the forests and trails were included. Each participant received a stipend to assist in supporting their household while they were involved in the CRE activities. The Community Coordinator<sup>7</sup>

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<sup>7</sup> Each community was asked to select a Community Coordinator to serve as liaison between the community and Conservation International throughout the protected area process. The Coordinators received training and were paid a stipend to disseminate information and to communicate the concerns of the community regarding the PA process.

worked as part of the CRE team to assist with interpretation and logistics within the village, and to participate in the fieldwork activities.

### **Description of Methodology**

The methodology of the Community Resource Evaluation was divided into three parts: tool development to encourage information sharing; fieldwork to gather data; and repatriation and verification of data to achieve understanding and consensus.

- **Tool Development:** Focus groups adapted Participatory Rural Appraisal techniques to develop resource lists, seasonal calendars, and sketch maps to record information in four resource use areas: farming, hunting, fishing, and gathering.
- **Fieldwork:** The research included both field observation and informal interviews. Community field teams observed resource sites identified on the sketch maps, using Global Positioning System (GPS) units to geo-reference points of use, and data forms to record information about each geo-referenced use site. This information was entered into a Global Information System (GIS) database and plotted on a formal digitised map background. This linked the community sketch map to the formal maps familiar to other stakeholders, and created a record of geo-referenced points with linked information about the profile of use at each site observed. Community participant researchers also conducted field interviews of other community members, using questionnaires to gather information on resource use to add to the sampling base. They also assisted in compiling the survey data.
- **Repatriation and Verification of Data:** The data was returned for verification at multiple levels—from the participants to the community, and from CI back to the participants and community. All data collected during the workshops and compiled into the village reports and maps was returned to each community for feedback and verification during a one-day workshop in March 2003 attended by village leaders and all available participants of the original CRE workshop. All feedback, additions, and corrections were incorporated into the final products of the CRE. Summary data, the master resource list, point tables, and maps included in the CRE Master Report were similarly reviewed with the Touchau or Senior Councilor and one additional representative of each CRE community during a two-day workshop in June 2003. This group also reviewed copies of the Kanuku Mountains Resource Record Maps, with geo-reference points coded in three versions: resource type, points by village, and use zone. The Village Report, Village Geo-Referenced Resource Site Map, and Kanuku Mountain Master Map by Resource Type were delivered to each community leader at the close of this workshop. At the completion of all reporting, copies of the CRE Master Report, all data records, surveys, and evaluations will be returned to each participating community.

Members of the Conservation International Community Resource Evaluation team served as facilitators and participant-observers throughout the process. Interpretation was used throughout the data gathering to ensure all participants understood the goals and objectives of

e work.<sup>8</sup> The approach is a learning process - to this end all the participants and the CI team members were simultaneously teachers and learners.

The entire methodology occurs under the umbrella of critical ethnography as the skills and tools developed in the communities have the potential to build the capacity of the Indigenous people to represent their issues and needs in the ongoing process of decision making on land and resource management issues.

### **Description of Tools**

The tools used in the CRE were designed to be simple and to allow for maximum participation. To ensure effective communication and understanding, sessions and discussions were conducted in the local language whenever necessary. The following tools formed the basis of the CRE:

**Focus Groups:** Twenty-five participants worked with the CRE team throughout the evaluation exercise in both large and small group discussions. During the first day's activities, this group self-selected into three groups of eight to nine persons to focus on information about 1) farming; 2) hunting and fishing; and 3) gathering. The decision was based on their knowledge of the focus group topic. The large group served as a unit to discuss the results of the focus group sessions, and to provide feedback and broader consensus on the information recorded.

**Resource Lists - "The What":** The resource list was created first, and became the basis for the other tools. Participants listed all of the resources in each category that were actively used in any way by their community. The names of resources were listed in English and, where possible, in the local language.

**Seasonal Calendar - "The When":** The seasonal calendar recorded seasonal changes and the activities of the village during the year in each resource use category. The creation of the seasonal calendar began with the listing of the twelve months of the calendar year. The entire participant group listed the main climate seasons, wet and dry, as they occurred throughout the year. The intermittent showers and dry spells were also included. Because the seasons are closely linked to the movement of the stars and other natural events, these milestones were also shown. Once the seasonal comparison was completed, the large group broke into the three focus groups and individually listed when activities in each resource category were done. The focus groups then reconvened in the large group and presented their work for validation and correction.

**Sketch Mapping - "The Where":** The core of the methodology was the use of informal sketch mapping. This tool was used to create a visual, spatial representation of village resource use areas. This traditional Participatory Rural Appraisal technique was modified to

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<sup>8</sup> This consultation process represents the first time any activity in the region has been conducted or interpreted in the local language.

<sup>9</sup> Each community was asked to select a Community Coordinator to serve as liaison between the community and Conservation International throughout the protected area process. The Coordinators received training and were paid a stipend to disseminate information and to communicate the concerns of the community regarding the PA process.

exclude the use of boundaries in the mapping exercise. The objective was to help the community create a spatial record of resource use, without regard to boundaries, whether actual or perceived, and without regard to land ownership. The focus was the area of actual use wherever it occurred. This approach allowed the community to focus their feedback on the primary goal of the CRE exercise - communicating and understanding where and how resources are used – with emphasis on the extent and intensity of use into the Kanuku Mountains.

Participants were asked to sketch out a skeleton or base map of the significant features of the community - village center, roads, trails, waterways - that are essential to accessing and using resources. Three or four participants, who knew the area well, drew the skeleton map on a large chalkboard from each resource group. The entire participant group gave feedback to reach consensus that the base map created adequately represented the village use area. The skeleton map was then copied onto separate cardboard sheets. Each focus group recorded the specific resources used in the areas identified during their discussions. The maps were then presented to the larger group for input as to content and accuracy. These maps were taken into the field so that the information could be verified through observation, and the furthest points of use visited, observed, and geo-referenced.

When all of the individual resource use sketch maps were completed and reviewed, the resource information was combined and recorded on the chalkboard skeleton map resulting in a complete visual and spatial profile of the type and location of resource use in the community. The entire group again came to agreement that the combined representation accurately depicted the resource use of the village. A community artist transferred the information onto a plywood board to create a permanent community resource use record.

All of the maps were digitally photographed to preserve the data for analysis. The originals of the group maps and the master resource use map remained in the community as their record of the Community Resource Evaluation exercise. A copy of the master resource map was drawn for the records of the CRE team.

### **Mini Lectures**

The CRE team delivered a series of mini-lectures to the participants to build upon the education and awareness aspect of the consultation process. Topics included: categories of protected areas and the steps to establishing a protected area; the role of Conservation International as lead agency in the protected areas process; the importance of community participation; informal versus formal mapping; geo-referencing as a tool to record resource use site location; and data gathering techniques.

### **Field Work**

The fieldwork portion of the workshop used two approaches to information gathering. After the basic tools were completed, the participants were divided into two groups: the “bush team” of approximately fifteen persons focused on field observation, and the “village team” of ten persons, focused on the village survey interviews. Field observation trips enabled the participants to directly observe resource sites indicated on the sketch maps, and to gather data

on the resource use of that specific site. The informal interviews or “village surveys” gathered information on resource use patterns, targeting a broad representation of the community, especially groups under-represented in the participant group.

**Field Observation:** The bush team met as a group to study the sketch maps and to decide on the routes to observe important resource use areas, and to reach the furthest points of use. The group then divided into three groups, each assigned to a different route. The community participants chose the routes and led the teams, with a CI team member facilitating the work.

The objectives of the fieldwork were to:

- Verify information on location and extent of resource use as discussed and recorded on the focus group and sketch mapping activities, using the resource use sketch map from each individual category, as the basic reference tool;
- Record information about each site visited on a field data form;
- Geo-reference the sites visited, including the points of furthest use into the mountains.

The availability of simple and inexpensive, handheld GPS units has in a sense revolutionized the possibilities for community participation in formal and informal mapping exercises. These units were used extensively in the fieldwork portion of this study, and provided crucial information, which located resource use on a formal digitised map, providing the link between Indigenous and “scientific” views of the study area.

**Village Surveys:** During the four-day period the bush team was in the field, the remaining participants on the village team conducted informal interviews with members of the wider community. This was done using a survey with simple questions about resource use in the same categories addressed by the focus groups, gathering similar information to the field observation data. The work began with a mini-lecture on information gathering and surveying techniques, after which the participants engaged in role-playing through a mock interview exercise.

The community participants drew an informal sketch map of the village on which all households are placed. The group then selected potential interviewees based on securing a good representation of all village areas and the different social groups within the village. Three interview teams were formed, each with a CI team facilitator and a participant interpreter, to cover different areas of the community. The participants visited the homes of those who were identified to seek permission for the interview. The following day the interviews were assigned to the three groups and conducted over a two-day period. When all interviews were completed, a sample of the questionnaires was compiled and studied by each group to build understanding about how to interpret survey results. The smaller groups reported their observations and discussed the opinions of the other villagers in the larger group. At the conclusion of the fieldwork, the bush teams and village teams came together to share their experiences and the results of their work.

### **Repatriation and Verification**

At the conclusion of the workshop a public meeting was held at which the community participants presented to the people all the tools created at the workshop, and information

gathered during the fieldwork<sup>10</sup>. A digital photographic record was also made of the workshop and field trips. The photographs were organized into a slide show, which was presented and narrated by the participants. The general community had the opportunity to give feedback on the process and to make any additions necessary to the information.

## Implementation

Each CRE workshop was conducted over a ten-day period. A typical timeline is shown in the table below.

**Table 1: Typical CRE Timeline**

CRE ACTIVITY	Day 1	Day 2	Day 3	Day OFF	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
Village Council Meeting	■									
Public Meeting	■									
Resource List		■	■							
Seasonal Calendar		■	■							
Resource Maps		■	■							
Fieldwork Preparation					■	■				
Fieldwork						■	■	■	■	
Student Interactions						■			■	
Surveys						■	■	■	■	
Closing Public Meeting										■

A total of sixteen CRE workshops were completed between May and December of 2002. The Shulinab, Quiko, and Meriwau CREs were combined into one exercise at the request of the community's leadership. CREs for the other community administrative groups under Nappi, St. Ignatius, and Yupukari were done in separate but simultaneous workshops.

Additional field trips to Nappi, Shulinab, and Sand Creek were required to observe and geo-reference areas that the teams were unable to reach due to heavy rains or flooding during the rainy season. Using the sketch map as the reference tool, CI team members met with village leaders and workshop participants to agree upon the routes for the additional work. All field observation work was completed by December 8, 2002. One additional village survey activity was conducted in Maruranau in January 2003 to increase the number of villagers surveyed in that community.

<sup>10</sup> An earlier presentation of the tools and data to the school children prepared the participants for the public meeting, as well as involved the teachers and students in expanding their knowledge of the resource use of the community

A schedule of the CRE workshops and related fieldwork is shown in the following table.

**Table 2: CRE Implementation Schedule**

<b>Community(s)</b>	<b>Period(s)</b>
Maruranau	8 <sup>th</sup> to 19 <sup>th</sup> May 2002
Parikwarinawa & Sand Creek	29 <sup>th</sup> May to 8 <sup>th</sup> June 2002
Shulinab, Quiko, Meriwau*	19 <sup>th</sup> to 29 <sup>th</sup> June 2002
Moco Moco	31 <sup>st</sup> July to 0 <sup>th</sup> August 2002
Nappi, Parishara, Hiowa*	17 <sup>th</sup> to 27 <sup>th</sup> August 2002
Yupukari, Kaicumbay*	2 <sup>nd</sup> to 12 <sup>th</sup> October 2002
Saint Ignatius, Quarrie, Kumu*	23 <sup>rd</sup> October to 2 <sup>nd</sup> November 2002
Rupunau, Shea	13 <sup>th</sup> to 23 <sup>rd</sup> November 2002
Katoka	1 <sup>st</sup> to 8 <sup>th</sup> December 2002
<b>Additional Fieldwork</b>	
Nappi	1 <sup>st</sup> to 4 <sup>th</sup> December 2002
Shulinab	2 <sup>nd</sup> to 6 <sup>th</sup> December 2002
Sand Creek	2 <sup>nd</sup> to 7 <sup>th</sup> December 2002
Maruranau	22 <sup>nd</sup> to 24 <sup>th</sup> January 2003

\*Administrative Groupings

## The CRE Communities

The eighteen communities participating in the Kanuku Mountain Community Resource Evaluations are located in three of the five sub-districts of Region Nine. They access the resource areas of both the western and eastern ranges, twelve using principally the western range. (See Table 3 on pg. 28) Three riverain communities use both sides of the mountains via the Rupununi River.

**Western Kanukus:** Twelve of the CRE communities use the resources of the western Kanukus coming into the areas from the north, west, and south.

- **Kaicumbay**, a Macushi Community located fifteen miles north of the mountains, administered from Yupukari Village, accesses the mountains primarily for fishing and gathering to obtain resources not available in the bush island areas where most of their use occurs.
- **Parishara**, **Nappi**, and **Hiowa**, Macushi communities linked under common administration at Nappi, but functionally separate villages, are between three and eight miles from the northwest foot of the mountains.
- **Moco Moco**, one of the communities closest to the mountains is also the site of the hydroelectric plant<sup>11</sup> supplying current to Lethem.<sup>12</sup>
- **St. Ignatius**, **Kumu**, and **Quarrie**, are also administratively connected. St Ignatius lies over the Moco Moco Creek from Lethem. Kumu, like Moco Moco, sits close to the mountain foot, while Quarrie sits at the westernmost edge just north of Mountain Point where the trail turns around to the south side of the mountains.
- **Parikwarinawa** is the westernmost village of the CRE communities. It lies southwest off Mountain Point, the first of the South Central Sub-district communities.
- **Shulinab**, together with its satellites **Quiko** and **Meriwau**, are represented in one CRE report. Quiko accesses the south western portion of the Kanukus, while the residents of Shulinab use the western Kanukus via a high savannah indentation on the southwestern side. Meriwau turns to the eastern areas of the western range traveling northeast as far as the Rupununi River.

**Eastern Kanukus:** Three communities depend on the resources of the eastern range of the Kanukus, coming into the mountains generally directly from the south. These are all considered Wapishana communities.

- **Rupunau** sits approximately ten miles south of the southern side of the eastern Kanukus, using the mountains for hunting, fishing, and gathering. Rupunau uses the small mountains off the southern edge of the Kanukus for much of its resource needs.
- **Shea** and **Maruranau**, part of the Deep South Sub-district of Region Nine, are situated twenty-five and thirty miles south of the mountains, using the eastern Kanukus primarily for hunting and gathering. Both communities use the Kwitaro River as their main fishing

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<sup>11</sup> During heavy rains in July of 2003, a landslide caused heavy damage to the hdro-electric plant. The community of Lethem is currently relying on generators to provide limited electrical service.

<sup>12</sup> Lethem, with a population of approximately 2000 persons, is the largest community in Region Nine, serving as the center for government administrative services.

area traveling past the mouth of the Kwitaro down the Rewa River as far north as Fish Pond.

**River Communities:** The Rupununi River bisects the mountains south to north at an eastern diagonal. Three of the CRE communities, Yupukari, Katoka, and Sand Creek are located at or near the banks of the river and use the resources of both the western and eastern ranges via the access provided by the Rupununi.

- **Yupukari**, the northernmost community studied, is located approximately thirty miles due north of the mountains on the western bank of the Rupununi River. Villagers travel up river to reach the fertile farming areas along the riverbank, and up the Mapari River, simultaneously using the areas for hunting, fishing, and gathering.
- **Katoka**, the only Macushi community on the east bank of the river, accesses the eastern range via land along the Simoni Creek into the mountains on the northern edge, as well as by river up the Rupununi, farming both sides of the river. Katoka has the most widely dispersed use area in the northeast, roughly corresponding to the broad use area of the Shulinab communities in the southwest.
- **Sand Creek** is situated at the mouth of the Kassi-wao (Sand Creek) where it joins the Rupununi. This is the largest community of the South Central Sub-district. Sand Creek uses areas on both sides of the river, depending primarily on the eastern mountain areas due to higher elevations on the eastern bank and easier accessibility through waterways into the eastern range. Access into the western range is of a more seasonal nature due to lowland flooding in the rainy season.

All three of the riverain communities access the same Mapari Creek area at the northeast corner of the eastern range, and depend on it for its fertile farming lands and fishing sites.

**Table 3: Demographics of the CRE Communities<sup>13</sup>**

Village Name	Kanuku Range	Population	# Of Households	Predominant Ethnicity	Regional Sub-district
Kaicumbay	Western	120	30	Macushi	Central
Parishara	Western	343	56	Macushi	Central
Nappi*	Western	558	92	Macushi	Central
Hiowa	Western	302	48	Macushi	Central
Moco Moco	Western	373	66	Macushi	Central
St. Ignatius*	Western	614	112	Mixed	Central
Kumu	Western	284	52	Macushi	Central
Quarrie	Western	160	33	Macushi	Central
Parikwarinawa	Western	167	33	Wapishana	Central
Quiko	Western	78	13	Macushi	South Central
Shulinab*	Western	477	47	Macushi	South Central
Meriwau	Western	108	18	Wapishana	South Central
Rupunau	Eastern	248	52	Wapishana	South Central
Shea	Eastern	360	64	Wapishana	Deep South
Maruranau	Eastern	640	115	Wapishana	Deep South
Yupukari*	River-Western	470	97	Macushi	Central
Katoka	River-Eastern	429	98	Macushi	Central
Sand Creek	River-Eastern	632	118	Wapishana	South Central
<b>Total</b>		<b>6,363</b>	<b>1,144</b>		

\*Administrative Centers

### Community Participation Summary

A total of 417 persons participated in the sixteen CRE workshops. In the area of age group representation, 50 percent of the participant group was under forty years of age and 44 percent were over forty. (Six percent of the group declined to state their age). This range shows half the group from what is considered the younger members of the community versus slightly less than half representing the older members. The largest representation is in the 41-55 grouping, where most community and opinion leaders are found. The smallest group is the over 55 group, which is also the smallest population group. However, it is with this older set of participants that the majority of traditional and historical knowledge resides. Overall, the participant group chosen was a satisfactory representation of age groups within the communities.

Only twenty five percent of the group was female. The number of women varied from village to village, with a low of 12 percent to a high of 50 percent. The highest representation of women occurred in the smallest villages. There are several factors that influenced the lower participation of women, including: religious influences; the structure of authority roles within

<sup>13</sup> The population figures should be considered approximate. Sources used were Forte's Socio-economic Survey of 2000, the village Community Health Workers, and the Regional Administration. An official government census was recently completed, which will provide more accurate population figures when published.

the family and the community; the unfamiliarity of the community with the type of activity; and the influence of gender on resource use roles.

The participation of women in the CRE workshops was generally considered fair in light of the presence of the above influences and the criteria of selection requested. Women do not go into the bush as far or as frequently as do men. Men are the primary hunters and gatherers, thus the primary users of the further areas. Since the activity required field trips into the mountains, it was not unexpected that more men than women were chosen as participants. The women chosen were usually leaders in the community and strong representatives. In several of the communities women did join the field observation teams. There were always both men and women on the village survey teams.

**Table 4: CRE Workshops Participant Group By Age and Gender**  
**Total Participant Group = 417**

Age				
15-28	29-40	41-55	Above 55	Not Stated
85	127	149	30	26
20%	31%	36%	7%	6%

Gender	
Male	Female
312	105
75%	25%

During the Village Survey fieldwork, a deliberate attempt was made to reach out to areas of the community less represented in the participant group, and to those least likely to attend meetings. The demographics of the survey informant group reflect a nearly equal representation of men and women and an increased representation of the population over 55 years. This resulted in the gathering of resource knowledge and information sharing from a representative grouping of the communities as a whole.

**Table 5: Village Survey Informant Group By Age and Gender**  
**Total Informant Group = 557<sup>14</sup>**

Age				
15-28	29-40	41-55	Above 55	Not Stated
86	147	171	125	28
15%	26%	31%	23%	5%

Gender		
Male	Female	Not Indicated
295	257	5
53%	46%	1%

<sup>14</sup> A total of 557 persons were interviewed. Not all informants answered all sections of the questionnaire, however all answered farming. The participant breakdown information was taken from the farming data summaries.

*Interpretation of concepts as well as language was important during the CRE workshop. The word “protect” has many connotations in both Macushi and Wapishana, as it does in English. During the introductory activities of each workshop the team and participants discussed the different meanings for the words “protect” and “conserve” to ensure that a common context was created about these concepts.*

**Table 6: Local Language Meanings**

<b>PROTECT</b>	
<b>Macushi Words or Phrases</b>	<b>Meaning in English</b>
Erasheto Moro – Awattope (MM)	Protect from being harmed so the resource is always available
Pata -Rashito (KB)	Protect Area(s) from being destroyed
Pata- Yapurito (KB)	Use of area(s)
Mora-wai to pe -umko kon ton pi (KB)	Ensure resources are available for future generation
Pata rai ni ma (KT)	Keep check of area (s)
Pata - ra - she di (KT)	Protect area(s) from being destroyed
Erai- ni -ma; Erinamato (QR)	Keeping check on something that it can always be seen from distance
Aka men ka (QR)	Careful observation of something
Ra-hi- she (QR)	Spot checking on something
Era -shi - di (QR)	Protect from being destroyed
<b>Wapishana Words or Phrases</b>	<b>Meaning in English</b>
Kazannatan	Protect
Wa kazannatpan naz	We are protecting it
Wa kazannatpan nii	We will continue to protect
<b>CONSERVE</b>	
<b>Macushi Words or Phrases</b>	<b>Meaning in English</b>
Yen- rum pato (MM)	Use sparingly
Eko ma nito (KB)	To keep
Yengrumpto (KB)	Use sparingly
Ako-man-tope (QR)	Ensure that something remains for a long time
A wa-pito-pe (QR)	Preserving something, dried, especially meat, fish
Ako -manpi- tope (QR)	Conserving resource(s) so that it is always available for the future
<b>Wapishana Words or Phrases</b>	<b>Meaning in English</b>
Marainpan	Care-to take care of something
Karopan	Careful use
Mada pata pan	Sustainable use of resource

# The CRE Workshops: A Photographic Journal

## Day One: Meetings

Each CRE began with a meeting with the Touchau and Village Council to answer questions and to brief the community leadership on the activities that would occur during the workshop. Next, the Touchau held a public meeting to extend the information to the whole community, to answer questions, and to finalise participant selection. Finally we met with the participant group to discuss expectations, roles, and schedules.

### Village Council:



### Initial Public Meetings:



### Participant Meetings:



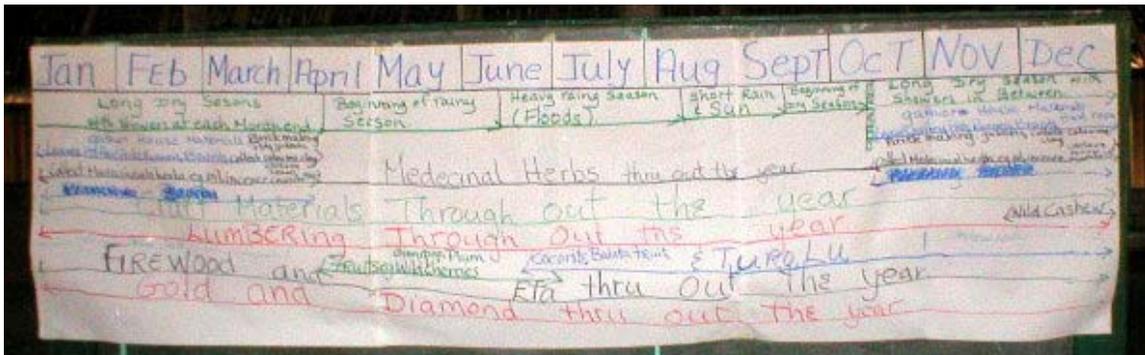
## Days Two and Three: The Tools

Each day of the workshop began with a question & answer session, and with a recap of the previous day's work. The first order of business on day two was to identify the focus groups that would develop the tools. The participants divided themselves into three groups to study resource use in farming, hunting & fishing, and gathering. In days two and three the participants developed the tools that would form the basis of information sharing and gathering-the resource lists, the seasonal calendar, and the sketch maps.

**The Resource Lists:** Participants listed all the resources used by their community.



**The Seasonal Calendar:** This activity began by relating the climate seasons, as the community named them, to the months of the year. Participants recorded local names and the positions of constellations that marked changes in seasons. When this was complete, the focus groups listed when all the resource use activities occurred in farming, hunting, fishing, and gathering.





**Sharing the Work:** As each activity was completed, the focus groups came together to share their work with the whole participant group. This gave everyone a chance to add information and to agree that all the tools correctly represented the resource use of the community.



## Day Four: A Day for Fun and Making Friends



## Day Five: Fieldwork Preparation

After the break, the participants and CIG team were ready to move on to the fieldwork part of the CRE Workshop. The participants formed two new groups. The “bush team” observed and geo-referenced resource use sites and the “village team” conducted interviews of other members of the community about how they used resources – especially the elderly and those who may not have attended the public meeting. Both teams learned how to take readings with the Global Positioning System (GPS) units and prepared for the fieldwork ahead. The bush team planned their routes, while the rest of the group and CIG team helped to prepare supplies for the field trips.

**GPS Training:** Everyone learned how the GPS units worked, and how they are used to locate sites on formal maps.



## Days Six through Nine: The Fieldwork

**Field Observation:** The bush team participants first planned the routes that would take them to the furthest and most important areas of resource use and then practiced on the GPS units and reviewed the data forms they would complete about the sites visited. They departed early on day six for a four-day trip to observe and geo-reference sites indicated on the sketch maps.



**Village Surveys:** The work for the village team began with preparation in ways of gathering data and practice sessions in how to interview. The village team participants drew a map of the village and identified persons who should be interviewed. Next they visited the homes of those identified to ask permission and make a time for the interview.

The group divided themselves into three interview teams. Each team covered a different section of the village. For two days the teams interviewed their fellow villagers, using a questionnaire to record information about the ways resources are used by the community. Interviews were usually done in the local language. When all the interviews were complete, the teams compiled or recorded the information from several of their interviews.



**Bringing in the Students:** During the second half of day nine, as the bush teams were on their way back to the village, the village team invited the students from forms 1-4 for a presentation of the work done during the workshops. Groups of students spent 20 minutes at each of five learning stations. The participants presented the resource lists, seasonal calendars, the master map, and the surveys. The last station was the “technology corner” where the students saw demonstrations of the computer, cameras, and the GPS units. This presentation helped prepare the participants for the presentations to the whole community. Earlier in the week, a video show about protected areas was shown to the entire school.



## Day Ten: Closing Presentations: The Participants Share their Work

After the bush teams returned from the field, the two teams came together to share their experiences and to plan for a presentation to the community of their work during the CRE Workshop. This closing public meeting was conducted entirely by the participants. The group chose representatives to talk about the tools, the field observation trips, and the surveys. Members of the bush teams used the sketch maps to describe the routes and narrated photo shows of their trips. Many participants brought back samples of gathered resources and discussed the use of these forest products with their community.



## The Final Public Meetings:

The final public meeting officially closed the CRE workshop. The members of the community were able to view the information shared and gathered by their representatives and, through the photographic presentations, to see the areas observed by teams.



## March 2003 - Returning the Results:

In March 2003, the CRE team returned to each community to bring the results of the collaborative effort of data gathering and information sharing. The participants of the CRE Workshops, together with the village leadership, reviewed all of the tools that were created and the data that was gathered during the workshops. This one-day review ensured that the participants had the opportunity to give feedback on the results, and to make corrections or additions to the data. New ways of looking at information were discussed and reviewed with the participants. The maps and data tables in this report were reviewed with the Touchaus of the CRE communities in a two-day workshop in June 2003.



## The Biodiversity of the Kanuku Mountains:

Over 4,000 digital photographs were taken during the course of the Community Resource Evaluations. They not only record the work of the CREs, but also the rich diversity of the Kanuku Mountains.





## Results

It is critical to the accurate study and understanding of resource use to view together the information shared through tool development and gathered through field observation and surveys. No one set of results stands alone.

The tool development exercises produced individual community lists of resources used for farming, hunting, fishing, and gathering. These lists were compiled into a master resource list containing all resources named in all sixteen workshops. The seasonal calendars created in each community were studied to develop an overview of the activity cycle for each resource category. The community sketch maps created a comprehensive record of resource use location throughout the mountains and served as the baseline information for establishing geographic zones for analyzing resource use patterns.

The Field Observation portion of the fieldwork involved direct observation of resource use sites shown on the village sketch maps. Fifty-one field trips were conducted during the CRE process along routes selected by the bush team participants with a focus on reaching the furthest points identified on the maps. These trips involved 262 villagers and covered over 3000 miles in 209 days in the field. A total of 899 sites were observed and geo-referenced, and 1,375 data records completed as follows: farming, 308; hunting, 376; fishing, 300; gathering, 391<sup>15</sup>.

The data gathered by the participants included information on the type or size of the site, frequency and intensity of use, the quality of the resource, and threats to the site use.

Forty-six teams, including 155 participants, completed 557 village surveys. The surveys targeted information in the same areas as the field observation with additional information on transportation and changes in resource use. Each informant was asked to answer questions about the resource activities in which they were active. Therefore the number of responses varied for each resource category: farming, 557; hunting, 165; fishing, 448; gathering, 366

The information from both fieldwork methodologies was entered into a database and summarised into tables for analysis.<sup>16</sup> The tables for the field observation data reflect responses to structured questions with predetermined options. The village survey tables summarise responses into categories that both corroborate the field observation data and add new areas of information.

Throughout this study, the results from tool development, field observation, and the village surveys are presented together for comparison, corroboration, and broader understanding. Findings are presented for each resource category within the themes studied in the tool development exercises: what, when, and where resources are used by the communities.

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<sup>15</sup> Separate data records were created for each type of resource use identified at the site. One site can have as many as four data records attached to its location.

<sup>16</sup> Samples of the data form and survey questionnaire are included in the appendix.

## Resources Used by the CRE Communities: “The What”

The CRE communities use an extensive number and variety of resources to support their social, cultural, and economic lifestyles. The majority of use occurs as part of a subsistence economy based on shifting, slash and burn agriculture, hunting, and fishing. While many manufactured household items such as cooking pots, house wares, and lanterns, are part of everyday life, and plastic utensils and basins have long ago replaced tools made from forest products such as calabash and balata<sup>17</sup>, forest products are still an integral part of the culture and well being of these communities. Shelter and furnishings are built primarily with materials gathered from the forests, which also provides firewood and the materials for the primary food processing and hunting tools. Other new materials are beginning to appear - zinc for roofs, stoves, and bottled cooking gas - but these are beyond the reach of the average villager, who lacks employment opportunities and must depend on the forest and mountain resources for cash income generation as well. The management of these resources for current and future use is essential to the survival, not only of the biodiversity of the Kanuku Mountain Region, but of its people as well.

**Table 7: Summary of CRE Community Resources Used**

Farming		Hunting		Fishing		Gathering	
Group	#	Group	#	Group	#	Group	#
Provisions	17	Animals	26	Lg. Skin Fish	8	Artifacts	
Gourds	6	Birds	35	Sm. Skin Fish	7	Craft Material	27
Poisons	4	Reptiles	5	Lg. Scale Fish	13	Food	7
Fruits	23	Amphibians	4	Sm. Scale Fish	29	Fruit	43
Craft Materials	3	Other	4	Armored Fish & Other Species	15	House Materials	35
Vegetables	17					Medicine	33
Seasonings	7					Poisons	7
Cane	2					Minerals	4
Beverage	7					Other	8
Other	10						
Bena <sup>18</sup>							
Total	104		74		72		165

The table above shows the combined type and number of resource items recorded as used by the communities during the CRE workshops. This is a summary of the compilation of the results of all sixteen workshops as recorded by the participants.

The resource lists for farming, hunting and fishing, and gathering, as recorded in each community, appear in the individual village reports. The compiled list for each resource category appears in appendix one of this report. The lists are intended to be a representative, basic recording of resource use by the CRE communities. While the participants made every effort to record all resource use items to the best of their knowledge, other resource use may exist that was not recorded. Where multiple spellings of the same item existed, the most

<sup>17</sup> The dried latex bled from the bulletwood tree.

<sup>18</sup> Benas are plants or other living things that are believed to have special properties, when used with certain rituals, to influence human, animal, or fish behavior.

commonly used was recorded. In many cases there was more than one name for a particular fruit or fish. Again the most commonly used name was shown. In some cases, more than one name was listed, or the device a.k.a (also known as) was shown. Some Macushi and Wapishana names were also included. The listing of all resources named in Macushi, Wapishana, and English, as well as their scientific names is an opportunity for further research.

Also included in the combined lists was a brief description of how the resource was used in the villages and where it was generally grown or found. These descriptions were compiled primarily from the combined local knowledge of the CRE team aided by discussion notes from the CRE workshops and comments from villagers. These descriptions are meant as a guide to understand the various ways the resources of the land and forest are put to use as part of the way of life of the people using the area.

### Farming

The Combined Farming List shows a total of 104 crops planted throughout the communities, with many crops planted in multiple varieties. Crop use is similar throughout the communities, with cassava the staple crop throughout the region. Farming is also a source of cash income in the communities. A few crops are planted specifically for cash income, such as peanut, sorrel, paddy, and black-eye pea. These are primarily sold to Lethem markets. Other crops are sold within the village to those who may not farm, such as teachers and health workers. There is an active informal market in sales of excess produce, such as bananas, citrus, and cassava products—farine, cassava bread and cassreep, both within and between villages, and to Lethem. Products such as cassreep are in high demand by visitors from the coast, especially around holiday time. Brazil is also an active market for communities situated close enough to the border such as Yupukari. Cassava products—mainly farine and fish—are marketed in Bonfim and in Normandie<sup>19</sup>, with some farmers planting specifically for this market.

**Table 8: Crop Varieties**

Crop Type	# Varieties
Bitter Cassava	3,6,8 months, 1 & 2 year
Sweet Cassava	3,6,8 months, & 1 year
Corn	40 days & 1, 3, 4 months
Banana	9 mo. & 1 year
Plantains	1 year
Peanuts	3, 5 months
Eddoes	3 varieties
Yams	10 varieties
Paddy	5 varieties
Pepper	10 varieties
Cotton	3 varieties
Barley	2 varieties
Peas	8 varieties
Tobacco	2 varieties

<sup>19</sup> Bonfim is a small Brazilian community directly across the Takatu River, which forms the border between Brazil and Guyana. Normandie is a similar community further north.

**Table 9: Type and Purpose of Crops Planted****Field Observation Data**

Main Crops Planted			
Cassava	Banana	Peanuts	Mixed
91	23	9	168
Use of Produce			
Domestic Consumption	Sale	Both	
203	9	76	
Village Survey Data			
Use of Produce			
Domestic Consumption	Sale	Both	
154	17	320	

The communities had sufficient surplus to supply farine, greens, meat, and other provisions for the 300 plus meals served during the each of the CRE workshops.

**Hunting**

The compiled hunting list identified seventy-four species of animals, birds, reptiles, and amphibians hunted by the community, either as meat for home use or sale, trapped for the wildlife trade, or hunted as farm pests. Hunters still use mainly traditional methods, such as arrow and bow, and dogs, although guns are also used. However, obtaining permits and ammunition is costly. Some hunting by shining<sup>20</sup> occurs. A summary of responses to methods used at field observation sites is shown below:

**Table 10: Hunting Methods****Field Observation Data**

Methods Used			
Arrow & Bow	Hunting Dogs	Guns	Traps
345	308	279	63
Village Survey Data			
Methods Used			
Arrow & Bow	Hunting Dogs	Guns	Traps
89	19	15	2

The most common species hunted throughout the communities are deer, bush cow, bush hogs and, powis – a popular game bird. Although hunting has recently been more focused on special occasions, such as Christmas and Easter, and domestic meat sources such as poultry and cattle are now common, hunting is still considered an important subsistence activity, especially among the older generation. A comment frequently repeated in resource discussion groups was the fact that younger people in general are not learning hunting skills. Most hunting is done for home use, with excess meat sold to neighbors, or occasionally brought to Lethem for sale.

<sup>20</sup> Torch shining refers to the use of headlights or torches to immobilize an animal

**Table 11: Use of Game**  
**Field Observation Data:**

Use of Catch		
Domestic Consumption	Sale	Both
338	1	26

**Village Survey Data:**

Use of Catch		
Domestic Consumption	Sale	Both
107	5	45

Trapping is done for sale to wildlife traders. Of the birds, toucans and macaws are trapped as is the small twa twa, prized for its singing. Parrots caught when young, are kept as pets by many villages. Common methods of trapping involve the use of mist nets and applying gums to tree branches. Snakes, turtles and spiders are also sold. Some animals are hunted as a means of pest control in the farm, especially deer and bush hogs. Monkeys prey on the corn crops and sugar cane, while a herd of bush hogs can wipe out an entire farm in a day. Also troubling farms are bush cows, and rodents such as agouti that feed on cassava roots.

**Table 12: Game Sold**

Some of the animals sold as wild meat:	
Tapir	Iguana
Bush Hog	Land Turtle
Deer	Labba
Armadillo	Watrash

**Table 13: Hunting for Pest Control**

**Field Observation Data**

Pest and Diseases					
Deer	Caterpillar	Acoushi Ants	Hogs	Monkeys	Agouti
150	142	196	143	12	47

**Fishing**

Seventy-two species of fish were listed as caught in the rivers, creeks, ponds, and lakes in the mountains and surrounding savannahs. The Rupununi is the main river fished within the Kanukus, while the more western communities, such as St. Ignatius and Parikwarinawa, use the Takatu on the Brazilian border. The Kwitaro River is the main fishing area for the southern communities - Shea and Maruranau. The species on the combined fishing list were categorized as skin fish or scale fish, both large and small, with a few “armored” species<sup>21</sup>.

**Table 14: Fish Sold**

Some of the fish caught for sale in local markets:	
Arapaima	Lukunani
Biara	Pacou
Basha	Tiger Fish
Haimara	Turtle & eggs
Houri	Yakatu

Fishing is relied upon more than hunting as a source of non-domestic protein and as a source of cash income. Villages near the river do a brisk business in fish sales to other villages as well as in Lethem and Brazil, salting or smoking excess catch. Arapaima and river turtles are

<sup>21</sup> Fish with a hard shell like scale.

still in demand, despite their scarcity, and are sought after especially by the Brazilian trade. The main use of fish catch cited during the field data gathering was domestic consumption. However one-third of responses in the village survey indicated fishing for sale or both.

**Table 15: Use of Fish Catch**

**Field Observation Data**

Use of Catch		
Domestic Consumption	Sale	Both
272	4	19

**Village Survey Data**

Use of Catch		
Domestic Consumption	Sale	Both
298	10	138

The scarcity of employment opportunities, and the small scale of commercial planting in the villages put heavy stress on fishing as a source of cash income, and therefore on the health of the resource. The inability to catch the amount of fish desired and the small size of fish in nearby areas was a major concern expressed in the resource discussions.

The tradition of fishing with arrow and bow is still widely practiced. Hook and line was most commonly indicated in the data collected, with seine and cast nets becoming more popular, although limited to those with cash to purchase them. Stop-offs and trapping were mentioned in discussion, although these methods were not indicated in the data.

**Table 16: Fishing Methods**

**Field Observation Data**

Methods Used				
Hook and Line	Poisoning	Cast Net/Seine	Bow and Arrows	
276	49	181	231	

**Village Survey Data**

Methods Used				
Hook and Line	Poisoning	Cast Nets	Bow and Arrows	Seine
356	42	91	117	227

**Gathering**

Gathering refers to the collection of resources that occur naturally in the forest, and represented the largest number of items used of the four resource categories. The combined list showed 165 items, in nine groupings, gathered primarily for use in the community with some sales.

**Table 17: Use of Gathered Resources**  
**Field Observation Data:**

Use of Collection			
Domestic Consumption	Sale	Both	No Response
339	18	19	15

Village Survey Data			
Use of Collection			
Domestic Consumption	Sale	Both	No Response
229	12	68	57

The most intense use of gathered resources shown was for housing materials. The majority of village dwellings are constructed entirely from materials extracted from the bush and mountain areas, from adobe for brick, beams and rafters, to roofing thatch. Only the administrative and government structures use materials such as cement and zinc brought in from Lethem or Georgetown. These projects are generally supplied with sand and gravel from within the community - even the burned (fired) bricks are sometimes made in the village. Palm leaves for thatch is especially in demand, with a strong market in Lethem. A typical roof may require as many as 3,000 leaves. The leaves of the ete palm are said to last longer, as much as fifteen years if well constructed. Cocorite and aruwa palm are also used, especially in areas where ete is less available

Craft materials such as muckru and nibbi for making cassava-processing tools - matapees, fans, and sifters - are also gathered from the forest, as well cane and wood for making arrows and bows. These items are frequently made for sale as the art of weaving or “plaiting” is slowly disappearing, as young people are not learning the skills. Miniature versions are produced in some communities, such as Sand Creek and Hiowa, for sale as craft to tourists. There is also demand for arrow and bow as a decorative or collectible item, as well as for sale to other villagers. Bulletwood trees are still bled for the balata milk latex in some areas.

**Table 18: Items Gathered**  
**Field Observation Data**

Species Collected				
Palm Leaves	House Poles	Muckru	Nibbi	Wild Fruits
151	13	193	100	229

Wild fruits are an important element in the diet and the source of many popular beverages- jamoon, ete, and cassiri wines to name a few. Fruit gathering is the cause of some forest destruction when trees are felled to harvest fruits. In many villages comments were made that this was recognized as unsustainable and measures were being taken within the village to curb the practice. Mining (pork knocking) occurs in the mountains on a small scale by a few people in most villages. This is done mainly for gold when a need for cash arises. Medicinal items are still collected - the combined list shows thirty-three different items. However, the knowledge of the species and methods of preparation is also declining. This situation should be addressed with further research to assist the communities to document and transfer this knowledge to the younger generation as an essential element of the Amerindian culture.

With the exception of house materials, gathering is generally practiced less as alternative products are becoming more available, and skills in use are disappearing. In many villages, the presentation on the gathering resources made by the returning bush team members was an educational event for the community. Many of the community participants brought back samples of gathered items to show what they looked like, especially to the younger people. It is mainly the older generation who know the species and location of the items listed. While gathering represents the largest number of resources used, it is the least intense use of the forest, as most sites are visited only a few times a year.

### **Seasonal Resource Use: “The When”**

The climate of the Kanuku Mountain region is divided into three seasons; the dry season, extending from January to mid April; the wet or rainy season, occurring from mid-April to mid-August; and a mixed wet/dry season from mid August through December. The months of April, August and December are transitional months as the weather changes from season to season. Although relation of the climatic seasons to the standard calendar is now common, there are still many natural references used in the villages to mark the changing seasons. The position of the stars is a common reference to mark seasonal change, especially among the older generation, as well as faunal behavioral references such as turtle egg laying, insect and bird songs, and the appearance of spider webs in the savannahs, to name a few.

**The Dry Season:** The main dry season occurs from January through mid-April. This season is referred to in the villages as the long dry, heavy dry, or real dry season. Little or no rain falls this time of year, with the exception of a few showers in late February; known as the Turtle Rains, as this is the time the water turtles are laying their eggs. The temperature rises sometimes to over 40°C (over 100° F), and the small creeks and most ponds dry out. Many water holes and wells may also dry, necessitating re-digging. Water is sometimes hauled to farms and sufficient water for livestock can become a problem during this time. Dust is a pervasive condition. Travel and transportation over land becomes easier, with bush and mountain areas more accessible. Maruranau, the furthest village using the mountains, can be reached in about four hours. However, river travel becomes difficult as the water drops, exposing sandbanks and rapids, necessitating portage or pulling of the boats or canoes, making it difficult to reach Katoka village during the height of the dry season. At times, the Rupununi River stops flowing by the end of the dry season, and becomes a series of pools in the south where the river emerges from the mountains into the drier savannahs. Vehicles are able to drive across natural rock bridges at Sand Creek and south at Dadanawa.

**The Wet or Rainy Season:** The month of April is normally the period of transition into the rainy season, with the first rains falling by mid-month. It commonly begins raining a week or two earlier south of the mountains. These first rains are called the “beetle” or “sun bee” rains, as they are characterized by the singing of these beetles. This time is also marked by the constellation known as “Seven Stars” going down, or sinking below the horizon. This same set of stars will reappear in late July to signal the coming lessening of rains. The long rainy, or big rainy begins in earnest in May reaching its heaviest during June and July when the Rupununi River and its main feeder creeks overflow and cause heavy flooding in the bush and savannah. This season of heavy rain is called “Tonami” in Macushi and “Dazarri” in Wapishana, and is also marked by the appearance of the stars called “No-leg or One-leg Lady”. Land travel and transportation becomes difficult, and access to farms requires

walking sometimes several miles through flooded trails. Travel to and from Lethem that may take a few hours from the furthest southern villages in the dry season, can take as long as two days or may be impossible when the floods are at their peak.

**The Mixed Wet/Dry Season:** The rains lessen and floodwaters start to recede by mid-August, beginning a period of mixed, unsettled weather with short wet and dry spells. Rains during this period are typically lighter, usually referred to as showers. Thunder, lightning, and windstorms are common as the weather transitions from wet to dry from mid-August. September to mid October is sometimes called the short dry season, or Ton-kom-be in Macushi villages. A short rainy period occurs in October, and late November brings another set of showers, known as the Cashew Rains, as they occur when the cashew trees blossom. Alternating spells of dry and showers continue in December, with the Christmas Rains closing out the mixed weather the end of December to early January. Nights can become quite cool in the villages nearer the mountains, and uncomfortably cold in the bush. Travel and transportation are also mixed, improving as the roads dry. The trails to the farms and the bush are wet and muddy, making access still difficult in August and September. River travel is at its best October to January, with the water high enough to reach the furthest use areas, but still flowing within the banks. Access to areas up the smaller creeks is also best at this time. The changing seasons define the way resources are accessed and used in and near the Kanuku Mountains for each resource use type. The characteristic activity during each season for each resource type is outlined below.

## **Farming**

The farming cycle falls into five stages: site selection, site preparation, planting, maintaining, and reaping. The phases involved in the farming cycle depend on seasonal conditions, soil type, and land elevation, and whether the farming site is new or an existing site. The timing will also vary slightly in different regions, as the rains tend to begin somewhat earlier in the south. For example, during the long dry periods, site selection starts around the end of October in some communities, while in others as late as December. The individual seasonal calendars produced during the CRE workshops give a detailed picture of the farming cycle of each community.

**Site Selection:** The site is normally chosen during the early dry season while access to view areas is easiest.

**Site or Land Preparation:** This phase requires four activities: cutting or lopping down, drying, burning, and clearing. There are two types of site preparation - cutting a “high bush” or maiden farm, and preparing a “low bush” or existing site for planting. High bush refers to a new area of virgin forest that has been cleared for a maiden farm. High trees and fertile soil characterize the area. These areas are more difficult to prepare but will give good yields. Low bush refers to an existing or previously used area where there are no large trees to fell. Low bush areas are chosen when fast farms are needed. Each type requires similar activities, but they are done at different times as shown in the table below.

**Table 19: Farm Site Preparation**

Stage of Land Preparation	High Bush	Low Bush
Cutting of trees, under- bushing or lopping down	Occurs as rains cease during the mixed season-generally September to November-to allow ample time for drying	Begins in January to prepare for the main planting at the start of the rainy season, and again in August/September for short season planting
Drying	November to January	January to March October to January
Burning	February to March	February to March September to October
Clearing	March to mid-April	April to May October to November

**Planting:** Just before rains are expected to begin, the land is ploughed, banked, and planted generally from mid-April to mid-June. This ensures planting as soon as the first rain soaks the land. The short season planting in low bush areas is November to December with the arrival of the Cashew or Christmas Rains. Some spot planting may be done as the land is cleared to get a start on food production.

**Maintaining:** Farms are maintained from planting through reaping, with the heaviest weeding required during July and August. Pests are also seasonal, with caterpillars plaguing the farms in the early rainy season as new rains appear.

**Reaping:** Short-season crops planted in December are reaped May to June. Another busy reaping time is August/September/October. Peanuts, the main commercial crop, are reaped at this time. However reaping is generally in progress throughout the year for various crops, especially cassava, which can remain in the ground for up to two years after planting in dry areas. Replanting with new cassava sticks can also be done as reaping occurs, using the same banks just harvested.

With respect to valleys, flood plains, and swamp or “soak” lands, a major factor is the time the areas will remain under water from rainy season flooding. Crop characteristics such as time to maturity, growth pattern, and tolerance to wet soil conditions will influence what is planted in these areas. Short season crops predominate, including three-month cassava, eddoes, plantains, and canes. The amount of low land in the community’s vicinity is a major factor influencing the need for farming in the higher bush areas, which may take villagers far from their homes in the search for year round farming sites. Most families will maintain at least two farms, a dry season, and a wet season farm, to ensure access to crop production year round.

The seasons also affect the pests that trouble the farms. Caterpillars appear after the first rains. The acoushi ant queen flies in the early rainy season, causing ants to invade new areas as young cassava leaves appear. The venomous labaria snake is a hazard when farms are weeded, especially the peanut crop, which requires intensive maintenance.

## Hunting

Hunting is influenced as much by social occasions as by the climate. The busiest times for hunting now occur around village celebrations such as Easter, St. John’s Day (June), August

Hunt, Amerindian Heritage Month celebrations in September, and Christmas. At these times, the tradition of communal hunting is revived and villagers hunt together and share the catch with the other members of the community, who contribute other goods to the meal. Interschool sport days and birthday celebrations are also occasions for hunting.

The first rains in April bring plentiful game to replenished watering places. As the waters rise, game is trapped on “bush islands” in July and August, where they can be hunted, using boats in some areas. Access to the deep bush and mountain areas is difficult during the rainy season, so less hunting occurs at this time of year. Armadillo is a sought after rainy season game, but is becoming difficult to find. Birds also become plentiful in the rainy season, feeding on ripening fruits.

As the rains recede, bird trapping occurs in August, September and October, with species such as toucan, macaws and twa twa caught for sale to the wildlife traders. Iguana eggs and alligator eggs are also gathered in September. Bush Hogs come into the savannah in large groups between August and October, when a “Hog Shout” is raised, and hunters give chase, sometimes bagging several animals.

During the dry season hunters may use fire to chase game out of the bush. These fires frequently spread, causing damage to forest resources and chasing other game further up the mountain. Turtles lay in February, making eggs an attractive catch, and giving the name to the Turtle Rains that occur at this time.

Hunting is also used to control farm pests, especially monkeys, deer, and bush hogs. Although monkeys are no longer widely used for food, they are hunted to prevent significant damage to crops such as corn and sugar cane. Monkeys are also controlled with “natural” means such as spreading pepper on sugar cane stalks. At times farmers must set guards to protect crops when hogs or deer are raiding the farms.

Traditional methods dominate hunting practices. Arrow and bow is still the main weapon used, as licensed guns are not widely owned.

## **Fishing**

The communities around the Kanuku Mountains depend on fishing more than hunting for their source of non-domestic protein. Fishing is largely a seasonal activity, with the patterns of the rise and fall in water levels the main determining factor in location, methods used, and species caught. Like hunting, fishing is also done for special occasions in the village, but is a more widespread activity throughout the year.

In the height of the rainy season, little fishing is done as the “fish march” into the savannahs as the area floods, replenishing the small creeks and ponds that dried out in the long dry season. Before the floods, some fishing is done in rivers and larger creeks, using seine and hooks. Night fishing is also done now.

As the rains taper off, waters recede leaving creeks and ponds full and ready for fishing. The piab season begins in August, when bottles with bait inside are used to catch the small fishes. Fish traps and stop-offs are set in July and August. From October to December, fishing is

concentrated in creeks and rivers. Seines are used in the rivers and large creeks, while arrow and bow and diving with facemask, are used in smaller creeks. Hook and line is a commonly used method in all areas.

As smaller creeks begin to dry, fishing moves to ponds, lakes, and rivers, using cast nets and seines. As ponds dry, fish become plentiful, sometimes going to waste as they die in the drying ponds.

**Table 20: Summary of Fishing Methods and Species Caught**

	<b>Creeks and Rivers</b>	<b>Larger Rivers</b>	<b>Ponds and Lakes</b>
<b>Methods</b>	Hook and line Bottles Diving Stop-offs Traps Arrow and Bow	Hook and line Seine Tangle nets Diving Arrow and Bow	Hook and line Cast nets Tangle seine Diving Arrow and Bow Poison
<b>Species</b>	Banana Fish Biara Basha Yakatu Arawana Crabs	Tiger fish LogoLogo Hassar Haimara Lukunani Arapaima	Hassar Houri Sword fish Imiri Piab Cassi

Poisoning is still used throughout the region despite legal restraints and widely held opinion that it is a harmful practice. Poisoning has been a traditional fishing method used by both the Macushi and Wapishana peoples. However, in its traditional application poisoning was a highly controlled process, supervised by the head of the village. It occurred as an organized community event, where the Touchau would choose the time and location to be poisoned. Only those who were knowledgeable about the strength and preparation of the particular poison to be used were allowed to prepare it. When the poisoning was done, all assisted in gathering and preserving the fish, and the catch was shared out among the villagers. Today, individuals use poison without the consent or knowledge of the Touchau or other members of the village, and without the knowledge of the traditional application of the method. Creeks are poisoned while still flowing, carrying the toxin far downstream. Ponds are poisoned during the dry season; when fish are easily caught using other methods, frequently in order to sell extra fish for income. As the pond dries the concentration of poison in the water increases, becoming a danger to all wild and domestic animals that use the pond for drinking. Numerous cattle die each year from drinking the poisoned water. Poisoning as a method is less the problem than the loss of the traditional controls and the traditional use of the method.

### **Gathering**

Gathering of resources is primarily influenced by need with seasonality affecting availability, access, and transportation. The main use for gathered resources is for housing materials - wood for rafters, posts and beams, leaves for roof thatching, and vines and barks for strapping. These items are gathered year round as needed, but are harvested at different times depending on access and transportation. In the riverain communities, such as Sand Creek

and Yupukari, materials, as well as other forest products, are brought out during the rainy season when access by boat allows them to be transported by river.

In other areas, flooding in the savannah and bush makes access in the rainy season difficult, so materials are more commonly harvested during the dry season. Leaves for roof material are best gathered in dry weather to avoid rotting. It is believed that ete leaves and wood materials should be gathered during the dark of the moon to prevent being infested by insects.

Fruits are gathered in their season generally from April to August, and medicinal plants according to need. Seeds from the crabwood tree, and cocorite and aruwa palms are gathered early in the rainy season to make oils to use as insect repellents. During July and August, feathers, seeds, shells, and tibisiri are collected for use in making costumes for the cultural celebrations of Amerindian Heritage Month in September, when festivities are held in individual villages, and during Amerindian Heritage Week in Lethem, the administrative center of Region Nine. Craft materials for implements used in cassava processing (warishees, matapees, fans, sifters) and for other craft items, such as arrow and bow, are gathered year round.

A particular rainy season activity is the bleeding of the bullet wood tree for its milky latex known as balata. The latex flows in the rainy season from June to August. It is gathered, then dried in troughs or dabres while still in the bush, and brought out in rolled sheets. Balata is used traditionally for household containers called gubies, and as a fire starter and natural torch material. It was the main source of income for many Amerindian communities during the “balata days” before World War II up until the late 1960’s, when balata was in demand internationally as a waterproof insulator and rubber substitute. During that time it was Guyana’s third largest export before being replaced by the development of synthetic materials. More recently balata is being harvested to meet the needs of a growing craft business operated by artisans in Nappi Village who depend primarily on the bleeders in Katoka Village for their balata. There is also a small but growing demand from Brazil.

**Community Entrepreneurs**  
*There is a growing market for craft items among tourists and foreigners visiting Lethem and Georgetown. Some items, such as balata craft and woven cotton hammocks are exported. Other goods available are leatherwork, woodwork, traditional implements and basketry. The Nappi Balata Artisans, the Rupununi Weavers, and the Helping Hands Women’s Group of St. Ignatius are among organised business marketing craft items. Individual artisans are working in many villages-offering quality products produced with skill and creativity. The lack of transportation and formal business skills hampers most of these business efforts. NGOs such as Conservation International and the International Institute for Agricultural Development (IICCA) are assisting specific businesses, but the recent formation of the Rupununi Chamber of Commerce and programs such as Independent Private Enterprise Development( IPED) and GOINVEST that are reaching out to Region Nine are the beginning of a trend of support for small business development for community entrepreneurs*

Gathering frequently occurs while out on a fishing or hunting trip, or while traveling to and from the farm. Special trips are made for resources that grow up the mountain or when quality materials are not available in the near farming and fishing areas.

## **Resource Use Location: “The Where”**

The location of resource was a critical element of the CRE project. Location was studied through the use of a variety of methods, including the production of informal or sketch maps and digitised point record maps; geo-referencing of field observation sites and trip routes; completion of data records on observed sites; and interviews and discussions. One of the objectives of the field observation trips was to record the points of furthest use into the mountains as indicated on the village resource sketch maps to understand not only where, but how far into the mountains people travel to access resources.

### **The Maps**

The information on location contained in the sketch maps informed the choice of sites visited for geo-referencing and field observation. The use of Global Positioning System units made possible the transfer of these location records<sup>22</sup> to a digitised copy of the topographic map of Guyana<sup>23</sup> adapted to show the main features and elevations clearly. In order to have a complete understanding of the resource use areas, it is important to study the sketch maps along with the digitised maps. The most complete spatial records of resource use, as recorded and accepted by each community, are the sketch maps created by the community participants of each CRE. The following maps were produced as part of the information sharing and information reporting of the CRE for each village: sketch maps for farming, hunting and fishing, and gathering, and a master sketch map showing all resource use; separate digitised representations of the resource points geo-referenced in each category, and a representation showing all resource sites recorded during the field trips. As part of the CRE Master Report, the following maps were produced: formal digitised maps of the Kanuku Mountains and surrounding savannahs at a scale of 1:150,000, showing the geo-referenced point records of all field trips completed during the CRE project, coded in three versions - resource site type, points by individual village, and resource site zone location.

### **The Furthest Use**

The following table lists the furthest points visited during the CREs and their distance from the village center measured in kilometers. These measurements are made using the Global Information System computer program “ARCVIEW”. Measurements are made from one point to another in a straight line; so do not indicate the actual distance covered by trail or river to reach the site. All measurements are approximate.

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<sup>22</sup> All points located on the digitised maps should be considered approximate and not as official placement of locations on the formal maps of Guyana. Terrain, weather, and level of technology can affect the accuracy of any point.

<sup>23</sup> All formal maps produced as part of the CRE are digitised from the Topographic Map of Guyana as published by the Guyana Lands and Surveys Department, 1964.

**Table 21: Sites of Furthest Use Observed and Geo-referenced**

<b>Village</b>	<b>Site Name</b>	<b>Approximate Distance from Village Center in Kilometers</b>	<b>Kanuku Range Location</b>
Kaicumbay	Kamarapa River	19.44	Western
	Pairawaio	17.25	Western
	Haire Creek	19.38	Western
Parishara	Caimon Pond	21.04	Western
	Jordan Falls	17.87	Western
	Wamakaru	17.83	Western
Nappi	Piab Flat	22.87	Western
	Wamakaru Head	16.99	Western
	Behind Nappi Mtn	14.71	Western
Hiowa	Nappi Creek Panda	11.50	Western
	Nappi Creek Panda	11.53	Western
	Labaria Creek	11.33	Western
Moco Moco	Moco Moco River	11.80	Western
	White Horse Mtn	11.34	Western
	Manicole Hill	6.93	Western
St Ignatius	Dragon Falls	19.54	Western
	Bamboo Point	19.42	Western
	Arrow Creek	19.76	Western
Kumu	Arrow Creek	10.28	Western
	Haire Mountain	9.54	Western
	Adorie Camp	9.20	Western
Quarrie	Naja Creek	9.03	Western
	Naja Creek Head	7.57	Western
	Kanaima Mountain	6.07	Western
Parikwarinawa	Kodoi Wao	14.13	Western
	Mountain Peak	11.87	Western
	Behind White Rock	11.29	Western
Shulinab	Marudi Mountain	13.31	Western
	Caterpillar Mtn	22.45	Western
	Purple Rock	23.70	Western
	Turtle Pool	36.36	Western

Village	Site Name	Approximate Distance from Village Center in Kilometers	Kanuku Range Location
Rupunau	Meinn Tau	49.17	Eastern
	Balata Camp	29.83	Eastern
	Crabwood Creek	26.86	Eastern
	Rap Rap Wao	20.11	Eastern
Shea	Podu Wao	64.45	Eastern
	Caramani Mountain*	37.35	Eastern
	Kwazaru Creek	22.67	Eastern
Maruranau	Kara pudo Creek	32.59	Eastern
	Miliwai River	34.42	Eastern
	Two Head Mtn	44.83	Eastern
Yupukari	Caramani Mountain	39.17	Eastern
	Ants Creek	38.68	Eastern
	Crab Creek	30.41	Western River Bank
Katoka	Bamboo Mountain	23.00	Eastern
	Mapari	25.00	Eastern
	Blood Mountain	19.00	Eastern
Sand Creek	Mapari Falls Top	49.17	Eastern
	Mapari Mouth	47.59	Eastern
	Atawa Pond**	44.63	Western River Bank
	Tobacco Mountain	28.75	Eastern
	Gold Mountain	28.12	Eastern

\*There are two sites named Caramani Mountain. This site is in the southern edge of the eastern range, while the other is one of the furthest points for Yupukari in the Mapari area on the northern edge of the eastern range.

\*\*This site was not visited due to flooding of the western bank of the Rupununi, but is shown on the village sketch map as one of the areas of furthest use. Distance is approximate.

## Zones of Use

In order to create a common reference to understand location of resource use by the CRE communities, discussions were held to identify how the community refers to the various areas of use. The locations or “zones” of use described below identify the different physical locations in which use occurs, along with the type of use.<sup>24</sup>

**Savannah:** The savannah areas are wide-open grasslands with scattered bushes dominated by the characteristic sand paper tree (*Curatella Americana*). There is low land savannah and high land savannah, which is found in the mountain valleys, such as the Warapota Savannah area near Shulinab that forms an indent from the southeast into the western Kanukus.

**Bush Mouth:** The community describes this area as where the savannah ends and the bush or the forest begins, extending approximately one mile into the bush. This term is used commonly when relating to the activities done within this particular area. For example, if a villager has a farm in this area, he or she would always refer to it as the bush mouth farm. The forest of this area is typically secondary growth.

**Bush:** The term bush relates to the areas between the end of the bush mouth to approximately one mile before the base of the mountain. The expanse of the area covered by bush depends on the distance between the bush mouth and the mountains. In communities with extensive bush areas, there is usually an additional reference called the ‘deep bush’. The deep bush is not farmed as extensively in most communities, with the exception of Shea, Maruranau and Katoka, due to the distance from the village, but is used for hunting, gathering, or fishing activities. Forest growth in these areas is typically primary forest characterized by large trees with minimal canopy opening. Deep bush areas are also sometimes considered as reserve areas to fill the future needs of a growing population.<sup>25</sup>

**Mountain Foot:** The mountain foot is generally described as the area that lies within a mile range before the mountains’ upward slope. The mountain foot areas are fertile, much cooler and very favorable for crops. Communities that are located closer to the mountains use these areas for farming. This term is also used to describe the areas at the base of the small mountains that dot the savannah southeast of the Kanukus.

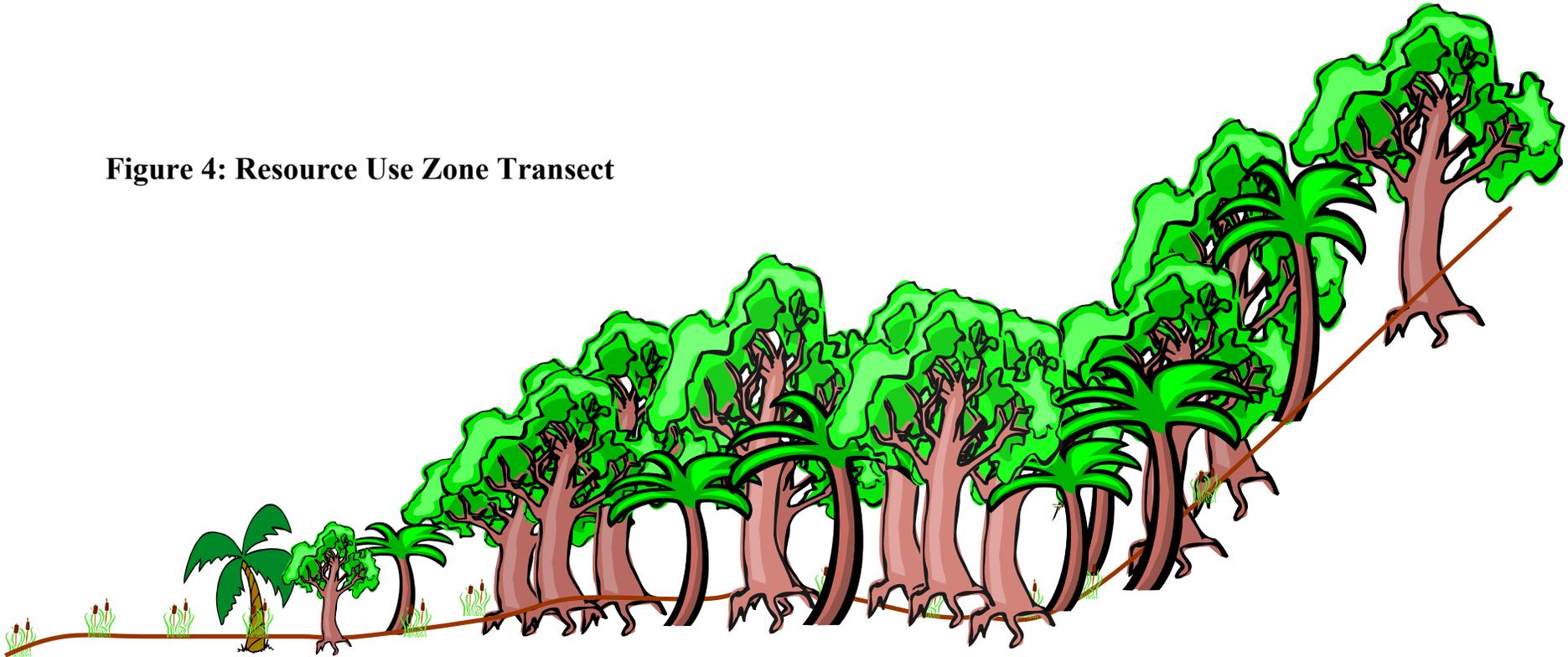
**Up the Mountain:** This refers to all the areas beyond the mountain foot, up and into the mountains. All mountain areas are very rich in resources such as nibbi, caramani, balata, medicine and game. Resource use is primarily hunting and gathering, although communities closer to the mountains do some farming.

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<sup>24</sup> Because use occurs in the bush islands in the savannah and in the small mountains at the edges of the Kanukus, the zones identified during data gathering may also refer to use sites in these areas.

<sup>25</sup> The option “deep bush” was not available on the Field Observation Data Forms. This terminology emerged from resource discussions during the tool creation phase of the CRE and was recorded as a location reference by informants during the village surveys

**Figure 4: Resource Use Zone Transect**



Savannah	Bush Mouth	Bush	Mountain Foot	Up the Mountain
<ul style="list-style-type: none"> <li>• Open grasslands with scattered bush-sand paper trees</li> <li>• Lowland savannah</li> <li>• Highland savannah found in mountain valleys</li> <li>• Hunting</li> <li>• Pond/Creek Fishing</li> <li>• Some farming</li> </ul>	<ul style="list-style-type: none"> <li>• Where savannah ends and bush or forest begins</li> <li>• Extends about one mile</li> <li>• Secondary growth forest</li> <li>• Resource sites here not usually named</li> <li>• All uses, especially farming</li> </ul>	<ul style="list-style-type: none"> <li>• Area between one mile from bush mouth and one mile before the mountain upward slope</li> <li>• Size varies with amount of forest</li> <li>• Most heavily used area</li> <li>• Term deep bush used where bush is extensive</li> <li>• Deep bush use - hunting, fishing, gathering</li> <li>• Primary forest-large trees with little opening in canopy</li> </ul>	<ul style="list-style-type: none"> <li>• Area one mile before mountain upward slope</li> <li>• Fertile soil-cooler climate</li> <li>• Very favorable for crops</li> <li>• Used for farming-heavily by communities close to mountains</li> <li>• Fishing in creeks, hunting, gathering</li> </ul>	<ul style="list-style-type: none"> <li>• All areas beyond mountain foot up and into the mountains</li> <li>• Rich in resources for gathering</li> <li>• Also rich in game</li> <li>• Mostly hunting and gathering</li> <li>• Some farms where communities are close to the mountains or where there is access to the small mountains at the edge of the Kanukus</li> </ul>

This transect represents a cross section of a typical progression of the use zones from the savannah to the mountains with main characteristics of each zone.

The location of each village and the topography of its use area influence the extent of use and the distance traveled into the mountains. Villages located closer to the mountain zones (mountain foot and up the mountain) use these areas more heavily than those located further away. With the exception of Yupukari, Kaicumbay, and St. Ignatius, the communities using the western Kanukus are generally located quite close to the mountains. However, the higher elevations of the western range make access difficult and limit the frequency of trips to the furthest areas.

Heavy seasonal flooding of the Rupununi River limits access to the lower western bank and therefore to the interior of the western range by the riverain communities of Sand Creek, Yupukari, and Katoka.

In the eastern range, elevations are lower. Here the distance of the villages from the mountains impacts the ability of communities such as Shea and Maruranau to reach mountain areas in a realistic timeframe, limiting use of the furthest areas to hunting and gathering. The eastern bank of the Rupununi is higher than the western, allowing year round use as river travel permits. The Mapari River in the northwestern part of the Eastern Range allows access to rich farming areas and is heavily used by the three riverain communities of Sand Creek, Katoka and Yupukari for all resource use activities. Kaicumbay in the north uses the many “bush islands” that exist in their savannah areas, and Rupunau in the south accesses the small mountains in the savannah, thus limiting the use of the mountains to occasional hunting and gathering.

**Table 22: Summary of Data Records from Geo-referenced Sites**

Mountain Location	Village Name	Savannah	Bush Mouth	Bush	Mountain Foot	Up The Mountain	Not Stated	Totals
W	Hiowa	0	6	11	11	35		63
W	Kaicumbay	7	7	64	16	0		94
W	Kumu	0	13	23	5	11	2	54
W	Moco Moco	1	6	0	16	38		61
W	Nappi	3	10	33	22	27	1	96
W	Parikwarinawa	0	69	24	24	18	2	137
W	Parishara	2	6	51	8	17		84
W	Quarrie	0	12	12	15	30		69
W	Shulinab	24	3	37	0	32		96
W	St. Ignatius	0	1	0	8	24		33
Sub-total		37	133	255	125	232	5	787
RW	Yupukari*	7	0	58	43	4		112
RE	Katoka**	0	0	36	1	6		43
RE	Sand Creek***	11	1	51	22	12		97
Sub-total		18	1	145	66	22		252
E	Maruranau	20	16	38	14	12	1	101
E	Rupunau	2	26	35	14	11	1	89
E	Shea	12	2	****105	18	4	5	146
Sub-total		34	44	178	46	27	7	336
Total	All Villages	89	178	578	237	281	12	1375
W = Western Range				RW=Riverain Village on West Bank				
E=Eastern Range				RE=Riverain Village on East Bank				
*Includes 21 point records in the eastern range								
**Includes 16 point records in the western range								
***Includes creek mouth points indicating seasonal access to 9 western bank areas								
****Includes 25 points recorded along the Kwitaro River								

The location of resource use in all categories is also influenced by the nature of multiple use sites. One resource use often occurs in conjunction with other types of use, therefore, a site is often considered a multiple use area. Farming sites where farm camps are located are also used for hunting, fishing, and gathering as possible.

Families may conduct multiple resource use activities simultaneously - the wife maintaining the farm while the husband hunts and the children fish. Gathering trips can

also become hunting or fishing trips, as opportunity arises, to supplement rations carried from home.

The summary tables below show the distribution of each category of resource use within the different zones of use. Table 23 shows the distribution of sites observed during the field observation trips. The results indicate the bush as the zone of heaviest use in all resource categories. Since the field trips were focused on reach the furthest areas of use, fewer sites were geo-referenced in the savannah. The data from the village surveys, represented in Table 24 shows a similar pattern. Again the bush/deep bush is indicated as the zone where most use occurs. The interviews brought out more information on the savannah zone, balancing the lesser emphasis that was placed in this area by the field observers. In some cases interviews were held at farm locations in or near the savannah and bush mouth.

The sections following the summary tables examine the location of use in each category including factors such as type of site, transportation, and accessibility that influence the location of activities in farming, hunting, fishing, and gathering.

**Table 23: Geo-referenced Point Use Location by Zone  
Field Observation Data**

	Savannah	Bush Mouth	Bush	Mountain Foot	Up the Mountain	No Response	Total Points By Category
Farming	3	62	169	48	24	2	308
Hunting	42	41	137	53	100	3	376
Fishing	34	35	138	65	27	1	300
Gathering	10	40	134	71	130	6	391
Total Points By Zone	89	178	578	237	281	12	1375
% Of Total Responses	6%	13%	42%	17%	21%	1%	

**Table 24: Survey Responses to Site Location by Zone  
Village Survey Data\***

	Savannah	Bush Mouth	Bush	Deep Bush	Mountain Foot	Up the Mountain	Other	No Response	Total by Category
Farming	31	57	193	85	64	78	49	0	557
Hunting	17	7	22	56	13	26	9	15	165
Fishing	127	12	66	41	26	32	7	137	448
Gathering	16	46	57	58	57	71	12	49	366
Total By Zone	191	122	338	240	160	207	77	201	1,536
% Of Total Responses	13%	8%	22%	16%	10%	13%	5%	13%	

\*This table represents responses stating general locations or zones used to conduct activities in the resource categories. Not all informants responded to questions in all resource categories

## Farming

Soil type, crops planned, distance or accessibility, and climate influence the location of farms. The majority of farms are located in the bush mouth, bush, or deep bush. Seventy-five percent of the field observation sites and 60 percent of the village survey responses indicated farms located in these areas. The mountain areas are farmed to a lesser extent, primarily by those villages located closer to the mountains, which allows them to reach these cooler and more fertile areas. Poor soils and lack of water generally restrict the use of the lowland savannah areas for farming. However, the highland savannah areas provide better conditions.

The principal resource used in farming is, of course, the land. The farming areas used by the communities are of varied soil fertility, location, and soil type, all of which affect the choice of crops grown. The table below indicates the different soil types named, their location, and typical crops planted:

**Table 25: Soil Type and Location\***

Soil Type	Location	Crops Planted	% Of Farms
Sandy	Hills, flat, elevated land Mountain foot	Cassava, sweet potato, pumpkin, peanut, sorrel	51.9
White Sand	Lowlands	Peanuts, rice	
Brown Sand	Low/High Land	Cassava, banana	
Loamy (Mixture of sand, silt, and clay)	Flat plains, Mountain foot Riverain areas	Cassava, corn, banana, paddy, cane, citrus	21.8
Gravel with Sand	High Hills Bush Islands Mountains	Cassava, pumpkin, corn, pineapple, cotton	8.8
Red Mud	Hills Mountains	Cassava, provisions, corn, banana, arrow, cunani	13.6%
Peggasse (High organic matter)	Swamp-wetlands	Cassava, ground provisions	
Black Sandy Mud	Lowlands	Cassava, arrows, tomato, boulangier, greens, squash	
Loose Sand-Swampy soil (Wana Pau)	Swampy land Mountain Foot Flooded areas	Short season cassava, eddoe, corn, yam, beans, banana, sugar cane, paddy	
Soak land (Clay) Sticky soil	Swampy areas with poor drainage	Paddy, dasheen, tobacco, sugar cane, plantain	

\*Information in the table above was compiled from field observation data and the resource use discussions

The distance from the village and therefore the time required to reach the farm is also a determining factor in location. Over 65 percent of persons responding to the village survey indicated walking as their primary mode of transportation. The lack of transportation, as well as good trails usable year round, severely limits the ability of villages to locate farms by other criteria such as soil fertility. Sites located more than a few hours walk away require stays away from home in order to plant, reap, and maintain

the farm. Flooding limits lowland farms to short-term cropping. As mentioned previously, farmers generally have at least two farms, one of which is located on higher ground to ensure year round access.

**Table 26: Methods of Transportation  
Village Survey Data**

Methods of Transportation				
Walking	Bicycle	Bullock Cart	Boat	Other
364	212	139	77	13

Many of the old farms in the furthest use areas are remnants of the “balata days” when farms were cut deep in the bush to supplement the rations of the balata bleeders or of former village locations. These sites may still contain fruit bearing trees, which are harvested seasonally, and are considered part of the use area of the community.

### Hunting

While hunting occurs most often in the bush zone, the mountain areas are also heavily used. The game in the up the mountain areas is not accustomed to human presence and therefore is less fearful and easier to catch. Fire will drive the animals further into the mountains, so during burning season it is frequently necessary to go further to find game. Savannah hunting is decreasing due to the scarcity of game caused by over hunting - most notably of the savannah deer. The type of site and prey sought, as well as special occasion hunting, will also affect the location chosen.

**Table 27: Location of Hunting Sites  
Field Observation Data**

Hunting Zone				
Savannah	Bush Mouth	Bush	Mountain Foot	Up The Mountain
36	41	140	53	100
10%	11%	37%	14%	27%

### Village Survey Data

Hunting Zone						
Savannah	Bush Mouth	Bush	Deep Bush	Mountain Foot	Up the Mountain	Other
17	7	22	56	13	26	9
10%	4%	13%	34%	8%	16%	5%

**Table 28: Types of Hunting Sites  
Field Observation Data**

Type of Site				
Feeding Area	Track	Drinking Pond	Nesting Area	Combined
113	38	16	3	203
30%	10%	4%	1%	54%

## Fishing

In addition to distance and accessibility, and the type of site, climate is the most significant factor influencing the location of resource use. As discussed in the section on seasonality, the seasonal flooding cycle of the rainy season determines where fish are available at different times of the year, and what types of areas can be used. Other than river use, savannah fishing declines with the drying of ponds and small creeks. Flooding starts the “fish march” or movement of the fish away from the creeks in the bush areas during the floods of the rainy season. Fishing seldom occurs up the mountain due to the rough terrain and numerous falls that keep fish below these areas. The many creeks flowing out of the mountains and the main rivers are the major source of fishing opportunities as indicated by the data.

**Table 29: Location of Fishing Sites**

### Field Observation Data

Fishing Use Zone				
Savannah	Bush Mouth	Bush	Mountain Foot	Up the Mountain
30	25	138	65	27
10.0%	22.0%	36.0%	21.7%	9.0%

### Village Survey Data

Fishing Zone							
Savannah	Bush Mouth	Bush	Deep Bush	Mountain Foot	Up the Mountain	Other	No Response
127	12	66	41	26	32	7	137
28%	3%	15%	9%	6%	7%	2%	31%

**Table 30: Types of Fishing Sites**

### Field Observation Data

Type of Site			
River	Creek	Pond	Other
77	194	24	2
25.7%	64.7%	8.0%	0.7%

### Village Survey Data

Type of Site				
River	Creek	Pond	Falls	Combined
46	241	17	5	121
10%	54%	4%	1%	27%

## Gathering

The location of gathering use is primarily determined by the type of resource to be gathered. Heavy use occurs in the bush areas where materials for housing are accessible. Poor quality or availability can force people farther into the mountain areas, however the difficulty of transporting these materials far distances, as well as the difficult terrain often limits this use.

The up the mountain zone is also heavily used, especially for craft materials such as nibbi. Transportation is again a factor, as flooded trails or low water will make collecting materials difficult. Very little gathering occurs in the savannah, as items gathered are chiefly forest products. The bush mouth areas are heavily farmed and without the primary forest where most materials are found.

**Table 31: Location of Gathering Sites**

### Field Observation Data

Gathering Use Zone				
Savannah	Bush Mouth	Bush	Mountain Foot	Up The Mountain
10	28	139	72	130
3%	7%	36%	18%	33%

### Village Survey Data

Gathering Use Zone					
Savannah	Bush Mouth	Bush	Deep Bush	Mountain Foot	Up The Mountain
12	46	55	56	57	72
3%	13%	15%	15%	15%	20%

## Profile of Resource Use

The general profile of the resource use in the Kanuku Mountains builds on the information in the individual village profiles. This report follows the same format as the Village Reports, examining the data in three areas: the intensity of use, the quality of use, and the threats to resource use.

### Intensity of Use

The intensity of resource use in the Kanuku Mountains is influenced not only by what, when, and where resource use occurs, but also the frequency, or how often, use sites are accessed by the communities, and by the amount of resources used. In farming, a measure of intensity is the amount of land farmed. In hunting, fishing, and gathering, questions were asked to determine the size of catch or number or amount of species taken. As in other factors, frequency is influenced by accessibility and need. How difficult is it to get to the resource site and what is the level of need that motivates use? The following table summarises the information gathered on the frequency of use for each category.

**Table 32: Summary of Frequency of Use by Category**  
**Field Observation Data\***

All Villages	Daily	2-5 x week	Monthly	4-6 x year	1-2 x year	No Response	Total
Hunting	16	88	118	79	68	7	376
Fishing	40	85	81	51	34	9	300
Gathering	25	37	73	94	150	12	391
Totals	81	210	272	224	252	28	1067
% Of Total	7%	20%	25%	21%	24%	3%	

### Village Survey Data

	Daily	2-5 x week	Weekly/ 2-3 x Mo	Monthly	2-4 x yr	Yearly	2-5 yrs	>5 yrs	Other	No Response	Total
Farming	188	117	156	13		8			17	58	557
Hunting	16	5	42	36	20	2			39	5	165
Fishing	147	38	123	37	22	4			74	3	448
Gathering	11	0	16	21	36	70	60	28	100	24	366
Total	362	160	337	107	78	84	60	28	230	90	1536
% of Total	24%	10%	22%	7%	5%	5%	4%	2%	15%	6%	

\*The farming section of the data forms did not include a question on frequency since the farm owner was not always present to provide this information.

There are some important differences in the results from the two data sources. During the field observation trips, data was not recorded on the frequency of visits to farming sites because the owner of the farm observed was not necessarily present to provide this information. The village survey responses generally indicated more frequent access except in the area of gathering. The field observation data showed only 28 percent of the sites visited at least weekly, as compared to 39 percent of the responses from the village

survey indicating activities at least weekly, for hunting, fishing, and gathering. When farming is included in the village survey response increases to 55 percent. This can be partially attributed to the fact that the bush teams were focusing on reaching the furthest points of use, so sites visited tended to be in the further areas, which are visited less frequently. Farming activities are done most frequently, with fishing following closely. Both sets of data show gathering as the least frequent use.

### Frequency of Use

It is also important to look at where people go most often to access resources. The bush areas are indicated as supporting the greatest density of use, or number of sites, in each resource category, and they are also used most often. Again, the data sets differ due to the focus of the field observation on the further sites. The villagers responding to the surveys brought out more information on the frequency of use in the savannah.

**Table 33: Frequency of Use by Zone**  
**Field Observation Data\***

	Daily	2-4 x wk	Monthly	4-6 x yr	1-2 x yr	No Response	Total
Savannah	12	18	34	9	8	5	86
Bush Mouth	13	47	16	12	27	1	116
Bush	38	104	109	87	60	11	409
Mountain Foot	14	26	47	51	47	4	189
Up the Mountain	4	14	65	62	107	5	257
	81	209	271	221	249	26	1057

### Village Survey Data

	Daily	2-5 x wk	Weekly/ 2-3 x Mo	Monthly	2-4 x yr	Yearly	2-5 yrs	>5 yrs	Other	No Resp	Total
Savannah	52	20	56	10	7	6	0	1	35	4	191
Bush Mouth	75	45	53	3	8	8	13	4	20	29	258
Bush	31	23	49	13	9	12	6	6	52	1	202
Deep Bush	37	28	51	32	19	14	5	1	41	12	240
Mountain Foot	39	15	37	8	4	13	20	5	13	6	160
Up the Mountain	57	17	33	11	14	12	10	8	37	8	207
	291	148	279	77	61	65	54	25	198	60	1258

\*The farming section of the data forms did not include a question on frequency since the farm owner was not always present to provide this information.

Each zone of use has different levels of activity depending on the type of resource use. The following paragraphs and tables summarise the data about the frequency of farming, hunting, fishing, and gathering activities in each of the zones of use, with the deep bush information from the village surveys included under the bush activities.

## Savannah

The savannah is used most often for fishing according to the village surveys and both fishing and hunting according to field observation data. Fishing is done daily to weekly as ponds and creeks are within manageable distances. Fish are accessible with a wider variety of methods, and serve the dual purpose of being the most common source of protein and a source of cash income.

**Table 34: Frequency of Use-Savannah  
Field Observation Data**

Savannah	Daily	2-4x Week	Monthly	4-6 x Year	1-2 x year	No Response	Total
Hunting	2	11	18	5	3	2	41
Fishing	9	6	13	4	2	1	35
Gathering	1	1	3	0	3	2	10
	12	18	34	9	8	5	86

## Village Survey Data

Savannah	Daily	2-5 x wk	Weekly 2-3 x Mo	Monthly	2-4 x yr	Yearly	2-5 yrs	>5 yrs	Other	No Resp.	Total
Farming	14	4	7	1	0	1			1	3	31
Hunting	1	0	7	1	1	0			6	1	17
Fishing	34	16	39	8	4	1			25	0	127
Gathering	3	0	3		2	4		1	3	0	16
Total	52	20	56	10	7	6	0	1	35	4	191
	27%	10%	30%	5%	4%	3%	0%	1%	18%	2%	

## Bush Mouth

Farming is the most intense activity in the Bush Mouth, accounting for 63 percent of the total activity in this area - 78 percent of that activity occurs daily to weekly.

**Table 35: Frequency of Use-Bush Mouth  
Field Observation Data**

Bush Mouth	Daily	2-5x wk	Monthly	4-6 x yr	1-2 x yr	No Response	Total
Hunting	6	19	6	7	3	0	41
Fishing	3	25	5	0	2	0	35
Gathering	4	3	5	5	22	1	40
<b>Total</b>	<b>13</b>	<b>47</b>	<b>16</b>	<b>12</b>	<b>27</b>	<b>1</b>	<b>116</b>

### Village Survey Data

Bush Mouth	Daily	2-5x wk	Weekly/ 2-3 x mo	Monthly	2-4 x yr	Yearly	2-5 yrs	>5 yrs	Other	No Re- sponse	Total
Farming	67	45	46	1	0	2	0	0	5	27	193
Hunting	1	0	2	0	2	0	0	0	2	0	7
Fishing	5	0	3	0	0	0	0	0	4	0	12
Gathering	2	0	2	2	6	6	13	4	9	2	46
<b>Total</b>	<b>75</b>	<b>45</b>	<b>53</b>	<b>3</b>	<b>8</b>	<b>8</b>	<b>13</b>	<b>4</b>	<b>20</b>	<b>29</b>	<b>258</b>

## Bush and Deep Bush

The bush is the most intensely used zone, supporting daily to monthly use for all resource activities. Farming and fishing are the most frequent activities in this area, with hunting increasing in the deep bush areas. Gathering is done at all times, but is done least often in this area.

**Table 36: Frequency of Use-Bush and Deep Bush  
Field Observation Data**

Bush	Daily	2-5 x wk	Monthly	4-6 x yr	1-2 x yr	No Response	Total
Hunting	6	38	44	30	16	3	137
Fishing	16	42	42	28	6	4	138
Gathering	16	24	23	29	38	4	134
Total	38	104	109	87	60	11	409

### Village Survey Data

Bush	Daily	2-5x wk	Weekly	Monthly	2-4 x yr	Yearly	2-5 yrs	>5 yrs	Other	No Re- sponse	Total
Farming	15	11	22	2	0	0	0	0	7	0	57
Hunting	2	2	7	4	0	0	0	0	7	0	22
Fishing	14	10	19	4	5	0			14		66
Gathering	0		1	3	4	12	6	6	24	1	57
Sub-total	31	23	49	13	9	12	6	6	52	1	202

Deep Bush	Daily	2-5x wk	Weekly	Monthly	2-4 x yr	Yearly	2-5 yrs	>5 yrs	Other	No Re- sponse	Total
Farming	21	23	27	3	0	1			0	10	85
Hunting	5	2	11	18	8	0			12		56
Fishing	10	3	11	7	3	1			6		41
Gathering	1		2	4	8	12	5	1	23	2	58
Sub-total	37	28	51	32	19	14	5	1	41	12	240
Bush Area Totals	68	51	100	45	28	26	11	7	93	13	442

## Mountain Foot

Farming and gathering are active uses here, but with very different frequencies. The farms at the mountain foot are visited daily to weekly. These sites are farmed primarily by the villages located close to the mountains. Gathering use is also important at the mountain foot, but it is done much less often – most sites yearly or less - according to the data.

**Table 37: Frequency of Use - Mountain foot  
Field Observation Data**

Mountain Foot	Daily	2-4x Week	Monthly	4-6 x year	1-2 x year	No Response	Total
Hunting	1	12	18	8	14		53
Fishing	10	10	12	18	12	3	65
Gathering	3	4	17	25	21	1	71
Total	14	26	47	51	47	4	189

### Village Survey Data

Mountain Foot	Daily	2-5x Week	Weekly 2-3xMo	Monthly	2-4 x yr	Yearly	2-5 yrs	>5 yrs	Other	No Resp.	Total
Farming	24	14	22	0		0			2	2	64
Hunting	1	0	5	4	0	1			1	1	13
Fishing	11	1	9	1	1	0			3		26
Gathering	3		1	3	3	12	20	5	7	3	57
Total	39	15	37	8	4	13	20	5	13	6	160

## Up the Mountain

This zone is also very influenced by the location of the community. Villages close to the mountains are able to access these areas daily to weekly for farming and fishing. Hunting is done less frequently, with gathering done in many sites, but less often. The villages on the northwestern side of the mountains have closer access to the up the mountain areas, but may be hampered in accessing the interior areas by the rapid increases in the elevation of the mountains.

**Table 38: Frequency of Use-Up the Mountain**

### Field Observation Data:

Up the Mountain	Daily	2-4x Week	Monthly	4-6 x Year	1-2 x year	No Response	Total
Hunting	1	7	31	28	32	1	100
Fishing	2	2	9	1	12	1	27
Gathering	1	5	25	33	63	3	130
	4	14	65	62	107	5	257

### Village Survey Data:

Up the Mountain	Daily	2-5x Week	Weekly 2-3x Mo	Monthly	2-4 x year	Yearly	2-5 yrs	>5 yrs	Other	No Resp	Total
Farming	36	14	19	2		2			2	3	78
Hunting	6	1	6	3	3	0			6	1	26
Fishing	14	2	5	3	2	0			5	1	32
Gathering	1		3	3	9	10	10	8	24	3	71
Total	57	17	33	11	14	12	10	8	37	8	207

## Farming

During the field observation trips 308 farm sites were geo-referenced. The village survey data was collected from 557 persons who collectively indicated they planted 1,334 farms. Both data collection tools gathered information on the size and age of farms and number of persons supported by the farm. The village survey gathered information on the frequency of visits, the distance to the farm and the method of transportation. The following table is calculated based on the data gathered on farming during the village survey, since the persons interviewed spoke specifically about their own farms. From this information it is possible to estimate the number of acres farmed by the CRE communities, which is an indicator of the intensity of farming in the Kanukus. While the estimated number of acres is very low in relation to the total size of the Kanuku Mountain area (estimated at 1.3 million acres), the true intensity of farming must be determined by comparing the number of acres farmed to the total arable land available for year round farming. The factors of distance and accessibility must also be considered to arrive at the amount of farmland available to the communities using this area. Further research is needed to determine this important information. Data from field observation corroborated the information below. Of the 308 farms observed, size was indicated for 297. The

average size of the farms visited where size was indicated was 2.3 acres. All figures should be considered approximate.

**Table 39: Estimated Acres Under Cultivation by CRE Communities**

<b>Farms and Farmers</b>		<b>Source of information</b>
# of Responses to Farming Survey	557	Village Survey
# of farms worked by interview group	1,334	Village Survey
Average # of farms worked per interviewee	2.39	# Farms/ # responses
Number of dependents of interview group families	3,154	Village Survey
Average # of dependents	5.65	Dependents/ # informants
Number of responses to size of farm	464	Village Survey
Estimated # of acres in responses	1,140	Village Survey
Average size of farm in acres	2.45	Estimated acres/ # responses to size
Average # of acres per household	5.85	# of farms per household x Average size of farm
# Of households in CRE community population	1,144	Population Table
<b>Estimated acres farmed by CRE communities</b>	<b>6,692</b>	<b># Of households x # Acres farmed per household</b>

The issue of determining the size of farms was a challenging one. Few farms are actually measured, so most sizes quoted during the fieldwork were estimates by the owners. In some communities, acres were not used to express size. In these cases we agreed to use the responses small, medium, and large. By discussing these sizes with CRE participants who knew the size of their own farms in acres, and who were also familiar with the sizes of the farms of the persons they interviewed, we were able to establish an estimated size in acres for these farms. A small farm was estimated as up to 1.5 acres, a medium farm as up to 4 acres, and a large farm at 5 or more acres. Measuring a series of farms and comparing the measurements to the estimates given by villagers will be necessary to establish an accurate farm size average.

## Hunting

Hunting is changing in the communities. Dependence on domestic meat, the availability of packaged good in shops, the time available for hunting, and the decline in hunting skills among the younger generation are all factors contributing to change in this activity. The difficulties in accessing the mountain areas and the skills needed for bush hunting increase the intensity of use in the savannah and near bush areas. The difficulty of obtaining licensed guns and ammunition requires a continued reliance on traditional methods. The same factors work to preserve the game population of the mountain zones.

**Table 40: Summary of Hunting Frequency by Zone**

### Field Observation Data

Hunting	Daily	2-5x wk	Monthly	4-6 x yr	1-2 x yr	Total
Savannah	2	11	14	4	3	34
Bush Mouth	6	19	6	7	3	41
Bush	6	38	44	30	16	134
Mountain Foot	1	12	18	8	14	53
Up the Mountain	1	7	31	28	32	99
Total	16	87	113	77	68	361
% Of Total	4%	24%	31%	21%	19%	

### Village Survey Data

Hunting	Daily	2-5 x wk	Weekly 2-3 x Mo	Monthly	2-4 x yr	Yearly	Other	Total
Savannah	1	1	7	1	2		5	17
Bush Mouth	0		2		2		2	6
Bush	0	3	8	4			5	20
Deep Bush	0	2	11	18	8		12	51
Mountain Foot	1	0	5	4	1	1	1	13
Up the Mountain	6	1	7	3	3		0	20
Total	8	7	40	30	16	1	25	127
% Of Total	6%	6%	32%	24%	13%	1%	20%	

## Fishing

The intensity of use of the fishing resource is highly affected by location and climate. Most villagers' fish often, close to the village and in the bush areas. Accessibility limits the use of the up the mountain areas for both fish and humans due to the rough terrain and the many falls in the higher elevations. The areas close to the village are also under pressure from use for cash income and from people outside the communities. The Transing Pond area off the northern side of the mountains is the main fishing ground for several communities, and is also used by residents of Lethem. It is also, unfortunately, the frequent target of poachers from Brazil who cross vehicles into Guyana and use nets to take large quantities of fish. They behead and clean the fish on site, leaving the fish head to waste and creating debris and damage to the surrounding area.

**Table 41: Summary of Fishing Frequency by Zone**

### Field Observation Data

Fishing	Daily	2-5x Week	Monthly	4-6 x Year	1-2 x year	Total
Savannah	9	6	9	3	2	29
Bush Mouth	3	25	5	0	2	35
Bush	16	42	42	28	6	134
Mountain Foot	10	10	12	18	12	62
Up the Mountain	2	2	9	1	12	26
Total	40	85	77	50	34	286
% Of Total	14%	30%	27%	17%	12%	

### Village Survey Data

Fishing	Daily	2-5 x wk	Weekly 2-3 x Mo	Monthly	2-4 x Year	Yearly	Other	Total
Savannah	34	21	39	8	4	1	20	127
Bush Mouth	0	0	3	0	0	0	4	7
Bush	14	12	20	4	5	0	11	66
Deep Bush	10	3	49	7	12	1	6	88
Mountain Foot	10	1	9	1	1	0	3	25
Up the Mountain	14	2	5	3	2	0	5	31
Total	82	39	125	23	24	2	49	344
% Of Total	24%	11%	36%	7%	7%	1%	14%	

## Gathering

Gathering takes villagers further into the mountains to more sites, although less frequently than other activities. Gathering sites accounted for 46 percent of the total sites geo-referenced in the up the mountain zone. However, the low frequency of visits makes this use less intense than hunting, which takes people to the mountains more often. Gathering is still the primary source of housing materials, as few can afford to purchase sawn lumber or zinc for roofs. Whether round wood or sawn boards are used, the forest is still the only source for timber. Population growth will contribute to the increasing intensity of gathering for this need. Again, accessibility is an important factor. Areas that can be reached by transportation to haul materials may be overused to overcome the distance and transportation difficulty of the further sites.

**Table 42: Gathering Frequency by Zone**  
Field Observation Data

Gathering	Daily	2-5 x Week	Monthly	4-6 x Year	1-2 x year	Total
Savannah	1	1	3	0	3	8
Bush Mouth	4	3	5	5	22	39
Bush	16	24	23	29	37	129
Mountain Foot	3	4	17	25	21	70
Up the Mountain	1	5	25	33	63	127
<b>Total</b>	<b>25</b>	<b>37</b>	<b>73</b>	<b>92</b>	<b>146</b>	<b>373</b>
% of Total	7%	10%	20%	25%	39%	

### Village Survey Data

Gathering	Daily	Weekly	Monthly	2-4 x Year	Yearly	2-5 Years	>5 yrs	Other	Total
Savannah	3	3		2	4	2	1	4	19
Bush Mouth	2	2	2	6	6	13	4	13	48
Bush		1	3	4	12	14	6	16	56
Deep Bush	1	2	4	8	12	10	1	18	56
Mountain Foot	3	1	3	3	12	20	5	7	54
Up the Mountain	1	3	3	9	10	10	8	24	68
<b>Total</b>	<b>10</b>	<b>12</b>	<b>15</b>	<b>32</b>	<b>56</b>	<b>69</b>	<b>25</b>	<b>82</b>	<b>301</b>
% of Total	3%	4%	5%	11%	19%	23%	8%	27%	

## **Quality and Availability of Use**

The data about the quality of resources was gathered via focus group discussions and the fieldwork. The issues discussed in the focus groups and village surveys dealt with the availability of resources as affected by change in distance traveled to acquire the resource. The field observation data asked participants to rate the condition of the resource from excellent to very poor in the categories of hunting, fishing, and gathering. The responses ranged from 95 to 98 percent good or excellent in these categories. The focus group discussion results were also primarily positive in the responses to availability and quality. However during the surveys, villagers expressed more concern that the quality of resources was changing, and that availability in the areas near the village was lessening, primarily due to population growth. Comments generally concluded that resources were available, but it was necessary to go further into the bush and mountains to find what was wanted or needed. A summary of results for the different resource categories follows. Response figures are not converted to percentages when multiple responses were allowed.

### **Farming**

Because the farmer of the specific site was not present during the field observation exercise, information was not gathered on the quality of the soil or the crop yield. The primary issue that was raised in response to the questions about distance traveled to the farm and what has changed about farming was the location of fertile soil and the time required to utilize it. Comments on poor soil quality or lack of available farming land near the village came primarily from Moco Moco, Nappi, and Shulinab in the western Kanukus, and Rupunau and Shea in the eastern range. In all communities except Quarrie and Kumu, villagers felt that they needed to travel far from the village to find good land. Quarrie had recently moved to a new farming area near Naja Creek due to infestation of the old farming lands by acoushi ants. Comments from Quarrie were that soil was fertile and yields were good in the new area. A common theme throughout this discussion was the need for fertile soil close to the village to avoid lengthy trips to access the more fertile soils.

### **Notes From a Typical Focus Group Discussion**

As recorded by Vitus Antone in Nappi Village

*Farmlands that are deeper further into the Bush, close to the Mountain Foot are very rich. The soil is better than the Bush Mouth areas. The land allows for good yields and up in the far farmlands, one can find people living quite happily. Older people, who have all died out now, used some lands there. The Mountain Foot areas are mainly used because of the dampness of the soil. Farm areas along the creek banks tend to get too dry and this is not good for the crops.*

*On the other hand the near farm areas (Bush Mouth) are very good but crops do not last as long as the mountain farms ones. Bananas can remain for over 15 years in the mountainous areas but only for 5 years in the near farm areas. Certain crops do not grow well or cannot grow at all in the new farm areas—example, Cyan banana. Only apple banana can be grown in the Bush Mouth area. The near areas are heavily affected by acoushi ants, which cause cassava not to bear properly. As a result, the people use the hills for cassava, swamps for rice and eddoes in the normally flooded areas. However, during the dry season, it is good for cassava. So in most of the low bush areas, cassava is planted in August and reaped in April.*

*There are also special flat lands (little hills) where bananas, yams, potatoes and sugar cane are best grown. The land terrain allows for water run off. There is one particular gravel hill where Touchau George Tancredo farms. It was learnt from him that this hill (Wondi) is almost exhausted. This place used to be a very big Mora Forest swamp where much wildlife existed. Today, Wondi is the main fishing place for the Nappi people and other neighbouring communities especially, during the rainy season.*

*In the mountains, most of the highlands are used for cassava and the lowlands for bananas. Hence, the richest farmlands are mainly between the mountains at Nappi Head, Maipaima and Shiquima. In these areas a lot of fruit trees grow luxuriously especially oranges.*

*The main reason for people not using the nearest land is because of too much Acoushi ants and floods from the Nappi and Maipaima creeks. These floods cause people to have more than one farm so that if they loose one to a flood, then they would have another. In some spots, flooding only occurs if there were really heavy rains. In the spots near to the Bush Mouth, where it is usually inundated, it is only used for collecting materials. However, it was mentioned that good lumber wood (like fissure and bitter cedar) cannot be found close to the village now but up in the mountains since it was all cut by outsiders. The village councils eventually stopped the outsiders.*

*In terms of the distance (time) needed to get to the farms, it was reasonable. There is a wide-open road that is accessible by carts. For the near farms going to and from can be done in a day but for the far farms, camping out is necessary. During the rainy season however the roads are normally flooded up to the forest hills (Humming Bird Hill) and this makes it more difficult to travel especially by those going on foot. It also adds more wear and tear for the carts and is strenuous on the bullocks.*

## Hunting

Concerns about the quality and availability of the hunting resources centered on the decrease in availability due to the threats of overuse and overpopulation, especially in the areas near the village. As shown in the field observation data, the resource condition was considered good or excellent at 98 percent of the sites observed. However, since 78 percent of the sites observed were in the bush, mountain foot, or up the mountain, this positive response is applicable primarily to the further areas. Few villagers felt there were species that were scarce or unavailable. Many comments referred to change in hunting as an activity rather than to the quality or availability of the resource itself.

**Table 43: Quality and Availability of Hunting Resources**  
**Field Observation Data**

Condition of Resource				
Excellent	Good	Poor	Very Poor	No Respect
215	144	1	1	15
57%	38%	0%	0%	4%
Village Survey Data				
Do You Go Further to Hunt?				
Yes	No	No Response		
129	11	25		
78%	7%	15%		
Is there a Change in Resource Availability?				
Yes	No	No Response		
92	10	63		
56%	6%	38%		
Extinct or Scarce Species				
Deer	Armadillo	Turtles	Birds	Other
17	18	12	2	12

## Fishing

While the response to condition of resource during field observation was again good and excellent at nearly all sites observed, villages stated that they needed to go further into the mountains to find this level of quality. Many commented that while fish were still available nearby, they were smaller, and big fishes were seldom found. There was a significantly higher response to naming species that were scarce or unavailable. Big fishes generally were included. Other comments reflected concerns about the way new fishing methods affect the fish population.

“There’s an abundance of fishes but piabs are decreasing. The traditional ways of fishing are the best. Seine is being used and this (affects) fishes ability to replenish.” Anonymous Villager (2002)

**Table 44: Quality and Availability of Fishing  
Field Observation Data**

Condition of Resource									
Excellent		Good		Poor		Very Poor		No Response	
166		129		2		1		2	
55%		43%		1%		0%		1%	
Village Survey Data									
Do you fish further?									
Yes				No		No Response			
335				34		79			
75%				8%		18%			
Is there a change in resource availability?									
Yes				No		No Response			
303				22		123			
68%				5%		27%			
Extinct or Scarce Species									
Arapaima	Big Fishes	Lukunani	Turtles	Arawana	Yakatu	Tiger Fish	Other		
71	35	33	20	19	15	41	47		

## Gathering

Gathering is another area where comments were more centered on the changes in gathering as a resource activity rather than in the availability. Many villages commented that they did not gather any more due to the availability of manufactured goods, the dependence on the health post for medicines, and the loss of knowledge and skill in utilizing craft materials and medicines. “More people are using sawn materials instead of round wood and using more imported materials for longer lasting houses” Anonymous Villager (2002). However, this is not always the case, as some families are continuing traditional activities. “This family insists on continuing the traditional way of life-waking at 3 a.m. to spin cotton and passing the skills to her daughters” Anonymous Villager (2003).

Overuse and fire were also named as factors that diminish the availability of gathered materials in many areas.

**Table 45: Quality and Availability of Gathering  
Field Observation Data**

Condition of Resource				
Excellent	Good	Poor	Very Poor	No Response
198	180	2	0	11
51%	46%	1%	0%	3%
Village Survey Data				
Do you go further to gather?				
Yes	No	No Response		
145	44	177		
40%		12%	48%	
Is there a change in resource availability?				
Yes	No	No Response		
190	95	81		
52%		26%	22%	
Extinct or Scarce Species				
Manicole	Arowa leaves	Cedar	Green/Purple Heart	
2	2	25	4	

## Threats to Resource Use

Information on threats to resource use was shared in focus group discussions and gathered in both fieldwork exercises. Participants generally did not understand what was meant by a threat to resource use. In all areas it was first necessary to hold a discussion in which a threat was described as something that prevented a person from getting the resources they needed for daily living. Discussions were held in the local language to ensure clarity among the participants. This concept was also explained to the interviewees during the village surveys.

The responses in all resource categories focused on threats that either occur naturally, such as weather and pests, or on issues internal to the region, rather than on threats generated from outside the area, such as large scale mining or logging. The village survey and the comments section of the field observation exercise brought out a greatly expanded number of threats perceived by the community. In the field observation work, most information about threats came from the comments section, indicating that the choices offered on the data form were not the threats most perceived by the participants. Several common themes emerged in all resource categories about threats perceived by the community to the continued use of resources:

- Overuse of resources caused by the needs of a growing population, over harvesting to meet both subsistence and cash income needs, the use of new methods that increase harvesting;
- Changing weather patterns that have brought shorter rainy seasons and hotter temperatures;
- Use by outsiders, or persons outside the village community. This occurs in many forms, including persons from some villages accessing another community's resource area, sport fishing and hunting by coastlanders, and poaching by Brazilians who cross the border in vehicles with ice chests and fish out whole ponds at a time;
- Wildlife and insect pests that threaten farms primarily, but also affect fishing and gathering.

Responses were very focused on present threats - those occurring in the context of the timeframe of the CRE workshop. It was interesting that few persons considered fire a significant threat at the time of the data gathering. Since most of the fieldwork was completed during the rainy season or the mixed rainy/dry season, there were no fires occurring at the time. However, when the teams returned to the villages for the review workshops in March 2003, during one of the worst fire seasons on record, participants were concerned that fire had not been listed as a threat.

It was also revealing to note the issues that were not perceived as threats. No one mentioned the construction of the Brazil-Guyana Bridge over the Takatu River or the pending improvement of the Lethem-Georgetown road as threats, even though these events will undoubtedly result in increased access to the region. Nor were protected areas mentioned as threats to continued resource use, which contradicts the fear expressed in earlier interactions, that CI and protected areas would take away the land and limit resource use. The main threats named in each resource category are summarized below.

**The Kanukus on Fire**

*The dry season of 2003 saw the worst fires in the mountains in recent memory. Some days in March, smoke completely obscured the mountains from view. At night, fires could be seen burning in long lines along the ridge tops. The late rains finally arrived to quench the fires and clear the air, revealing scorched patches and blackened trees. While many fires are the result of natural causes, more still are caused by poor fire management when clearing land for farming. This is another instance where the abandoning of traditional methods is adversely impacting resource availability*

**Farming**

The concerns expressed about threats to farming centered on wildlife and insect pests. The acoushi ant was the most commonly named pest to the farm. This pest affects not only yield, but also the location of farms, as villagers are sometimes forced to abandon whole farming areas due to infestation by the acoushi ant. The ants are said to follow the farms, and are more prevalent in the bush mouth and bush areas than the deep bush or mountain zones. The bush hog is the biggest wildlife threat along with rodents such as the acouri and agouti. The tapir, or bush cow, also causes extensive damage, eating out cassava roots. Monkeys are especially troublesome to the corn and sugar cane crops. Known for their cleverness in stealing produce, they have been seen biting cane stalks into short lengths to make it easier to carry them away or tying ears of corn together, leaving their hands free for escaping into the treetops. An increasing threat is that posed by people who steal crops and thus benefit from another’s labour.

**Table 46: Threats to Farming**

**Field Observation Data**

Threats to Farming Site							
Over-Farming	Mining	Wildlife	Logging				
6	15	35	3				
Deer	Acoushi Ants	Caterpillar	Crickets	Hogs	Monkeys	Birds	Agouti
150	196	142	4	143	12	1	47

**Village Survey Data**

Threats to Farms							
Wild Animals	Acoushi Ants	Caterpillar	Weather	Domestic Animals	Monkeys	Weeds	Fire
376	352	45	77	57	44	11	4
Acouri	Rodents	Birds	People	Disrespect	Other	No Response	
0	6	16	7	10	50	1	

## Hunting

The main themes of overuse, population growth, and use by outsiders are reflected in the hunting information. Other areas mentioned in discussions or comments were the lack of time for hunting, and the loss of skills. One hunter expressed that hunting would soon not be a threat to the animals as there would be no one left who knew how to hunt. The quality of hunting skills has a twofold effect. Those who do not know the bush or who do not have the knowledge to hunt in the deep bush and mountains must hunt in the savannahs and near bush areas. However, in the near areas the game is wise to the hunting methods, so success here requires the most skillful of hunters. The village surveys brought out a number of perceived threats in addition to the field observation results. Overpopulation was highlighted repeatedly in the comments from both data sources.

**Table 47: Threats to Hunting**

**Field Observation Data**

Over-hunting	Mining	Poaching	Logging
15	3	4	5

**Village Survey Data**

Over-hunting	Mining	Weather	New Methods	Fire	Population	Tiger	Outsiders
17	0	17	3	13	39	4	29
Increase of hunters	Malaria	Logging	Other	No Response			
1	3	1	1	29			

## Fishing

Again the common themes emerge. The issue of poisoning, highlighted earlier, is in a sense an overuse of resources, as more fish are killed than the individual can use. Excess is generally destined for sale; however there can be considerable waste in this practice. In fishing, the need for cash must be considered a threat to the resource, as the larger catches needed put additional pressure on the fish supply. The use of new methods, such as seines and cast nets, make the larger catches possible. While this threatens the fish supply, it also makes it possible to have excess fish to sell. However, the benefit of cash income goes only to those in the community who can afford the nets, leaving a depleted supply to those who use less effective methods.

**Table 48: Threats to Fishing**

**Field Observation Data:**

Over-fishing	Mining	Poaching	Poisons
27	11	7	14

**Village Survey Data:**

Over-fishing	Weather	Poison	Population	New Methods	Outsiders	Fire	Crabs
46	55	95	98	59	33	17	5

## Gathering

The responses to perceived threats were lowest about gathering. Population growth was the dominant concern among villagers responding. Gathering is the only area where fire was named as a significant threat. Fire can wipe out whole areas, forcing people further into the mountains to gather materials. Response to this question about gathering was light in both data gathering methods. It is not possible to interpret whether this implies a perception that there are no threats, or if it indicates a lack of understanding of the question.

**Table 49: Threats to Gathering**

### Field Observation Data

Over-Harvesting	Mining	Poaching	Logging
12	0	1	20

### Village Survey Data

Over-Harvesting	Weather	Population	Fire	Wood Ants	Clearing land/farms	Outsiders
46	7	77	68	10	6	8
Logging/Cutting	Overlapping Use	Acoushi Ants	New Methods	Waste	Other	No Response
13	2	1	6	8	29	100

The management of threats is an issue to be addressed by further research. Responses to the question of how threats to farms were managed revealed a mixture of local remedies, and some dependence on insecticides. A recent project to bring in foggers to control acoushi ants has been hampered by the lack of training in how to operate the equipment, the inability of villagers to afford the chemicals required, and the long wait to use the few machines available. Many villagers said there were no solutions to managing the pests that damage crops, some even indicating that they simply planted a bigger farm to ensure enough produce to satisfy the pests and themselves.

## **Social Issues Influencing Resource Use**

There are a number of social issues that affect the way in which the communities access and use the resource base of the Kanuku Mountain Region. The changing social structure of community life, the increasing dependence on cash economy, out-migration, and the loss of traditional skills in resource use contribute to changing use patterns in the communities.

### **Changing Social Structure**

The continually changing social structure of village life has wide reaching effects on resource use in the Kanukus. The actual physical location of villages, now firmly established in the savannahs around central services such as schools, health posts, and religion, has significant influence on the pattern of farming in the communities. There is an increased tendency to reuse farming areas closest to the village to the point of soil exhaustion and reduced yields, in order to avoid cutting new farms in the more fertile areas that may take a family many miles from home. While many farms are located close enough to travel, work, and return within one day, some can be located as far as twenty miles from the village. Since the primary means of transportation is still walking, with 88 percent of responses to means of transportation being walking, bicycle, or bullock cart, the time required to get to a farm has a strong influence on site location. However, the availability of sufficient all season farmland with soil producing good yields within a reasonable distance is an increasing challenge. Farms located in the mountain zones may require stays of several days away from home for maintenance. Children frequently miss school to tend the farm or may be left home on their own to attend school while parents are away farming, hunting, or fishing. School holidays in July and August find many villagers living at farm camps with the whole family to maintain and reap produce.

The demands of increasing numbers of village and outside organizations create a further drain on the villagers' time. Church and youth groups, women's gardening and sewing groups, sports clubs, and the Parents and Teachers Friends Association (PTFA), are present in every village and place further stress on the time demands of a subsistence life style. NGO's, development organizations, humanitarian agencies, and religious and advocacy groups also seek villager's participation in workshops, projects, etc., frequently with little understanding of the issue of time available to the community to participate in such projects. Village leaders, all of whom still farm, are under particular stress, as they are called out of their community more and more often to attend workshops, making it difficult to manage the needs of the community, as well as tend farms and fish or hunt. The demands of these activities affect the quality of the farming activities by causing overuse of close areas and poor maintenance of farms, and can cause stress within the social fabric of the community. They also affect the time the village leadership can devote to work with the community to manage resources and control unsustainable practices.

Communal aspects of village life are fast disappearing. Control by the Touchau of communal resource use is declining, as illustrated by issues such as fish poisoning

previously discussed. Village communal hunting now only occurs on special occasions. Hunters now sell excess meat rather than sharing - a comment made many times by villagers when asked what had changed about resource use patterns. The sharing of farm produce and fish has also declined even among family members as people sell their excess crop or catch to meet the growing need for cash.

### **Growth of a Cash Economy**

The collapse of both the ranching industry and balata exports by the 1970's left the Rupununi Region with a cash economy and few sources to obtain the cash needed. As Janet Forte writes of the Macushi:

This set the stage for the seasonal migration to Brazil that is now the pattern in the North and South, with its arguably more permanent mark on Makushi society. It also led to the intensification of the wildlife trade, and to the over-fishing of the giant river turtle and arapaima by the Makushi in order to gain some cash income (1996:14).

The lack of employment in the region leaves no alternative for cash acquisition at home but to rely on the resource base for both subsistence and cash needs. The responses to the village survey on use of produce or catch show that 60 percent of farming, 30 percent of hunting, 33 percent of fishing, and 22 percent of gathering is done for sale or for both domestic consumption and sale. The alternative to using the resource base is to earn cash income from the only employment source readily available - Brazil.

### **Migration**

The issue of migration to Brazil, while relieving stress on the resource base use for cash needs, has

#### **“The Balata Days”**

*Many remember “the balata days” as a time of prosperity in the Amerindian communities. The bleeders received tools, guns, and medicines, including drugs for malaria. The guns were for protection from animals while working deep in the bush and were also used for hunting. When bleeding season arrived, each bleeder would receive an advance of food and clothing for his family. When the season was finished, the credit was cleared and there was still cash to bring home to the family. Each crew received two cases of rum, but they never used all. Drinking was not so much in those days. The whole of Deep South was involved in the balata trade (excepting the Wai Wai). Many changes came during this time. Women took over more of the farming duties while the men were away. The men would burn the farms before leaving. Some women learned to use a gun so they could hunt. The balata trade brought mixed marriage between Wapishana and Macushi in Annai*

*After the balata trade collapsed in the mid 1970's, people returned to peanut farming, but there was no transportation. People had no cash income. There was more drinking and families collapsed. The trees are ready for bleeding again, but there is no market.*

*Patrick O'Connell of Maruranau Village who was a young man during the balata days shared this reminiscence. He was a crew leader and known as an excellent hunter with arrow and bow and with a gun. He ran the balata crew and hunted at the same time. Mr. O'Connell worked all over the south, beyond Two Head Mountain in the Kanukus, and beyond the Kwitaro River to the east. The many landings along the Kwitaro are the old sites where the balata was brought out to be picked up by the Apoteri Company. Touchau George Tancredo of Nappi Village is also a former crew leader from the balata days and still works with balata as master artisan of the Nanni Balata Artisans.*

other negative effects on the patterns of resource use. The principal wage earner leaving for Brazilian employment is usually the male of the household. His absence may postpone the site selection and preparation of farms and affect the quality and yield of the crop. This also alters the traditional gender roles in food acquisition, placing more of the burden on the wife and children to manage the farm and fill the pot while he is away.

### Loss of Traditional Skills

The search for employment also pulls the youth away from the village to seek cash for consumer goods and diversion from village life.<sup>26</sup> This takes the younger generation away from the family and village structure and negatively impacts the transfer of traditional farming and resource acquisition skills. In ten of the CRE communities<sup>27</sup>, there was a dramatic decline of 66 percent in the population of 15-19 year olds when compared to the 5-14 year old group. This dynamic is reversed in the 20-44 year old group, which is only 21 percent less than the 5-14 year olds. The young people return to Guyana and their villages to settle and raise a family. They return with new cultural influences and a declining perceived value for the knowledge about traditional ways of resource use and management.

**Table 50: Change in Population Due to Migration**

Age Group	5-14 years	15-19 years	20-44 years
Population	1,146	395	903

Forté (2000).

One of the most frequently mentioned issues affecting resource use change during discussions and in comments during village survey interviews, was the loss of traditional skills and customs relating to resource use. Reasons cited for this change were the influence of Brazilian culture; failure of parents to pass on their skills to children; and a lack of interest on the part of young people in learning the old ways. One villager expressed his opinion that “...hunting would not be a threat to the resources of the mountains, because soon no one will know how to hunt” (Anonymous Villager 2002).

Traditional skills such as plaiting of matapees and sieves for processing cassava and the making of arrow and bow are disappearing. The few who still have these skills now weave these implements and sell them to other villagers. The use of the warishee as the means of transporting cassava is also declining, with the availability of purchased bags and packs. The older methods of hunting and fishing still predominate-preserved partly due to the high cost of implements such as guns and seines.

<sup>26</sup> The Guyanese Primary School system available to the villages ends at age 14. Few move on to Secondary School in St. Ignatius. Fewer still are able to obtain scholarships to study in Georgetown. The price of success for those who do is life far from the village, with little hope of using in their home villages the skills they work so hard to acquire.

<sup>27</sup> This information was available for Nappi, Hiowa, Parishara, Kumu, Quarrie, Moco Moco, Parikwarinawa, Shulinab, Sand Creek, and Rupunau

Perhaps the most critical loss is the decline in knowledge about the resource base itself, especially in the category of gathering. The CRE workshops revealed a lack of knowledge on the part of many persons in the community about where resources could be found, especially resources in the mountain areas. The availability of health care and medication through the community health posts has contributed to a decline in the knowledge and use of medicinal plants. The closing meetings were often an education to the public on uses of materials, and on occasion, it was difficult to find persons knowledgeable about the trails to lead teams to the indicated furthest use areas.

## Evaluation

The participants evaluated the results of the Community Resource Evaluations on two occasions, at the close of the CRE workshop, and at the conclusion of the Data Review Workshops.

### The Closing Evaluation

In the first level of evaluation, the participants were asked to express their thoughts and feelings about the workshop, and what next steps should be taken as a result of the CRE. A large human figure was drawn on paper. Participants recorded their comments on small papers, and attached them to the figure at the head for thoughts, the heart for feelings, and the feet for next steps. The comments were made anonymously so that the participants would feel free to express themselves and their opinions.

The most common theme that emerged throughout the communities was the amount of learning that had taken place as a result of the CRE workshops. This was the first workshop experience for most of the participants, so many were unsure about what they would experience. In every community, people said how happy they were to have learned so much, and that they would do their best to share what they had learned. Another common remark was that there should be workshops more often so others could participate. Even though we spent at least ten days in the community, many felt that additional time was needed to share information and observe resources. In most communities, people felt the bush trips should have been longer to visit more of the use areas. During the workshops, when the participants became involved in locating resources on the sketch maps and selecting routes, they wanted to geo-reference as many areas as possible. At times it was challenging to keep the focus on the objective of observing a general sampling of resource sites that included the furthest areas of use.



Some people expressed their apprehensions about this new process and the new concept of a protected area. One man stated “What if CI eventually caves in and forgets all the wonderful promises - now that the life of my people (is) lying in the hands of no one knows who.” This sentiment was not common, but it highlights the need to recognize the feelings of insecurity that can arise when people are faced with new concepts, ideas, and activities about the areas that are their life and livelihood. Continually bringing information and building the capacity of the people to understand and act on that information will build confidence in protected areas as a solution to the management of sustainable use in the Kanukus.

The figure on the following page shows various quotes from the evaluation comments that were made during the closing evaluation.

**Figure 5: Closing Evaluation Comments**

**Thoughts**

- Those who understood less have increased their understanding just by seeing and listening.
- I think the bush team could have done better if the weather wasn't bad.
- I did not consider how valuable the resources are but since the workshop I now know where and what the resources are that we use.
- Still need more information about PAs, national area, international laws I think I now know more about what is happening.
- I think it is good to have our resources protected by someone since we really cannot do this by ourselves.
- I think of teaching others based on all that I learned so they can have a clear understanding.
- This workshop of CRE was very interesting to me because it helped me to know what my great-grand parents gathered or hunt for. I hope the CI team is not sweet-talking us for our Kanuku Mountains.
- Should a protected areas be established in the Kanukus how can we villagers be involved in the management?
- It is a very good exercise. More should be done in women's participation.

**Feelings**

- Sad the workshop ended
  - Happy to be learning new things
  - Sorry the team is going-I'll miss the delicious food!
  - There are many questions to answer.
  - I feel that the survey was interesting and the workshop opened my mind.
  - What will happen after the CRE?
  - I like this process.
  - The CRE is doing the right thing in teaching the people.
- In the beginning I did not want to go but now I understand this CI workshop.
- First I feel the CRE workshop was hard but in the end I enjoyed it and I feel proud about it.
  - Feel that the future generations should learn how to take care of the environment, mountains, etc.
  - The only thing I am thinking about is the team didn't discover all the places or areas on the last day.
  - The workshop allowed participants to share their knowledge. All participants learned something new from each other. It introduced the youths to the forest resources we have. This kind of sharing helped the CRE leaders understand our culture. These issues were discussed and openly shared. I feel pleased and also understand this CI/CRE because before the people were saying that CI was taking over the mountains.

**Things That You Will Do**

- Seeing that I learned about the protected area I will pass it on to my children for the future.
- I now intend to share what I have learned and try to make others understand.
- I would like others to understand about what, who, when, and where and understand more clearly
- Youths should be more involved in this process.
- Should the rangers/managers be trained before this becomes a protected area? Want to know more about national laws.
- I think I will walk and tell people what I learned.
- The workshop has increased my knowledge and understanding about conservation in the Kanuku Mountains and as part of the bush team four days was too short to touch all where we want to go.
- This is the first workshop I really enjoyed. I have learned a lot and will pass on what I learned. I hope CI will continue with this process. I was happy to have been a participant and it was great getting to know each other.

## Evaluation Questionnaire

The second level of evaluation occurred at the Data Review Workshops in March of 2003. The purpose of this workshop was to bring the compiled results of the CRE back to the participant group to review the content, the way in which the data would be presented in the reports, and to give the participants an opportunity to make additions or corrections to the information. Members of the Village Councils who were not part of the participant group were also invited to ensure the full council had the opportunity to review the workshop results. The results of each tool were reviewed, including all resource lists, seasonal calendars, and sketch maps, and additions or corrections noted. The reports on the field trips and the compiled results of all surveys were presented. This was preceded by a mini-lecture and practice session on graphs and tables to familiarize the group with the methods of consolidating large amounts of information. Finally the digitised maps recording the geo-referenced points by resource type were reviewed and compared with village sketch maps to verify the routes. The participants provided excellent input on the spelling and placement of the names of creeks, rivers and mountains on the formal map backgrounds. Interpreters were available to assist where needed.

At the conclusion of the workshop, the participants completed an anonymous evaluation questionnaire to measure:

- The level of satisfaction that all parts of the community were represented in the process;
- The effectiveness of the tools used during the CRE in helping to share knowledge and gather information;
- The level of understanding of the information as it was compiled and presented in the preliminary report;
- The level of satisfaction that the information presented in the data review accurately represented what was shared during the CRE;
- Attitudes and understanding about the purpose of the CRE and protected areas;
- Topics about which the community needed more information and the best way to bring this information.

A total of 404 evaluations were completed. The participants were advised to leave blank any question they did not wish to answer or did not understand. The response choices given were based on commonly used expressions. For example, “not much” is frequently said to communicate having a general idea, but not a firm grasp of something. “A little” equated to some understanding or agreement. “Very much” indicated strong agreement. Each question and the response options were translated into the local language to facilitate the completion of the evaluation questionnaire. Interpreters assisted participants when requested. They also monitored the group, and offered assistance if they felt that someone was reluctant to ask for help. The results of the questionnaire are presented in the following tables. Each table indicated the answers given by those who responded to the particular question. Each value is also shown as a percentage of the total responses to the question. A copy of the questionnaire form is included in Appendix Five.

## Community Representation

**Table 51: Evaluation Question 2**

**Do you think the CRE participant group represented all parts of your village?  
If you marked PARTLY or NO, what groups were not represented?**

Yes-very well	Partly but could have been better	No	# Responses
333	56	4	393
85%	14%	1%	

This was an important measurement, as there have been frequent concerns during the consultations that not everyone in the community was kept informed. Participants were asked to share as much information as possible with the other members of the community. The negative responses were primarily stating that more young people and school children should have been part of the workshop.

## The Effectiveness of Tools

This set of questions evaluated the effectiveness of each tool used to gather information. It was also important to understand if the participants felt that they had gained knowledge and understanding and that they would be able to share their knowledge with others.

**Table 52: Evaluation Question 3**

**How well did the tools you created at the CRE Workshop help you communicate your resource use?**

	Very Much	A Little	Not Much	# Responses
Resource Lists	296	48	17	361
% Of Responses	82%	13%	5%	
Seasonal Calendar	260	57	14	331
% Of Responses	79%	17%	4%	
Sketch Maps	255	49	33	337
% Of Responses	76%	12%	8%	

Over three-fourths of the responses indicated a high level of agreement, and between 92 and 95 percent indicated at least some agreement that the tools were successful in enabling the participants to communicate their resource use. Few of the participants were familiar with the use of maps, and almost none had previously drawn maps, so this activity was an introduction to spatial representation.

**Table 53: Evaluation Question 8**

**Do you think the Bush Trips were a good way to see and learn about where the village uses the Mountains?**

Very Much	A Little	Not Much	# Responses
335	29	14	378
89%	8%	3%	

Trips into the bush are a familiar activity. This was the best opportunity for the participants to take the lead and be the teachers in the process. Many of the bush team participants brought back samples of different items gathered from the forest to show to the community during the public meeting presentations. These demonstrations and the photo shows brought the bush trips alive, enabling the narrators to share product use and location with others in the community who do not go out into the far areas of use.

**Table 54: Evaluation Question 7**

**Were the Village Surveys a good way to gather information from other villagers?**

Very Much	A Little	Not Much	# Responses
279	55	33	367
76%	15%	9%	

Visiting house to house to ask questions was a less familiar activity. Occasionally, people declined to be interviewed. However, most community members were receptive to the activity, and the participants’ enthusiasm grew as they took the lead in asking questions and recording information. A frequent comment was that “... we in the village are gathering this information to help ourselves. It is not a stranger asking you. It is we from the village asking.” (Anonymous Participant 2002)

**Table 55: Evaluation Questions 4 and 6**

**Do you feel that you had an opportunity to share your knowledge?**

Very Much	A Little	Not Much	# Responses
235	90	45	370
64%	24%	12%	

**Has the workshop allowed you to express your resource use to people outside your village?**

Very Much	A Little	Not Much	# Responses
225	72	63	360
63%	20%	18%	

While 86 percent of the responses indicated at least some opportunity to share knowledge, it would be informative to analyse whether this response is influenced by what the participants considered to be knowledge sharing. It is possible that the perception of knowledge sharing was tied to familiar ways such as showing actual sites and resources in the bush, as opposed to the more abstract recording of information as was done in making lists and calendars. The response to sharing information outside the village was very positive. Nearly two-thirds of the participants felt they were able to express their use information to people outside the village. Sharing information with other stakeholders, including other communities, will be an important skill in making decisions on resource management issues that affect the mountains regionally.

**Table 56: Evaluation Question 5****Did you personally learn more about how your village uses the mountains?**

Very Much	A Little	Not Much	# Responses
278	60	40	378
74%	16%	11%	

In addition to new information, the learning during the CRE included the new ways of looking at resource use, and how the different types of use are interrelated. The seasonal calendar enabled the groups to view an entire year of resource use activities at one time. They could see and discuss the relationships between different tasks, as well as the effects of new activities on the cycles. For example, the period of March to early April is a busy time at the farms. Land is being cleared in preparation for planting to catch the first rains of April. Comments were made during discussions that this same period has become extremely crowded with outside activities. NGOs, government agencies, and other organizations try to complete workshops and community activities before the rainy season makes transportation difficult and expensive, and some villages unreachable. Sharing this information should assist these groups in coordinating their work with the cycle of activities in the community

**Table 57: Evaluation Question 9****Did the CRE help you learn more about the threats to your resources?**

Very Much	A Little	Not Much	# Responses
302	46	27	375
81%	12%	7%	

The response to this question can be viewed as an encouraging focus on the increasing need for resource management both from within and without the communities. The discussions and responses during the CREs about perceived threats centered mainly on nature based threats or behavior based threats, such as overuse. Awareness was raised that changes in behavior could have a positive influence in mitigating many of these threats. It was also encouraging to note in the response to the question on why the government wants to protect the mountains, that there were many references to protection from externally generated threats, such as large companies, mining and logging and the need to preserve resources for future generations. This indicates a broader outlook on threats and their management than was apparent from the CRE data results alone.

### Level of Understanding of the Data Results

**Table 58: Evaluation Question 13****Did you understand the information presented in today's workshop?**

	Very Much	A Little	Not Much	# Responses
Bush Reports	275	81	23	379
% Of Responses	73%	21%	6%	
New Maps	213	99	36	348
% Of Responses	61%	28%	10%	
Graphs and Tables	221	74	43	338
% Of Responses	65%	22%	13%	

The responses again reflect the familiar versus the unfamiliar. However, the majority of participants understood very much, and all but 6 to 13 percent understood at least some of the information as it was compiled and presented in the preliminary report. The use of graphs and tables allowed large amounts of information to be returned to the participants, but they also challenged the participants' ability to absorb the meaning of that information. The sessions on how graphs are made was helpful, however more work is needed to build the capacity of the communities to both understand and analyse information in order to make sound decisions about resource management. The digitised maps recording the points geo-referenced on the bush team trips had the fewest responses that indicated a high understanding. The formality or official appearance of these maps created a very powerful presentation. A concern arose at many of the data review workshops, that the digitised maps represented all areas of community use. Since only the sites observed on the field trips were recorded, the digitised maps gave the appearance of leaving out many sites of use. The participants wanted the digitised maps to show all the areas of use that were recorded on the sketch maps. Considerable time was devoted to this discussion, and the sketch map was deferred to as the complete record of resource use as indicated by the community. However, in some communities there were requests for more geo-referencing to expand the formal map record. The desire to use the digitised map to define the boundaries of community land use influenced this discussion in some of the villages. It is important for future work to recognize the power of the mapping technologies at our disposal, and to maintain the link between technology and traditional knowledge in this process. We must encourage the communities to value the results of their own knowledge of their use areas as reflected on the sketch maps, while learning to utilize the digitized maps as tools to express different aspects of their resource use.

**Table 59: Evaluation Question 12**

**Did today's workshop help you understand the results of the CRE?**

Very Much	A Little	Not Much	# Responses
221	74	43	338
65%	22%	13%	

This response summarised the results of the individual components discussed above. The return of information and discussions on how a report communicates the knowledge shared during an activity should be a required element in all information-gathering engagements. Too often, community members are asked to participate in activities without being informed about how information will be used, and without ever seeing the results of the work. This approach creates an atmosphere of extraction without shared benefit, and over time diminishes the willingness of communities to share their knowledge or to integrate that knowledge into activities with NGOs or government agencies. Everyone involved loses in this situation.

**Table 60: Evaluation Question 14****Did the interpretation into the local language help you understand the CRE and the information presented today?**

Very Much	A Little	Not Much	# Responses
287	63	34	384
75%	16%	9%	

The issue of interpretation was a critical and challenging one in this process. As mentioned earlier in this report, this was the first time that a consultation process integrated the local language into the activities. The presence of Indigenous persons on the CRE teams allowed many sessions to be facilitated directly in the local language. Interviews could also be conducted in the local language, and key participants identified to assist in interpretation. This enabled the teams to reach out to the older members of the community who were generally less fluent in English, bringing the richness of their experiences and the depth of their knowledge into the process. The challenge lies in the limited number of community persons who are fluent in both their native language and English, and the even fewer number of non-Amerindians fluent in the local languages.. An encouraging development in the Macushi language is underway under the auspices of the Macushi Language Project being implemented as part of the work of the Iwokrama Rainforest Programme.<sup>28</sup> An oral language course on tapes is currently being developed as part of this programme. The Wapishana Language Project<sup>29</sup> has already produced a dictionary as part of the work to formalize a written form of the language. Participation in this programme enabled participants in the CREs in the south to record many place names on the sketch maps, and to make corrections to the naming and spelling of features on the digitised background of the formal maps.

### Accuracy and Representation of CRE Results

**Table 61: Evaluation Question 15****Do you agree that the information reported in today’s workshop is what you shared during the CRE? If you answered PARTLY, or NO, with what information did you not agree?**

Yes	Partly	No	# Responses
362	18	7	387
94%	5%	2%	

The very positive response to this question indicates agreement by the participants of the CRE workshops and the Touchaus and Village Councillors completing the evaluation, that the information contained in the CRE reports is an accurate representation of what was discussed, shared, and gathered during the Community Resource Evaluations. The seven persons responding “No” did not state what information was not accurate. Those

<sup>28</sup> Iwokrama International Centre for Rain Forest Conservation and Development manages this program and the Iwokrama Reserve, a 360,000 hectare protected area in the center of Guyana.

<sup>29</sup> A project of SIL International, the Wapishana Language Project works with Wapichan Wadauniinao Ati’o (WWA), a group of Wapishana people committed to promoting the language un written form.

who stated “Partly” indicated corrections to the information or disagreed with particular details, such as the timing of activities. All corrections or additions to the information presented in the data review workshop were incorporated into both the individual Village Report and this summary report, including corrections to the place names and information on the digitised maps.

### Attitudes and Understanding about the CRE and Protected Areas

**Table 62: Evaluation Question 1**

**Check the box that best says why the CRE was done in your village.**

To help us learn more about our resources	213	40%
To help villagers share information about how the Kanuku Mountains are used	249	47%
To make a map of the area	73	13%
Total Responses (participants checked more than one box)	535	100%

The responses to this question indicate a clear understanding of the purpose of the CRE by the majority of the participant group. They also indicate that the participants were able to focus on issues of resource use wherever it occurred, rather than on creating boundaries as the purpose of the activity. As was shown earlier, the use of formal maps as part of the process contributed to the concerns about recording use areas on formal maps. However, a beginning was made in building the capacity of the members of the eighteen communities to utilize maps in a constructive way as part of land management decisions.

**Table 63: Evaluation Question 10**

**Do you think a Protected Area could help preserve your resources for the future?**

Very Much	A Little	No	Don't Know	# Responses
289	25	11	58	383
75%	7%	3%	15%	

A marked shift in the general attitude toward a protected area in the Kanuku Mountains is shown in these responses. Attitudes are changing from fear that a protected area would take away the land to viewing a protected area as a way to manage and preserve the future use of resources. Throughout the consultation activities, CI’s teams have never asked people to decide if they wanted a protected area. It was felt that it was important to first build a foundation of awareness and understanding of the need for a protected area to preserve the resource base so important to the communities using the Kanuku Mountains. This foundation must be expanded within each community to achieve broad community based support to make the protected area a reality.

**Table 64: Evaluation Question 11\***

**Why do you think the Government of Guyana wants to protect the Kanuku Mountains?**

Preserve the Kanuku Mountains and their resources for future generations	63	26%
Protect the Kanuku Mountains from outside threats, especially large companies	45	19%
Protect the biodiversity of the Mountains	37	16%
To help the people manage their resources in a better way	26	11%
To create economic benefit for the people and Guyana	16	7%
To help or protect the people	15	6%
Combined answers-biodiversity, future generations, economic benefit	7	3%
For global benefits, e.g. clean air	3	1%
To take over the mountains and keep the people from using resources	6	3%
Don't know	6	3%
Other	12	5%
<b>Total Responses</b>	<b>236</b>	<b>100%</b>

\*This question did not include predetermined options. All responses were made by the participants completing the questionnaires. They were tabulated for the purpose of analysis.

At the Initial Site Visits in June and July 2001 (the first community consultation of the PA process) 403 questions and comments were received during the public meetings. Concern about continued rights to use resources, land security, and the well being of the communities was expressed in 42 percent of those questions and comments.<sup>30</sup> The responses to the above question clearly indicated a change in attitude present in the communities toward the concept of a protected area. Of those who responded 89 percent were able to articulate a positive reason for establishing a protected area. Only 3 percent or 6 responses expressed concern about land or rights to use resources being taken away. The responses under “other” were mainly comments that it was a good thing to protect the mountains. The dominant concern was for the preservation of the mountains for future generations, which indicated recognition of a need to manage present use. Fifty-eight percent of the participants did not respond to the question. While our efforts to educate about protected areas have achieved a positive influence on the attitudes in the community, more work is necessary to expand this awareness. One of the highest responses to what topic people needed to know more about was “Why the Government of Guyana wants to protect the Kanuku Mountains (See Table 65 below).

<sup>30</sup>Conservation International, “Community Consultations for the Protected Area Process in the Kanuku Region. Phase One: Initial Site Visits,” (Georgetown, Guyana: Conservation International-Guyana, 2001, photocopied), 10.

## Information Needs

**Table 65: Evaluation Question 16**

**What do you need to know more about?**

Why the Government of Guyana wants to protect the Kanukus	162	30%
Protected Areas in general	119	22%
Conservation International	61	12%
How protected areas are managed	187	35%
Other	5	1%
Total Responses (Multiple responses were allowed)	534	100%

The areas named for more information in this evaluation also show some interesting changes from the feedback received at the Initial Site Visits. At that time 23 percent of the questions and comments concerned CI and its role in the protected area process. The multiple engagements of the consultation process have succeeded in improving the understanding of the communities about CI. Another change in attitude shown here is the increased interest level in the management of protected areas. From a level of 8 percent of the questions and comments in July 2001, this topic was mentioned by 35 percent of the participants in March 2003. People are shifting their focus from concern about loss of use to concern about how use should be managed.

**Table 66: Evaluation Question 17**

**What is the best way to bring you this information?**

Workshops	Radio	Written Materials	Newsletter	Other
342	61	51	63	3

While direct presence in the communities was the preferred method of information sharing, means must be developed to inform and educate communities in other ways that reach a larger portion of the population more frequently. While they can be very effective, workshops are generally short engagements that involve a limited number of persons. They are also limited by rainy season and cost constraints. The development of a mass communication conduit, such as a local radio station and access to inexpensive radio receivers would provide a means of communicating consistent information to a larger number of people more often.

**Table 67: Evaluation Question 18**

**Is having a Community Coordinator a good way to help your village understand about Protected Areas? Please explain your answer.**

Yes	No	# Responses
342	43	385
89%	11%	

In addition to the high response supporting the concept of a Community Coordinator, this question received a large amount of feedback (152 comments) on how the coordinator

should work with the community. This information will be reviewed as part of the plans for resuming this program.<sup>31</sup>

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<sup>31</sup> The Community Coordinator program ended with the completion of the CREs. Discussions are underway to respond to the communities' request for a continuation of this program, incorporating many of the suggestions for improvement, such as increased training.

## Conclusion

This research has enabled the people of the CRE communities to share knowledge and gather information about their resource use that has resulted in: the creation of a master resource list, cataloging all resources accessed in and around the Kanuku Mountains; a profile of the seasonal nature of that use; both informal and formal maps that create a spatial reference to the extent of that use; and finally a database of information on the characteristics of resource use in and near the Kanuku Mountains.

The products of this research will inform all stakeholders in the process of establishing a protected area in the Kanuku Mountains. The maps and database provide one of the most extensive information sets available on Indigenous resource use in a specific geographic area. The map of the Kanuku Mountain is the first produced at a scale that allows the communities, as well as other stakeholders, to see and understand the dimensions and topography of the mountains and surrounding areas. These maps together with the village sketch maps, the data base, and the reports will be analyzed by the Environmental Protection Agency, Guyana Department of Lands and Surveys, Guyana Department of Forestry, the Cabinet Sub-committee on the Environment, Conservation International and the stakeholder committees, including community representatives, charged with developing a proposal for a protected area.

The most far-reaching potential for this research is in its use by the communities themselves. Each village now has information in hand, that can assist them in representing their resource use needs in both the protected area process and in land tenure and rights of use discussions. The protected area technical committees will include representation from the communities that use the Kanuku Mountains. The CRE process has provided capacity building and information generated by the communities themselves that will assist the Indigenous representatives to participate in this process.

The methodology achieved participation by a broad representation of the communities, as evidenced by the scope and variety of information, the demographics of the participant and informant groups, and by the opinions of the participants and village leaders given in the evaluation survey at the conclusion of the data review workshops held in each village.

The understanding and communication of Indigenous patterns of resource use and the issues affecting that use are critical to the creation of a protected area that will both protect the biodiversity of the flora and fauna, and the rights of indigenous people to sustainably access that biodiversity for subsistence needs. How the people of the eighteen communities, depending on the resources of the Kanuku Mountains, access those resources is changing. Pressures of a changing societal structure, population growth, a growing cash economy, and loss of traditional skills have caused a greater intensity of use of the near areas of the mountain eco-systems. Scarcity of available fertile soils, and declining fish and game populations are forcing people to consider returning to ancestral farming areas that are difficult to reach and manage in the context of the increasingly centralized social structure of village life. These same pressures work to reduce the frequency of use of the interior or central portions of both western and eastern ranges of

the mountains. These areas are most frequently accessed for hunting and gathering. The availability of domestic animals for meat and the decline in hunting skills among the younger population coupled with the loss of knowledge about and use of the forest for craft and medicinal materials means the trend of subsistence use of the interior areas is focused on less frequent needs such as special occasion hunting and the gathering of house materials. The current level of subsistence use of these areas should not conflict with the preservation of biodiversity in a protected area setting.

Perhaps the greatest threat to the patterns of resource use by the CRE communities, and the greatest cause of change, is the dependence on the resource base as a cash income generator. At present, the markets for fish, wild meat, the wildlife trade, small-scale mining, and commercial crops such as peanuts provide the principal opportunity for cash income. All of these activities put pressure on the biodiversity of the Kanukus and at the same time threaten the ability of the resource base to sustain a growing population that is moving away from traditional resource management.

While knowledge of traditional ways of accessing resources is on the decline among the younger population it is very much alive in the middle and older generations. This research has documented extensive information about resource use, however there is work to be done to study and preserve the traditional customs that will contribute to sound resource management in the context of a protected area.

Communication and capacity are critical issues in the participation of Indigenous people in the protected area process. The levels of English fluency and literacy present in the villages and the lack of understanding of concepts such as protection and conservation together contribute to misunderstanding and mistrust between the people in the communities and the agencies and NGO's who should all be working together to make these land and resource management decisions. The lack of effective means of mass communication leaves the isolated villager susceptible to manipulation by organizations that promote fear and uncertainty to advance their agendas.

This research project provides baseline data on the Kanuku Mountain area resource use patterns. There are numerous and significant opportunities for further research. Additional research on the extent of dependence on the resource base for non-subsistence needs is needed to determine what levels of commercial use of the fish and wildlife population are sustainable. Research on sustainable economic opportunities, both within a protected area, and in the region as a whole, is needed to encourage development without depletion of the resource base. In depth research on the structure of decision making in the villages and the roles of the family in resource use would contribute to the understanding of the social dynamics of resource management.

Perhaps the most pressing research needed is in areas that contribute to the preservation and understanding of the traditional skills, knowledge, and language of the Indigenous people who depend on the resources of the Kanuku Mountains. The Macushi, Wapishana and scientific names for all of the species in the master resource list, the uses of medicinal plants, historical resource use patterns, archeological sites, and the oral

traditions are research opportunities critical to the preservation of diversity of the region. These are areas where time is of the essence so that knowledge is not lost with the passing of the older generations. The need for this type of research must also be realized by the Indigenous people themselves, and local capacity must be built so they will take the lead in preserving and protecting the cultural and biological heritage of the Kanuku Mountains.

## APPENDIX ONE

### COMBINED RESOURCE LISTS

The following lists are a compilation of the resource lists created in all the communities during the CREs during the CREs. The CI team members who are from the communities worked with their own knowledge and advise from other community members to include a brief description of how each of these resources is used. Where possible, names in the local languages are included. The resources are listed as they were recorded in the communities, using local names and the most common spellings. Some scientific names are included in the descriptions when know by the compilers. However, this is list id not intended to be a scientific reference. Further work to add all Macushi and Wapishana names, as well as the scientific names would be a valuable project for future research.

<b>FARMING COMBINED RESOURCE LIST</b>	
<b>Provisions</b>	
Bananas	Muca species planted for sale. Several species of bananas are planted, such as Apple Bananas, Cocorite Bananas, Sour Fig Banana, Cayenne – grows well in loamy soils.
Barley	Perennial plant bears on panicles. Used as a porridge and chicken feed, grows well in sandy and loamy soils.
Cassava-bitter & sweet	Staple of the Rupununi population. Varying species of bitter and sweet grows well in almost all soils types.
Dasheen	Ground provision. The largest of the eddoes species, grows well in swampy soils.
Eddoes	Ground provision. Varying species grow well in swampy areas.
Eddoes – Turtle Heel Eddoes	Ground provision. A species of eddoo that looks like a turtle heel, and grows well in loamy/swampy areas.
Eddoes - Water Eddoes	Ground provision. A large species of eddoes thrives well under severe moist soils conditions.
Eddoes -Haimara Eddoes	Ground provision. A type of eddo that grows well in swampy areas.
Plantain	Provision. A large species of banana. Grows well in sandy/loamy soils.
Potatoes	Ground provision with white, purple and orange colours, grows well in sandy/loamy areas.
Tania	Ground provision. A small species of eddoes. Grows mostly in loamy/swampy areas.
Yams - Anteater Yams	A species of yam that resembles the shoulder blade of an anteater, planted mostly in the southern communities-grows well in sandy soils.

Yams - Bell Yam – AKA Chupoi	A small species of yams, usually two types - purple and white. Grows well in sandy/loamy soils.
Yams - Bush Hog Balls Yams	Small round species of yam, planted mostly in the Deep South Communities. Grows well in sandy/loamy soils.
Yams - Camoudi Yams	A type of yam that is shaped in the form of a crushed snake grows well in sandy soil.
Yams - Eel Yams	A type of yam that is shaped like an eel. Penetrates very deep into the soil, grows well in sandy soils.
Yams - Marudi Yams	A round type of yam, two species, purple and white.
<b>Gourds</b>	
Calabash	Gourd used as utensils and as water containers, planted mostly in yards.
Cucumbers	Used for salads. Planted mostly in kitchen gardens.
Musk melon	A gourd eaten fresh or used to make beverage, grows well in sandy areas.
Pumpkins	Fruit used similar to squash, grows well in sandy soils especially in new farms.
Squash	Vegetable gourd grows well under any soil condition.
Watermelon	A gourd eaten fresh or used to make beverage, grows well in sandy areas.
<b>Poison-Cultivated</b>	
Aiya	A plant with fine leaves, the roots used for fish poison, grows under any soil condition.
Jack Beans	Large beans used for acoushi ants poison. Bears on vine, ground beans applied to ants nests.
Jealous Man Poison	Fish poison, when in contact with skin causes pox-like rash, grows almost anywhere.
Neem plant	Used against the acoushi ant, as repellent other insects and malaria. Grows almost anywhere.
<b>Fruits</b>	
Anato Crayabe (m) Powizi (w)	Spiny, red fruit used as colouring for food, costumes and grater gums. Also used for safe guarding individuals from evil. Planted mostly around homes.
Cashew	Fruit used for its juice and nuts. Planted mostly in savannahs.
Cherry	A small red fruit planted mostly near homes.

Citrus	Used for their juices. (Oranges, grape fruit, tangerine, etc.) Can be grown almost anywhere, but prefer cooler climate.
Cocoa	Planted up the mountain for its pulps. A shade crop that grows well in cool climate.
Coconut	Used for water, milk and oil. The branches are used for brooms, grows well in sandy soils.
Coffee bean	Used to make tea, grows well in cool climate.
Custard Apple	A fruit resembling the sugar apple with smoother skin. Planted mostly near homes.
Dunks	Bears on thorny tree, grows anywhere. Eaten fresh.
Fat Pork	Skin pink in colour with white flesh. Planted almost near homes.
French cashew AKA Avocado	Bears on a tree, grows mostly in sandy soils, also in clay and loam. Tolerates floods.
Ginep	Round green fruit, bears in a bunch. Grows almost anywhere.
Guava	Oval shaped fruit, two species, red and white, can be used to make jam/jelly or eaten fresh. Grows well in the mountain foot.
Jamoon	Black fruit with purple flesh. (Eaten ripe, use as a curative when young or green, makes a great wine)
Mango	Fruit. Various species such as spice mango, table mango, rose mango, kilo mango etc. Grows well in red loamy soils.
Papaw	Yellow fruit-bears on plant with hollow trunk. A tasty fruit
Pear	Fruit high in energy.
Pineapple (Pine)	Fruit bears on stem from base of very thorny plant
Psyidium	Cherry. A small fruit, eaten, planted in yards.
Sour sop	Spiny fruit grown for its pulp, also used as beverage, prefers cooler climates.
Sugar Apple	Bears on a woody small tree; soft sweet juicy fruit with plenty seeds. Grows in all soil types.
Tamarind	Legume- does well in sandy soils, bears on trees in pods
Whitey	Legume- pulp used when ripe, bears on large trees in pods.

### Craft Material

Beads	Grey in colour, used for costume. Grows on corn like stalks. Grows in swampy areas.
Crawa, Carawa	Craft materials. Spun for bowstring, ropes and warishee straps. Grows mostly in sandy soils.
Cotton	Spun to make hammocks, baby slings, arrow strings and other cotton costumes. Grows almost anywhere.
<b>Vegetable</b>	
Beans (Feijao).	When green, used as a vegetable-dry used as, peas. Grows well in sandy areas.
Black eye peas	Planted mainly for sale. Prefers sandy soils.
Bora	The long bean, used as a vegetable when green. Planted mostly in kitchen gardens.
Boulangier (Egg Plant)	Planted mostly in kitchen gardens.
Breadnut	Spiny fruit used as a vegetable, when ripe, seeds are boiled for their nut. Tree resembles the breadfruit plant- planted near homes.
Cabbage	Leafy vegetable used for salads and stew. Planted mostly in kitchen gardens.
Calaloo	Calaloo. Leafy vegetable used for salads and stew. Planted mostly in kitchen gardens.
Carrot	Root crop used in salads. Planted mostly in kitchen gardens.
Corilla	Spiny vegetable, planted mostly in kitchen gardens.
Corn	Various species used as food, such as popcorn, comaran, mazikimen etc. Prefers loamy/sandy soils.
Lettuce	Used to make salad, grown in kitchen gardens.
Mashish (wild cucumber)	Small spiny fruit grows on a vine, size of an egg. Grows anywhere especially in old cow pens.
Ninwah	Used as a vegetable when green, when dry use to scrub your skin. Grows in sandy soils.
Ochra	Vegetable, grown mostly in kitchen gardens.
Pigeon peas	When green used as a vegetable, when dry used as peas. Grown mostly in kitchen gardens.
Pock coy	Leafy vegetable, grown in kitchen gardens.
Tomatoes	A berry/ fruit can be eaten raw or cooked, grown in kitchen gardens.
<b>Seasoning</b>	
Broad and fine leaf thyme	Grown in kitchen gardens.

Bulb shallot	Grown in kitchen gardens.
Celery	Grown in kitchen gardens.
Chicken Thyme	Thyme-Grown in home gardens.
Garlic	Seasoning. Grown in kitchen gardens.
Hot & Sweet Peppers	Seasoning. Several species. Used to make pepper pot and dried to make “chikitai,” which is ground pepper-very hot. Planted in gardens-also farms.
Onions	Planted in kitchen gardens by some communities.
<b>Cane</b>	
Arrow Cane	Small cane species, used to make arrow. Used for hunting and fishing (Weapon.) Grows in sandy and clay soils.
Cane	Sugar cane. Several species such as donkey cane, yarrow cane and cassie cane. Grown in swampy areas.
<b>Beverage</b>	
Bishawad (Cassava leaves)	Leaves are used for parakari powder. (Cari mumma). Dried, crushed and sprinkled on the local drink parakari, during the preparation process.
Five finger (carambola)	Fruit use to make beverage, jams and preserves. Grown in gardens and yards.
Ginger	A rhizome (underground root-like stem) used for beverage, ginger beer. Grown in sandy soils.
Lemon grass (fever grass)	Leaves are boiled to make tea. Grown in the yard.
<b>Passion fruit</b>	<b>Used to make beverage. Round fruit bears on vine. Planted near homes, prefers sandy soils.</b>
Sorrel	Used to make beverage. Prefers sandy soils.
Sourie (bilimbi)	Used to make beverage and achar, planted in sandy soils.
<b>Others</b>	
Broom (bird seed)	Perennial plant bears on panicles. Used as chicken feed, grows in sandy soil.
Cattle	Animals reared for their meat and hides. Reared mostly in the savannahs.
Chicken	Bird reared for their meat and egg. Reared in the yard.
Ducks	Web footed birds used for food. Reared in the yard.
Flower plant	Plants grown to beautify yard, grown in the yard.
Elephant grass	Planted for animal feed. Planted in the bush mouth areas.

Paddy	Raw material for rice. Species planted in the Rupununi, hill rice grows well in swampy areas.
Peanut	Cash crop prefers sandy and loamy soils.
Pium (leaf)	The milk from leaves is used to treat sores, grown in the yard.
Tobacco	For smoking, a perennial shrub grows well in sandy soils.

## HUNTING-COMBINED RESOURCE LIST

<b>Animals</b>	
Acouri/agouti	Brown, short tailed rodent with red rump. Found close to all farming areas and is used for food.
Adouri	A small long tail acouri like animal. Found in deep bush and is used for food. Meat very tasty.
Anteater	Small and medium – a bushy tailed animal found in both savannah and bush
Armadillo	Several species such as: bush, savannah, small, giant, long tail usually with plated body and large claws found in both savannah and bush
Baboon	A large red and gold monkey that makes roaring noises, especially at dawn, late afternoon, and during rainstorms. Lives in high forest canopy; meat is used by some communities.
Bush Cow a.k.a. Tapir	A large gray mammal looking like a donkey, found along and up the mountain. Meat used by most communities.
Bush Hogs	Bush pigs, gray short tailed animals, found in the bush. Found mostly in swampy areas and is used as meat.
Capybara/capivare, a.k.a. Watrash	Largest of all rodents. A brown short tailed rodent (the largest in the world) found around creeks, rivers banks and lakes. Meat is used.
Deer – Bush, Mountain & Savannah	A member of the goat family, brown in colour. Three species known-used for meat.
Deer tiger/Puma	A small, brown species preys on deer and other small animals. Meat is used and hide is used to make crafts such as bags
Fox	A gray dog like animal usually found in the savannahs.
Jaguars	A large species of the cat family, spotted in colour. Hunted for hide; found mostly in the mountains.
Coatimundi, aka, Kabehee, Kibehi, Quatchi, Bush Cat	A carnivorous animal with a dog like snout and long tail found in the bush and is used as food in some communities. It has reddish color with black stripes around the tail. Hide is sold to crafters.
Labba	A pig like rodent with 3 to 4 lines of white on the sides. Feeds on wild fruit and nuts. A very tasty meat used by communities.
Manbera/Ant bear	A golden fur animal that likes to dwell in palm trees.

	Found in both savannah and bush.
Mongoose	A short grayish animal that lives in the savannahs. Skin used for smoking the sick.
Monkeys	Found in the bush and is consumed by some communities. Very destructive to farm crops
Peccary	A small species of the bush hog family and is a major threat to farms. Some consume meat.
Porcupine	A spiny animal with a prehensile tail sheds spines to protect itself. Found in both savannah and bush. Meat is used.
Puma	Large cat species, found in the mountains.
Raccoon a.k.a The Crab Dog.	Small round face, with rings on the tail and stout body, gray in colour. Found along creeks and ponds
Sloth	A species that slings on limbs. Nocturnal, Herbivore (eat leaves). Found in deep bush areas
Spider monkey	One of the largest in Guyana. Black in colour with a red face. Dwells in high canopy and feeds on fruits and young leaves.
Tayra	A long bushy tailed animal found in the bush – favours the papaw fruit. Meat is not eaten
Water dogs/ River otter	A dark brown (black when wet) animal with web shaped feet. A pest to fishermen as they trouble the seines. Found in the lowland forest rivers and lakes. Meat is not eaten.
Youari	A very smelly animal, which carries its young in two pouches. Preys on chicken and lives mostly in the bush. Meat is eaten by some people.
<b>Birds</b>	
Anaqua	A brown bird, found along creeks and ponds close by to the bush mouth areas. Meat is used.
Bastards	A tiny brown cage bird, found in the bush
Bell bird	A white forest bird that is not eaten.
Blue Sackie	Blue-gray to silvery blue in colour. Feeds on ripe fruits and insects.
Carao/Craw/Crane/Heron	A bird found in and around ponds and lakes, rivers and creeks. Feeds on snails and is eaten by some people.
Cock of the Rock	A bird found in the mountains, with very beautiful plumage, nests in the rocks. Meat is not eaten.
Couri cock	A black bird with white-breast, and long black pointed beak. It is found in the savannah. Meat is eaten.

Dove	Grayish- Brown to dull brown, ground dweller/feeder. Found in the savannah and is eaten.
Ducks	Aquatic (water) dwelling, web-footed bird. Meat is used.
Gray Crane	A species of the heron found along ponds, creeks, rivers, swamps- feeds on fish and is a very tasty meat.
Harpy Eagle Kokoi (w) Quano (m)	The world's largest bird of prey. Builds nest in silk cotton tree.
Hawk	Various species of birds of prey.
Humming Bird	A small bird with long pointed beak-lives on nectar.
Kiskadee	Yellow chest, with black plumage on the back and head with a white stripe along the head above the eyes. Feeds on insects and is eaten.
Maam	A game bird found in the bush, brown in colour and used as food.
Macaw	A large bird, blue and yellow, found in mountains, Cage bird. Feeds on fruit; meat is eaten.
Marudi	A forest bird used for food
Masarik	A gray bird, member of the spur-wing family. Found in the savannah and is eaten.
Ng-a-coup/Jabiru	A big white bird with black and red neck frequents lakes and ponds. Feeds on fish and is eaten.
Parakeet	
Parrots (all species)	Several species-feeds on fruits and nuts. Found in the savannah and bush. Meat is eaten
Pigeon	Short, stout, gray bird, a ground feeder. Flesh edible.
Powis	A big black bird with a muff of feathers on the head, yellow beak and white belly, found in deep bush and up the mountain.
Quail	A darkish grey, stout, bird with short pointed beak. Ground feeder.
Robin	The bright red on the chest and black head and back, give it the name. Found in the savannah and is eaten.
Sparrow	A small brownish- grey bird, feeds mainly on seeds. Found in the savannah and is eaten.
Spoon bill	A bird with its beak shaped like a spoon. (Duck family). Not used for meat.
Spur Wing	A light brown and black bird with yellow spurs under

	the wings, mostly found along the ponds, swamps and creeks. Meat is used.
Tawa-Tawa	A black bird with a white beak, found in the old farms, a cage bird.
Tiger birds	A large bird with a brown plumage and white stripes/spots. Used for food.
Toucans	A very beautifully coloured bird with large beak which is use to crack seeds. Several species-used for meat.
Troupial	A forest bird that is not eaten.
Trumpet bird/Waracabra	A gray bird with a bop (very short tail). Used for food, forest species. Frequent in forest margins and is used for food.
Twa-Twa	Small brown bird usually caught for income, cage bird. Found in savannah and swampy areas.
Whissy Duck	Member of the duck family and dwells in the savannah and river areas. Is used for meat.
<b>Reptiles</b>	
Alligator	Spectacle caiman found in creeks and ponds. Smaller in size than the black caiman and is brown in colour. Meat is used.
Bush Master	The most deadly viper found in the Kanuku Mountains, the deep bush. Killed sometimes for their skin. The males have spurs on their tail like a stingray.
Iguana and eggs	Green in colour and is eaten.
Salipenter (bush motorbike)	A large lizard with black and transverse yellow on the back. Is used for meat.
Toum Toum	A dark grey lizard species used as bait and found close to rivers and creeks.
<b>Amphibians</b>	
Turtles-land and water turtles and eggs	Both the meet and eggs are used as food, shell as ornament
Mata-Mata	A rough shelled turtle smells very funny, found in the river
Mountain chicken/ frog	This species are used for food. Dwells up the mountains.
Petra turtle	Small water turtle. Found in the bush. Meat is sweet.
<b>Other</b>	
Bat	A mammal found in the bush and savannah

Caterpillars	In the pupa stage worms feeds on leaves. Worm retreats to base of tree as temperature rises. Gathered when fat-eaten by some.
Spider	Various species that are caught for sale. Found in the deep bush.
Cocrite/Eta worms/ Tocuma	Usually used for food. Pupa of a black beetle. Lives in fallen, decaying palm trees, full of oil. Can be eaten raw or cooked.

## FISHING COMBINED RESOURCE LIST

### Skin Fish - Large

Banana Fish & eggs	A red tail catfish, with black dorsal and yellow stripes along the body usually caught with hook, found at the bottom of deep rivers, creeks and lakes.
Cat Fish	Skin fishes with long whiskers found in big rivers. <i>Pimelodidae</i> family
Cuma Cuma	Catfish species.
Dawala / Dawalu	Broad mouth, flat head, high water fish. Soft boned skin fish found in the rivers and deep ponds, very tasty.
Imiri a.k.a. Boots fish	Black skin fish caught at night during rainy season. In the dry season they are found in rock holes in the river.
Lau – lau, a.k.a. Pashishi / Passhee/ Filutch	One of the largest skin fish and lives in deep water.
Pacamoo	Largest kind of catfish.
Tiger fish a.k.a. kulet	A large member of the catfish family, distinct from the others, by its black and white stripes and spots, across the fish's body.

### Skin Fish - Small

Balloon fish	Small fish with white belly, black back and yellow stripes at the sides. When disturbed puff up round like a balloon. Found in the rivers normally at the surface.
Cassie	A small species of the catfish. Found mostly in creeks
Eel - Mud Eel or Congo Eel	A round snake like fish that loves muddy surroundings.
Larima (Mangie)	A small species of the catfish. Found mostly in rivers and lakes.
Logo Logo	Black bony scale fish shaped like a cutlass mostly found in lakes drying in the savannah.
Wax Fish	A small species of the Imiri, with wax like substance on the skin. Found in small creeks up the mountains.
Yramchi /White cassie	A species of the cat fish family and can be found in rivers.

### Scale Fish - Large

Arapaima	The largest sweet water scale fish in the world. Found in deep pools and large ponds. It is an air breathing fish
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Arawana	Large scaled fish, long and flat and is usually caught using bow and arrows, and hook and lines. Found in rivers and ponds.
Basha	A white scale fish with two white stones found inside the head. Common in rivers and the big ponds.
Biara	A large, scale fish, silvery in colour with two long pointed teeth in lower jaw. Lives mainly around falls and rapids but can be found also in rivers and big ponds.
Biara cutlass	A fine long biara family that lives mainly around falls and rapids.
Butter Fish / Cuti	Silver scaled fish, with black tail. Found mainly in rivers and creeks.
Cutlass Fish/ Logo-Logo	This fish is shaped like a cutlass, fine scaled and very bony. The largest species of the logo logo. Can be found in creeks and big ponds.
Deer Lukunani	Fish of the <i>Cichlid</i> family very common-has spots like that of a young deer. Found in rivers and deep pools.
Electric eel	A member of the eel family which has the ability to generate electrical impulses / shocks while in water.
Flounder	A flat rounded fish looks like a stingray, with the exception of the sting.
Haimara & Eggs	Resembles the houri, but very large, found in deep waters. A voracious feeder, it attacks with its sharp teeth.
Kartaback	Small packoo species. A kind of perai and is spotted with red dots.
Lukunani a.k.a. Peacock bass	<i>Cichlid</i> family. A spotted scale fish found in rivers, ponds and lakes known as the peacock bass, very popular for sport fishing.
<b>Scale Fish-Small</b>	
Arasna	A silvery skin fish.
Bat Fish	A small, scale fish resembling the biara.
Button fish / Katarin	A shiny scale fish found in rivers and ponds.
Dari	Fine, long, black-spotted scale fish found mostly in creeks
Dog fish	It is not the shape of the fish that lends the name, but the teeth. A silvery scale fish with a red tail-found in the creeks in the bush.
Drunken fish (Thro thro)/Patwa	This species likes being on top of the subsurface layer of the water. A small patwa found in creeks and ponds.

Fine fish	A small-scale silvery fish, found in creeks and at creek heads.
Football sock fish	A Darrie species with dark stripes.
Fox fish or dog fish	Resembles the swordfish, with a shorter mouth and plenty teeth. Mostly found in the savannahs, creeks and ponds.
Houri	Characid that lives and reproduces in lakes and creeks. A round, long, scale fish with sharp teeth. Carnivorous / meat eater. Found in creeks and ponds.
Katarin	Small, diamond shaped packoo, silvery in colour. (50 cents). See button fish.
Mountain Fish / Yarrow	A green headed yarrow that is found mostly in the creeks up the mountains.
Needle fish	A fine silvery scale fish, shaped like a needle. Normally seen on the water surface of creeks and rivers.
Patwa	A roundish, flat, tasty scale fish that is black spotted. Found in small creeks and ponds.
Pencil fish	Resembles a pencil and feeds at the water surface. Found mostly in small creeks.
Perai	A round, flat, silvery scale fish. Very vicious. Found in rivers and ponds.
Perai daughter-in- law	The bottom jaw is longer than that of perai. Found in rivers and ponds.
Plastic mouth fish	A species of patwa whose mouth has an extended mouth. Found in creeks and ponds.
Red-eye Sun fish / Crabbie	A round, flattish scaled fish with red eyes and belly. Found mostly in the creeks in the savannahs. See Sunfish.
Sardine fish	A delicious, silver scaled fish. Found mostly in creeks and ponds in shoals.
Shaunari	Sunfish family, but bigger. A scaled, spotted fish. Found in savannah creeks.
Shedau	A scaled yellow perai
Sou - Sou	A silvery small-scaled fish mostly found in ponds.
Spindle fish	A patwa species found in lakes and creeks located mostly in the savannahs.
Sun Fish	A scale fish, round to flatish, long, with a distinct dark line along the midsection and spots on the tail. Found mostly in creeks.
Timan	A darrie species found in rocky creek heads in the bush.

Wa-bre	A round, flat, silvery scale fish found mostly in rivers and ponds. Colours vary with species.
Yakatu	A hard scale fish with a round mouth. (Sand soccer). Found mostly in creeks and rivers.
Yarrow	Resembles' the Houri, with a stout head, a dark line along the midsection from head to tail, and slippery or slimy. Found mostly in creeks and ponds.
<b>Other</b>	
Alligator and eggs	Used by most communities around the Kanukus.
Bagree	Member of the catfish family. A line of zipping on both sides. Found in rivers.
Boddo /smoke fish / Cashimbo	An armored catfish that can be found in rivers and big ponds.
Caiman	Hunted mostly for the teeth and pelt. A dark species of the crocodile.
Cashimbo (The smoke hassar)	An armored member of the catfish family. Found mostly at the bottom of rivers. The are nocturnal
Crabs	Crustacean, found in creeks, ponds, etc. Love to live under rocks and in crevices. Used for food. There are several species.
Flat head hassar	One of the hassar family and can be found mostly in creeks and ponds.
Hassar	This fish is very different from the others, instead of cartilaginous scale; it is covered with bone/ shells over lapping each other (armored). Found mostly in creeks and ponds.
Jaruparie (m) a.k.a Stingray	Stingray. A round flat disk like fish with a long tail, sharp barb like a stinger (bone), which is used for protection. Found mostly in the sandy areas in rivers, creeks and ponds.
Kamarang (shrimps)	A sweet water shrimp found mostly under rocks in sandy areas of rivers and creeks.
Kayo-Kayo	Round mouth fish (the mud sucker). The biggest species armored along the sides like a zipper lining the sides. Found in rivers and creeks.
Manica Fish	A small, hard shell that stings very nastily (aquarium fish). Found mostly in creeks and rivers.
Parva	See Zip Fish
Plicotomas (Aquarium fish)	Mostly found in rivers and creeks.
Snails (Crekete)	A special species of snail used for food in some of the communities.

## GATHERING-COMBINED RESOURCE LIST

### Artifacts

Artifacts	Old tools or vessels that were used by people in past times. Such items include stone axes, arrowheads and pottery, which were found from the bush mouth through to the mountain foot in ancient dwelling places.
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### Craft Materials

Axe handles (Yarola wood)	A fluted tree found in the deep bush and up the mountain. ( <i>Aspidosperma</i> species). Axe handles are made from the flanges of the tree.
Bamboo	Large grass like herb found in dense forest, along rivers or creek banks used for craft. Instruments are made from the hollow stems and are used for cultural events.
Beads	Seeds from tree fruits bearing in pods. (Jumbie bead – used for cultural decoration). Found in the deep bush.
Bones	Parts of skeleton from animals used for arrow point. Use specific dried animal bones of special species caught during hunting.
Bow wood	The heart of certain species of trees found in the bush – mountain. Used to make bows.
Caramani Mai ti king (m) Minn (w)	The gum is used in the making of arrows and graters. Resin from the caramani tree ( <i>Synconia</i> species). Found in the mountain and deep bush.
Acquero a. k .a Awarra	A large palm tree covered in black spikes. Shoot from this palm is used for the production of handicraft, hats, fans and trays.
Feathers	Used from certain bird species such as the macaws, toucan, powis, maam for headdress and arrow and handicraft,
Torara	Found in the deep forest, mountain. Used for arrow & grater paste, the tree is bled and the milk is collected and allowed to harden, used same as caramani.
Kato war	Milk from this tree is used with milk and gum from other trees for bird trapping, found in deep bush – mountain foot.
Kaziman (gum)	Milk from tree used as a paste especially for graters. Found in deep bush – up the mountain.
Kupa (Aman-ye)	Arial root from a hemi-epiphyte plant that grows in the tree top, use for chair frame, found up the mountain.
Leopard Wood a.k.a. Letterwood or Lipperwood	The heart of this tree with leopard strip designs used mostly for the making of bows. The three known species are; the uniformly spotted, randomly spotted and the plain one, found in the deep bush-up the mountain.
Mamouri / Liana	A hemi-epiphyte with woody climbing aerial root. Big species of nibbi use for making. warishi. and baskets: found mostly up the

	mountain.
Mara tree	The heart of this tree is also used for making of bows and firewood, found mostly in bush islands.
Muckru	Marantaceae plant whose cane like stalk is stripped and used for making crafts such as baskets and backpacks known as warishi. Found in the cooler bush areas up the mountain.
Nibbi	Hemi-epiphyte with strong aerial roots extending to the ground. Species of liana used for producing handicraft such as chairs, hats baskets. Found up the mountain.
Pottery Clay	Found mostly in the savannah and creek banks. Used to make fired vessels for cooking, storing water.
Punah seed (Beads)	Seeds obtained from a tree resembling the Congo-pump, used for the making of chains, necklace, bracelets, and purse, found in the bush.
Straw / Bizi- bizi	Cyprus species (grass) use for saddle packing. Found in the swamps, lakes and savannah.
Tibisiri	Craft material striped from the young ete shoots, used for the production of baskets, mats, and hammock and rope, found in swampy areas.
Turtleladder	Woody twirling climber used for handicraft, found in the bush.
Uyabe (m) Camawar (w)	Spinney vine used for making matepee, sifter, and warishi. Found along the bush mouth in swampy areas.
Wax	Produced by the honeybees used as a paste and to mix with caramani. Found in the savannah-up the mountain.
Yari-Yari (fish rod)	A very flexible type of wattle used for fishing rods. Found in the deep bush and up the mountain.
Zanaimad (straps)/ Mahu	Tree bark of a peeler-wood used for warishi strap. Found in the deep bush-up the mountains.
Balata tree, a.k.a. Bullet wood (bark, gum, wood, fruits)	Trees found in the deep bush, tapped to obtain milk, which is processed to produce a rubber like latex used for making crafts and vessels. A hard wood used for building materials and bears edible fruits.
<b>Food</b>	
Cocorite worms	Pupa of a beetle that grows in the cocorite seed used as food, local cosmetics (for smooth face, rub on). Also used as fish bait. Found in the bush.
Dear Calaloo	Vegetable-wild species of calaloo used as vegetable, found in the newly burnt farms.
Ete worms	Local prawns, larvae found in fallen palm trunks, which are left for approximately two-month period, found mostly in new farms.
Manicole Heart	The heart extracted from this palm used as cabbage. Found in the bush mostly in swampy areas.

Morai morai	(Wild eddoe) Used during severe food shortage found along bush mouth, mostly in low areas.
Mushroom	An umbrella shape fungus used as food found in savannah bush mouth areas.
Sacoom /Skumay	A rhizome used during severe food shortage, found in savannah bush mouth areas.
<b>Fruits</b>	
Achidam	Edible, yellow berry found deep in the bush.
Awarindo (Yuuroa)	Wild fruit usually eaten, bears on small, spiny palm, found in the deep bush, usually in swampy areas.
Ba wao	A red forest fruit, a small species of cashragu.
Bird cherries (Cranau)	A small orange coloured fruit, from a tree that grows in low areas or flooded lands, also edible.
Birri	A short palm that bears yellow fruit, use for making drink or beverages, found in low areas in the bush.
Brazilian nuts a.k.a Wall nut Embaimi (m) Minau (w)	Seeds from a big rounded pod-found in the dense forest in deep bush, bears on huge trees (drupe), also marketed.
Cashragu	Round yellow fruit-found in the mountain foot with hard pericarp (skin) with jelly around seeds that is edible.
Ete fruits	Red scaly fruit of the Mauritia palm. The yellow mesocarp is eaten The fruits are used to make drinks.
Genie pop	Green fruit used for dye, eaten when ripe. Bears on trees, found in savannah and bush island. <i>Rubiaceaea</i> family
Kazarzowao, a.k.a Macaw head	Fruit also known as the macaw head-edible, found in the deep bush.
Kpawi	Edible fruit found in the mountain
Kumar	A fruit tree- bears nuts, used for oil, found the deep bush
Lama Cherry	Small fruit-bears in bunches on medium size trees. Used as a paste-found in savannah and bush island.
Locust	Woody pod, edible fruit, bears on huge tree, found generally in the bush.
Lou	Bears on a tall palm found deep bush-up the mountain, fruits used for beverages.
Merishii fruit	Small yellow fruit, bears on shrub, fruit eaten and beverage may be made, found mostly in the savannah
Mountain pepper	Small, round, red, wild pepper use as domestic pepper. Found almost any part in the bush.
Omriaz	Tiny fruit / berry-sweet when ripe. Found in the bush island.

Pear	See farming list.
Pidma Fruit	Fruit found in deep bush.
Pine (Pineapple)	See farming list.
Plum	<i>Spondias mombin</i> . Yellow juicy fruit bears on big tree, resembles the golden apple. Makes delicious drinks. Found in low areas.
Poo (bush pear)	Fruit bears on big tree, found in deep bush.
Priko	A small species of guava, mostly found in the savannah
Quarma(m)- big Turo (Ochuro(w))	Bears on tall palm trees, makes nutritious drink. Found in the deep bush - up the mountain.
Sedium	See farming.
Shoruk	A wild jamoon, bears on tree found in deep bush and in bush island. Very good building material.
Suckle Berry	
Sweet cassava tree fruit	See farming list
Tarie	Owl eye berry-tree is good house material and firewood. Found along creeks bush island bush mouth.
Turo	Fruit used for beverage
Turtle Cherry	A yellow fruit found in the mountain, bears on small trees
Wall nut (Brazilian nut)	Found in the deep bush
Wawash	Fruit found in the bush especially on low land.
Wi duck fruit aka monkey syrup	Yellow juicy fruit found in the bush.
Wichabai and fruits	Bears on trees found in the savannah.
Wild Cashew	Found in the forest-used by both human and animals. Bears on huge trees.
Wild corilla	Ban corilla, used for food and medicine. Found in old farms.
Wild genie pap	A round gray fruit, used to paint craft, found along river and ponds.

Wild ginip	A fruit found at the mountain foot and up the mountain.
Wild Passion Fruit	Fruit bears on vine found in the savannah.
Wild pine (Pineapple)	A pine species found along creeks and bush islands.
Wild sour sop	Sour sop species found in the bush.
Yellow fruit (Yoroung)	Found in the bush-very sweet.
<b>House Materials</b>	
Acouti-ye tree	Skin of a tree used for tying cocorite leaves for house roof. Found in the deep bush.
Adobe Bricks	Made for house walls-ordinary bricks used for walling (unfired) material found around the community.
Biscuit wood	House material- found in the bush.
Bush rope	Certain type of vine used for strapping. Found in the deep bush.
Cackrally	Material for house and bridges. Found in the deep bush.
Canazib rafter	House material, found in bush.
Cedar (Water cedar and bitter cedar)	Housing material found in the bush and along the river.
Chawood (aruwa)	Leaves used as roofing found in the deep bush. Seeds and fruit are used as food.
Clay	For fired pottery and bricks-found in the savannah and creek heads.
Coloured clay	For making ornaments.
Cocoa balli	Logging Material. Found in the deep bush.
Cocorite	Leaves for roofing and fruits for food found in deep bush.
Comiti (leaves) a.k.a.Dalibana,Dalli	Housing material for roofing, found in the deep bush.
Contar balli	Logging, building material, found in the deep bush.
Couti tree	Lumbering, building material, found in the deep bush.
Ete balli	Building material, found in the deep bush.

Frazer Wood	For house materials and fencing materials. Found in the deep bush.
Green heart	Very hard and bitter wood use for construction. Found in the deep bush.
Kwadruya	Material that is easily split, used for fence post and houses, found in the bush mostly in swampy areas.
Leaves	All leaves used for roofing, mostly palm, found in the savannah and bush.
Boat tree	Special species use to make dugouts such as Pito.
Manicole (Kapa-shang-ye)	Palm use as reapers (laths) for roofing, especially when using ete leaves. Found in the bush in swampy areas.
Mora tree Purple Heart Sand Mora	Huge hard wood used mostly for building bridges, found in the deep bush.
Post wood	Specific tree species used for house post, found in bush mouth and deep bush one such is the Savannah green heart.
Rafter wood	Specific species used for house materials such as rap-rap, blood wood, red heart, canarib. Found in the bush mouth and deep bush.
Savannah hitcha (Parikarian) / Match (w)	Tree species found in the savannah use for fence post, firewood and for St. John's Day celebration bonfire.
Shingle wood	Wooden material use for roofing extracted from species such as the water cedar and walaba.
Tauba	Species use as post found in hilly areas.
Timber	All species use for logging such as the red and green heart, purple heart, cedar, silverballi, young girl bobby. Found in the deep bush.
Turo leaves	Used to trash farm camps, found in the deep bush.
Walaba	Hard wood tree, found in the deep bush
Wild Guava	A species of very hard wood used as house material found in the deep bush.
Woba Bally	Building material found in the deep bush.
Worm wood	House material, found in the bush
Yellow heart (Tkarrri-ye) m	Used as logging material, also for posts, found in the deep bush.

<b>Medicines</b>	
Adipe (m) – toothache	Cow foot bush found in the bush the root of this plant is used for curing toothache.
Amuku	Fruit found in the jungle, brown, use like whitey.
Asha madi a.k.a. Maipaima	Spice bark, used for tea found in the bush.
Bitter Tree a.k.a. Synconia	Medicine, house materials.
Blood wood tree	Medicine– sores, the bark and sap are mostly used.
Bush garlic leaf	Used for the curing of bush yaze ( <i>leishmaniasis</i> ) and colds. Found in bush, savannah and creek edges.
Caiambay bush	Medicinal herb, sand paper tree, root use to cure cuts, bark to cure arthritis. Found in the open savannahs.
Capadula	Vine used to make tea for back pain. Water from the vine also use for drinking, found in the deep bush.
Capybara dung	Used to treat stingray sting, smash the dung in a cup and drink, found along river edges, creeks and ponds.
Congo Pump	Medicine, leaves used as tea, the stem is use to make flute, for cultural events, mostly found in old farms.
Crab oil	Made from the seed of the crab wood plant found in the deep bush in the cooler areas.
Equa	Glass wood bark used for the treatment of sores, found in the mountain foot areas.
Eucalyptus tree	Used as a repellent, found in the swampy areas at the mountain foot in cool areas.
Fox ear plant	Medicinal plant, found in the savannah.
Granny Backbone	Vine (back pains), used as a tea. Found in the deep bush
Greenheart seed (cota)	Medicinal values. Found in the deep bush.
Guava shoot	Medicine for belly work, running diarrhoea. Found in the savannah.
Hiowa / Moru-ye-ku	Incense. A gum secreted from the tree used for chasing evil, found in the deep bush.
Locust gum	Secretion from the tree used as a cure for stomach pain, also used as candle, found in the bush.

Maraniab (scabies)	The oil is extracted from the Maran tree; used to cure Scabies, found in the deep bush.
Medicinal herbs	All species used as curative. Found most every were.
Mirishi bark	Bark taken off from a shrub used to cure diarrhoea, found in the savannah
Mirishi tree	Diarrhoea
Moco- Moco	A species of shrub used for cuts, stingray sting, sores and raft for transport. Found in ponds, creeks and rivers.
Orari - malaria	Extract from a vine used, in combination with other extracts to make poison for arrow tips
Papaw leaves	Used as tea to cure malaria, found in farms
Papaw root	Same as the leaves.
Poraib	The milk is extracted and is used as a local remedy for acoushi ants, found in deep bush.
Sweet heart	Medicinal plant, used for diabetes found in old farms and savannah.
Wamokmada (w) (snakebite) Amok-ye (m)	The bark of this tree is used to cure snakebite, found in deep bush.
Wax tree (incense) Spi ye gu (w)	See incense
Wild Caiambay (ringworms)	This is a vine, resembling the caiambay, used to cure ringworm and is found in the bush and savannahs.
Wild Garlic	Medicine for cold, and found in the bush
Wild mango bark	Used for medicine, found in the savannah and bush mouth
<b>Poisons</b>	
Conani	See farming
Curare	Extract from a vine used in combination with other extracts to make poison for arrow tips.
Hiarie a. k. a. Aishara	Fishing poison, found in the forest, mountains
Jackass Balls	Poison for fish found in the bush in low areas.
Katabauro / Pyshi	Fish poison found in the mountain
Poison / Sheikana	Plant found in the bush used as a poison.

Tipuri King	Fish poison, planted in the farm
Wild Christmas tree	A fish poison, found in the savannah
<b>Minerals</b>	
Amethyst a.k.a. Purple Rock	Semi-precious found in mountain areas
Diamond	Mineral, precious stone found in the mountain.
Gold	Precious mineral, used for ornaments. Found in the mountain and creek head.
Grater stone	Use to make grater teeth found in the mountain and high hills in the savannah.
<b>Others</b>	
Caterpillar tree	A special tree on which the caterpillars like to eat before being eaten. Found in the bush mouth and deep bush.
Coals	Species of wood used as coals – mirishsi, coupiada, counterwine wood. Found in the savannah and deep bush. Used for fire when roasting meat
Rubber tree (Sheringo) Ship Ship	Sap collected from tree used for making rubber balls. Found in the mountains.
Silk cotton	Tree species used for making dugouts
Ton Ping Kumaroo	A fruit used in the tobacco preparation. Found in the deep bush.
White wood Wii –wii-zik (w)	Used for firewood. Coral rails, found alongside riverbanks and up the mountains.
Wild banana leaves	Used to set parakari, broad leaves from the plant are used as bedding for parakari preparation found along bush mouth.
Wild papaw	Tree used to incubate tucuma larva found in the bush.

## APPENDIX TWO

### GEO-REFERENCED POINTS DATA RECORD LIST

The table below shows the list data records recorded at sites observed and geo-referenced during the CRE field observation trips. The readings were taken with Global Positioning System (GPS) units. Heavy clouds or tree cover can make it difficult to get a perfect reading, so all geo-reference readings should be considered approximate with accuracy generally within 25 meters. This is part of the information recorded by the participant team members while observing resource use sites. The site names are spelled in the table, as the team recorded them, so there is sometimes more than one spelling for the same site. The records are sorted by village and then by use zone within each village. The information shown is a partial listing of available data. The full database includes from 30-36 data field for each category. The following information is listed in the tables:

- **Site Type**-this allows what type of resource use happens at this site. Some areas are multiple use sites, that is, more than one type of resource is used, so this type of site is listed for each resource use checked on the data form
  - **Farming**
  - **Hunting**
  - **Fishing**
  - **Gathering**
- **Village** – Location of site.

HW = Hoiwa	KB = Kaicumbay	KT = Katoka
KM = Kumu	MM = Moco Moco	MN = Maruranau
NP = Nappi	PK = Parikwarinawa	PS = Parishara
QR = Quarrie	RP = Rupunau	SC = Sand Creek
SH = Shulinab	SN = Shea	ST = St. Ignatius
YP = Yupukari		
- **Degrees North** – the North or latitudinal reading. This number is shown in “decimal degrees”, or how many degrees North of the Equator (0°) the site is located.
- **Degrees West** – the West or longitudinal reading. This number is given in “decimal degrees” showing how many degrees west of the Prime Meridian (0°) the site is located
- **Area Name** – the name of the site as recorded by the teams on the data form. When the site had no specific name this line is left blank.
- **Use Zone** – the “zone” or geographic location of the site. At times one site name applies to several zones, as a creek may flow from a site “Up the Mountain” all the way out into the savannah.
  - **Savannah**
  - **Bush mouth**
  - **Bush**
  - **Mountain Foot**
  - **Up the Mountain**

Combined Farming Resource Site Data Records					
Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Farming	HW	3.36254	59.59541	Upper Cruwa	Bush
Farming	HW	3.36903	59.58205	Silibru Ya-ma-yri	Bush
Farming	HW	3.36631	59.57862	Silibru Ya'ma-yri	Bush
Farming	HW	3.36535	59.57432	Silibru Ya'ma-yri	Bush
Farming	HW	3.36903	59.58205	Silibru Ya-Mayri	Bush
Farming	HW	3.36903	59.58205	Silibru Ya-Ma-Yri	Bush
Farming	HW	3.36631	59.57862	Silibru-ya-ma-yri	Bush
Farming	HW	3.36631	59.57862	Silibru-ya-ma-yri	Bush
Farming	HW	3.38108	59.5866	Tim-a-na-da	Bush Mouth
Farming	HW	3.35605	59.5959	Cru- Wa- Da	Mountain Foot
Farming	HW	3.36631	59.57862	Silibru Ya Ma-Yri	Mountain Foot
Farming	HW	3.36469	59.56875	Silibru	Mountain Foot
Farming	HW	3.36469	59.56875	Silibru	Mountain Foot
Farming	HW	3.36254	59.59541	Upper Cruwa	Up the Mountain
Farming	HW	3.35608	59.5959	Mak Uti	Up the Mountain
Farming	HW	3.35504	59.59677	Makuti	Up the Mountain
Farming	HW	3.33479	59.57713	Crawa Da	Up the Mountain
Farming	HW	3.35593	59.59503	Makuti	Up the Mountain
Farming	KB	3.51343	59.43846		Bush
Farming	KB	3.52241	59.43709	Rock Head	Bush
Farming	KB	3.50793	59.43747		Bush
Farming	KB	3.50925	59.43686		Bush
Farming	KB	3.51011	59.45682		Bush
Farming	KB	3.51039	59.43702		Bush
Farming	KB	3.51125	59.4573		Bush
Farming	KB	3.50282	59.38324	Mora point	Bush
Farming	KB	3.50984	59.37362	Marasawatta	Bush
Farming	KB	3.50913	59.37465	Marasawatta	Bush
Farming	KB	3.50781	59.37649	Marasawatta	Bush
Farming	KB	3.51093	59.37093	Marasawatta	Bush
Farming	KB	3.50025	59.44548	Cocorite Point	Bush
Farming	KB	3.50131	59.44635	Cocorite Point	Bush
Farming	KB	3.468	59.43142	Burrewatta Creek	Bush
Farming	KB	3.45453	59.43741	Burrewatta Creek	Bush
Farming	KB	3.4539	59.43902	Burrewatta Creek	Bush
Farming	KB	3.45395	59.4412	Burratta Creek	Bush
Farming	KB	3.44131	59.4352	Tapir Creek Head	Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Farming	KB	3.44006	59.43375	Tapir Creek Head	Bush
Farming	KB	3.43814	59.43466	Tapir Creek Head	Bush
Farming	KB	3.48294	59.37511	Sand Bank	Bush
Farming	KB	3.49217	59.36971	Mangoose Hill	Bush
Farming	KB	3.49271	59.35936	Mangoose Hill	Bush
Farming	KB	3.46083	59.35495	Quata Hill	Bush
Farming	KB	3.4766	59.36208	Cock Hill	Bush
Farming	KB	3.48099	59.3713	Sand Bank	Bush
Farming	KB	3.48057	59.37432	Sand Bank	Bush
Farming	KB	3.48067	59.37469		Bush
Farming	KB	3.48067	59.37553	Sand Bank	Bush
Farming	KB	3.48054	59.37605	Sand Bank	Bush
Farming	KB	3.48023	59.37796	Sand Bank	Bush
Farming	KB	3.50327	59.43887	Cocorite Point	Bush
Farming	KB	3.4806	59.37396	Sand Bank	Bush
Farming	KB	3.48148	59.37044	Sand Bank	Bush
Farming	KB	3.47574	59.36148	Tapir Hill	Bush
Farming	KB	3.42417	59.44003	Pairawaca	Bush
Farming	KB	3.41965	59.44077	Pairawaca	Bush
Farming	KB	3.44104	59.43691	Pairawaca	Bush
Farming	KB	3.48965	59.43626	Cocorite Point	Bush Mouth
Farming	KB	3.48772	59.42794	Walde Ma Hill	Bush Mouth
Farming	KB	3.48042	59.37625	Sand Bank	Bush Mouth
Farming	KB	3.50095	59.42332		Mountain Foot
Farming	KB	3.4972	59.42585	Agouti Mountain	Mountain Foot
Farming	KB	3.48778	59.42799	Coricab	Savannah
Farming	KM	3.28316	59.69453	Matapi Creek	Bush
Farming	KM	3.28353	59.69564	Matapi Creek	Bush
Farming	KM	3.26322	59.7265	Manicole Creek	Bush
Farming	KM	3.26977	59.72348	Kumu Head	Bush
Farming	KM	3.26537	59.73173	Warmanie Creek	Bush
Farming	KM	3.26296	59.72904	Warmanie Creek	Bush
Farming	KM	3.26952	59.72878	Kumu Creek	Bush
Farming	KM	3.2634	59.73017	Warmanie Creek	Bush
Farming	KM	3.26386	59.73939	Hiarie Creek	Bush
Farming	KM	3.26964	59.74603		Bush
Farming	KM	3.27105	59.74436		Bush
Farming	KM	3.26945	59.73994		Bush
Farming	KM	3.26905	59.74936		Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Farming	KM	3.26606	59.74964		Bush
Farming	KM	3.2655	59.75098		Bush
Farming	KM	3.27144	59.75167		Bush
Farming	KM	3.2711	59.7538		Bush
Farming	KM	3.27621	59.73288		Bush Mouth
Farming	KM	3.27869	59.75231		Bush Mouth
Farming	KM	3.27939	59.745		Bush Mouth
Farming	KM	3.28254	59.74671	Warmanie Creek	Bush Mouth
Farming	KM	3.29532	59.70778	Matapi Creek	Bush Mouth
Farming	KM	3.26362	59.74149	Goold Creek	Mountain Foot
Farming	KT	3.44181	59.15839	Yarrow Creek	Bush
Farming	KT	3.554459	59.22317	Yarrow Creek	Bush
Farming	KT	3.54454	59.22314	Yarrow Creek Banana Bush	Bush
Farming	KT	3.54454	59.22319	Yarrow Creek	Bush
Farming	KT	3.52298	59.16772	Yarrow Creek	Bush
Farming	KT	3.54453	59.22314	Yarrou Creek	Bush
Farming	MM	3.345683	59.621767		Bush Mouth
Farming	MM	3.332366	59.648466	Camiriri Kri	Bush Mouth
Farming	MM	3.332916	59.643966	Kumaka	Bush Mouth
Farming	MM	3.333633	59.646816		Bush Mouth
Farming	MM	3.33064	59.6739	Luta Water Area	Mountain Foot
Farming	MM	3.29872	59.6686	Luta Water Area	Mountain Foot
Farming	MM	3.332716	59.64055		Mountain Foot
Farming	MM	3.325566	59.6391	Congoeel Creek	Mountain Foot
Farming	MM	3.32685	59.6355	Congoeel Creek	Mountain Foot
Farming	MM	3.3248	59.6437		Mountain Foot
Farming	MM	3.315866	59.651933	Moco Moco Settlement	Mountain Foot
Farming	MM	3.319733	59.646466	Crab Hill	Mountain Foot
Farming	MM	3.31755	59.648	Crab Hill	Mountain Foot
Farming	MM	3.30528	59.63898	Marasha Sping	Mountain Foot
Farming	MM	3.30478	59.63096	Frog Creek	Up the Mountain
Farming	MN	2.715733	59.119583		Bush
Farming	MN	2.721717	59.125667		Bush
Farming	MN	2.715067	59.119183	Deer Creek	Bush
Farming	MN	2.719117	59.120017	Shilimpo Boak	Bush
Farming	MN	2.666673	59.094	Aamaazu Wao Head	Bush
Farming	MN	2.689567	59.0795	Pedaunii Bau	Bush
Farming	MN	2.72045	59.123833		Bush
Farming	MN	2.666733	59.094	Pidaunii wau	Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Farming	MN	2.690917	59.128433		Bush
Farming	MN	2.78255	59.0304	Machiwizi Creek	Bush
Farming	MN	2.846016	58.964033	Over Kwitaro River Farm	Bush
Farming	MN	2.698183	59.138283	Chaokoo Tun Dana	Bush Mouth
Farming	MN	2.690883	59.12845	Wizau Wao Head	Bush Mouth
Farming	MN	2.70495	59.1394	Bush Mouth	Bush Mouth
Farming	MN	2.71875	59.12225	Ishii Wa'o	Bush Mouth
Farming	MN	2.698267	59.010183	Hog Mountain	Up the Mountain
Farming	NP	3.39196	59.53486	Gravel Morukada Hill	Bush
Farming	NP	3.39715	59.53623	Gravel Low Land	Bush
Farming	NP	3.39551	59.54147	Low Land	Bush
Farming	NP	3.39264	59.5468		Bush
Farming	NP	3.37984	59.54672	Kumara Hill	Bush
Farming	NP	3.3761	59.51231	Sandy Hill Foot	Bush
Farming	NP	3.38566	59.53091	Brown Mud Turtle Hill	Bush
Farming	NP	3.36455	59.5629		Bush
Farming	NP	3.37088	59.56667	Loamy Shi Re Bru Creek	Bush
Farming	NP	3.37569	59.56186	Upper M Creek	Bush
Farming	NP	3.37749	59.57438		Bush
Farming	NP	3.36879	59.50552	Maipaima Creek	Bush
Farming	NP	3.37158	59.55362	Murukqua	Bush
Farming	NP	3.36591	59.55513		Bush
Farming	NP	3.36692	59.55625		Bush
Farming	NP	3.37527	59.55332	Murukqua	Bush
Farming	NP	3.3695	59.55236	Sandy Murukqua	Bush
Farming	NP	3.37039	59.54175	Manicole Creek	Bush
Farming	NP	3.36494	59.53027	Crash Water Area	Bush
Farming	NP	3.3902	59.54395	Nappi Creek	Bush Mouth
Farming	NP	3.39091	59.56071	Bush Mouth	Bush Mouth
Farming	NP	3.38382	59.56445	Sandy B	Bush Mouth
Farming	NP	3.38359	59.56557	Sandy	Bush Mouth
Farming	NP	3.37898	59.57368		Bush Mouth
Farming	NP	3.38043	59.57925		Bush Mouth
Farming	NP	3.38483	59.56657	Bush Mouth	Bush Mouth
Farming	NP	3.35377	59.56465	Nappi Head Creek	Mountain Foot
Farming	NP	3.36072	59.55616	Human Skull Pool, Nappi Creek	Mountain Foot
Farming	NP	3.36247	59.50445	Sandy, Peggasse	Mountain Foot
Farming	NP	3.36329	59.50557	Sandy Maipaima	Mountain Foot

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Farming	NP	3.3668	59.54877	Arina Pa Ru Creek	Mountain Foot
Farming	NP	3.36136	59.53445	Crash Water Head	Mountain Foot
Farming	NP	3.36769	59.52774	Ete Settlement	Mountain Foot
Farming	NP	3.383	59.56503	Nappi Head	Mountain Foot
Farming	NP	3.36716	59.49978	Chicma	
Farming	PK	3.11654	59.88732	Kaputwau	Bush
Farming	PK	3.11622	59.86794	Kaputwau Creek	Bush
Farming	PK	3.126666	59.85888	Majo Mountain	Bush
Farming	PK	3.12393	59.83403	Red Wood Mountain	Bush
Farming	PK	3.12668	59.86217	Majo Mountain	Bush
Farming	PK	3.12746	59.86053	Sawariwau Creek	Bush
Farming	PK	3.12762	59.86073	Sawariwau Creek	Bush Mouth
Farming	PK	3.13148	59.86091	Sawariwau Creek	Bush Mouth
Farming	PK	3.13117	59.85744	Sawariwau	Bush Mouth
Farming	PK	3.11466	59.86547	Kaputwau Top	Bush Mouth
Farming	PK	3.11396	59.87065	Kapatwau	Bush Mouth
Farming	PK	3.13188	59.86695	Sawariwau Mouth	Bush Mouth
Farming	PK	3.13143	59.86474	Sawariwau Mouth	Bush Mouth
Farming	PK	3.11956	59.86204	Kaputwau	Bush Mouth
Farming	PK	3.13107	59.8729	Sawariwau Creek	Bush Mouth
Farming	PK	3.12636	59.87764	Sawariwau	Bush Mouth
Farming	PK	3.12811	59.87842	Kaputwau Creek	Bush Mouth
Farming	PK	3.12405	59.88098	Top Kaputwau	Bush Mouth
Farming	PK	3.12165	59.8825	Top Kaputwau	Bush Mouth
Farming	PK	3.11735	59.88547	Kaputwau	Bush Mouth
Farming	PK	3.12815	59.87801	Sawariwau	Bush Mouth
Farming	PK	3.1385	59.85972	Sawariwau	Bush Mouth
Farming	PK	3.12359	59.85471	Sawariwau Creek	Bush Mouth
Farming	PK	3.11598	59.8647	Kaputwau	Bush Mouth
Farming	PK	3.12248	59.8772	Sawariwau	Bush Mouth
Farming	PK	3.13295	59.84252	Sawariwau	Mountain Foot
Farming	PK	3.12982	59.84048	Sawariwau	Mountain Foot
Farming	PK	3.13014	59.82001	Turtle Mountain	Mountain Foot
Farming	PK	3.1155	59.82476	New Progress Farm	Mountain Foot
Farming	PK	3.11991	59.87411	Kaputpau	Mountain Foot
Farming	PK	3.12298	59.83935	Flavian Mountain	Mountain Foot
Farming	PK	3.15407	59.84489	Majo Mountain	Mountain Foot
Farming	PK	3.16877	59.80377	White Rock Mountains Foot	Mountain Foot
Farming	PS	3.4055	59.52235	Huri Creek (Maipaima)	Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Farming	PS	3.39086	59.51204	Maipaima	Bush
Farming	PS	3.41855	59.5212	Balata Creek	Bush
Farming	PS	3.41089	59.52135	Huri Hill	Bush
Farming	PS	3.40765	59.52183	Huri Hill	Bush
Farming	PS	3.38683	59.51367	Maipaima Creek	Bush
Farming	PS	3.44089	59.437		Bush
Farming	PS	3.47816	59.42487	Brian	Bush
Farming	PS	3.46208	59.43159	Old Farming Area	Bush
Farming	PS	3.44764	59.43698	Alexis Farming Area	Bush
Farming	PS	3.45577	59.43415	Justino Farming Area	Bush
Farming	PS	3.48398	59.4276	Cocrite Point	Bush Mouth
Farming	PS	3.36678	59.49906	Shikmi Falls	Mountain Foot
Farming	PS	3.3601	59.50774	Maipaima Falls	Mountain Foot
Farming	PS	3.46533	59.55659	Nappi Bridge	Savannah
Farming	QR	3.20351	59.81505	Alligator Creek	Bush
Farming	QR	3.20752	59.80907	Kanaima Creek	Bush
Farming	QR	3.20753	59.80732	Kanaima Creek	Bush
Farming	QR	3.20693	59.79596	Kanaima Creek	Bush Mouth
Farming	QR	3.20687	59.80107	Kanaima Creek	Bush Mouth
Farming	QR	3.20233	59.78743	Thunder Creek Farm	Mountain Foot
Farming	RP	3.00044	59.32929	Omez Bau	Bush
Farming	RP	2.99522	59.33511	Ma-Pa-Rar	Bush
Farming	RP	3.01955	59.332	Ma-wer-bau	Bush
Farming	RP	3.02168	59.33431	Ma-wer-bau	Bush
Farming	RP	3.02288	59.33451	Ma-wer-bau	Bush
Farming	RP	3.02125	59.33463	Ma-Wer-Bau	Bush
Farming	RP	3.02099	59.33478	Ma-Wer-Bau	Bush
Farming	RP	2.94186	59.32572	Music Island	Bush
Farming	RP	2.94005	59.32792	Music Island	Bush
Farming	RP	2.96255	59.33829	Buru Bau	Bush
Farming	RP	2.9511	59.34036	Buru Bau	Bush
Farming	RP	2.9634	59.33081	Farm Mountain	Bush
Farming	RP	2.95123	59.32384	Ma-Kur-Pan	Bush
Farming	RP	2.94989	59.32407	Ma-Kur-Pan	Bush
Farming	RP	2.94722	59.32731	Ma-Kur-Pan	Bush
Farming	RP	2.9456	59.32808	Ma-Kur-Pan	Bush
Farming	RP	2.95612	59.32896	Buru-Bau	Bush
Farming	RP	2.9647	59.33081	Farm Mountain	Bush
Farming	RP	2.96591	59.32947	Farm Mountain	Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Farming	RP	2.96403	59.32885	Farm Mountain	Bush
Farming	RP	2.94276	59.32585	music Island	Bush
Farming	RP	2.96282	59.32813	Farm Mountain	Bush
Farming	RP	2.94607	59.34066	Buru Bau	Bush
Farming	RP	2.95431	59.34615	Buru Bau	Bush
Farming	RP	2.95878	59.33226	Farm Mountain	Bush
Farming	RP	2.95373	59.3235	Ma-Kur-Pan	Bush
Farming	RP	2.94491	59.41516	Kwa-Ma-Toon	Bush Mouth
Farming	RP	2.9095	59.43402	O-Lu-Y Tau	Bush Mouth
Farming	RP	2.93878	59.30477	Ma-B-Wau	Bush Mouth
Farming	RP	2.94559	59.33272	Ma-Kur-Pan	Bush Mouth
Farming	RP	2.93463	59.32426	Music Island	Bush Mouth
Farming	RP	2.93732	59.32191	Music Island	Bush Mouth
Farming	RP	2.94173	59.33109	Music Island	Bush Mouth
Farming	RP	2.93513	59.31912	Ma-B-Wau Tau	Bush Mouth
Farming	RP	2.93485	59.32139	Music Island	Bush Mouth
Farming	RP	2.93713	59.30666	Ma-B-Wau	Bush Mouth
Farming	RP	2.93646	59.31773	Ma-B-Wau Tau	Bush Mouth
Farming	RP	2.93601	59.31756	Ma-B-Wau	Bush Mouth
Farming	RP	2.93501	59.31757	Ma-B-Wau Tau	Bush Mouth
Farming	RP	2.9354	59.30515	Ma-B-Wau	Bush Mouth
Farming	RP	2.93816	59.30496	Ma-B-Wau	Bush Mouth
Farming	RP	2.87372	59.28741	We-we Tau	Mountain Foot
Farming	RP	2.88406	59.27959	Brain Mountain	Mountain Foot
Farming	RP	2.88704	59.28888	Arrow Mountain	Mountain Foot
Farming	RP	2.9283	59.3053	Nat Tau	Savannah
Farming	RP	2.93275	59.31131	Ma-B-Wau Tau	
Farming	SC	3.10748	59.44099	Kwa-Pud	Bush
Farming	SC	3.20128	59.40312	Cokerite Creek	Mountain Foot
Farming	SC	3.20887	59.4043	Cokerite Creek	Mountain Foot
Farming	SC	3.19661	59.39005	Kumarau	Mountain Foot
Farming	SC	3.19428	59.39218	Kumarau	Mountain Foot
Farming	SC	3.19449	59.39257	Kumarau	Mountain Foot
Farming	SC	3.19556	59.39352	Kumarau	Mountain Foot
Farming	SC	3.19729	59.39357	Kamarau	Up the Mountain
Farming	SC	3.17539	59.3967	Manar Wau	Up the Mountain
Farming	SC	3.17993	59.39721	Crab Wood Mountain	Up the Mountain
Farming	SC	3.1812	59.39488	Crab Wood Mountain	Up the Mountain
Farming	SH	3.05713	59.63114	Shaa Creek	Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Farming	SH	3.16184	59.7116	Calabash Creek Joined to ArrowCreek	Bush
Farming	SH	3.17563	59.73742	Arrow Creek Camp	Bush
Farming	SH	3.17526	59.73769	Rudolph Adams Farming Ground	Bush
Farming	SH	3.16406	59.72309	Calabash Creek Mouth	Bush
Farming	SH	3.09972	59.63524	Shulinab	Bush
Farming	SH	3.12115	59.67743	Saurab	Bush
Farming	SH	3.12321	59.67635	Saurab	Bush
Farming	SH	3.120777	59.67815	Saurib	Bush
Farming	SH	3.11993	59.67941	Saurab	Bush
Farming	SH	3.05235	59.6361	Twin Creek	Bush Mouth
Farming	SH	3.09005	59.57098	Bamboo Creek	Up the Mountain
Farming	SH	3.22162	59.61695	Between Saurab and Coranau Creeks	Up the Mountain
Farming	SH	3.2277	59.61146	Crawa Area	Up the Mountain
Farming	SH	3.21844	59.61893	Saurab Creek	Up the Mountain
Farming	SH	3.22	59.62	Top Saurab Creek	Up the Mountain
Farming	SH	3.23699	59.60706	Caterpillar Mountain Foot	Up the Mountain
Farming	SH	3.22707	59.62453	Top Saurab Creek	Up the Mountain
Farming	SH	3.22721	59.62407	Saurb Creek	Up the Mountain
Farming	SH	3.22576	59.61354	Saurab Creek	Up the Mountain
Farming	SH	3.22576	59.61354	Top Saurab Creek	Up the Mountain
Farming	SH	3.22158	59.61741	Top Ssaurab Creek	Up the Mountain
Farming	SH	3.22656	59.6275	Top Saurab Creek	Up the Mountain
Farming	SN	2.92312	59.07076	I-Werz-Wao	Bush
Farming	SN	2.92604	59.06722	I-Werz-Wao	Bush
Farming	SN	2.91337	59.09956	Katunar	Bush
Farming	SN	3.06703	58.88689	Matada Bauko	Bush
Farming	ST	3.2655	59.73171	Jawarie Fall	Mountain Foot
Farming	ST	3.26505	59.72326	Kumu Falls	Mountain Foot
Farming	ST	3.26512	59.72329	Kumu Falls	Up the Mountain
Farming	YK	3.38467	59.31314	Hiarie Farm Grounds	Bush
Farming	YK	3.38539	59.3143	Hiarie Farm Grounds	Bush
Farming	YK	3.46514	59.35179	Quata Farm Area	Bush
Farming	YK	3.40641	59.31559		Bush
Farming	YK	3.39635	59.30759	Hiari Landing	Bush
Farming	YK	3.47741	59.35243	Quata Pond Landing	Bush
Farming	YK	3.50516	59.33325	Arrua Creek Mouth	Bush
Farming	YK	3.40095	59.3111	Salipenta Landing	Bush
Farming	YK	3.40908	59.32059	Salipenta Hill	Mountain Foot

### Combined Hunting Resource Site Data Records

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Hunting	HW	3.36254	59.59541	Upper Cruwa	Bush
Hunting	HW	3.37061	59.60579	Cruwa	Bush Mouth
Hunting	HW	3.35078	59.59557	Cruwa Falls	Mountain Foot
Hunting	HW	3.3415	59.56	Silibru Creek	Mountain Foot
Hunting	HW	3.32625	59.6051	Kumaka Creek	Up the Mountain
Hunting	HW	3.31046	59.58292	Manicole Mountains	Up the Mountain
Hunting	HW	3.31127	59.58279	Labaria Creek	Up the Mountain
Hunting	HW	3.33936	59.58384	Cow Bird Creek	Up the Mountain
Hunting	HW	3.34381	59.58844	Cruwa Mountain	Up the Mountain
Hunting	HW	3.32565	59.60204		Up the Mountain
Hunting	KB	3.42585	59.37208	Karlieoti Creek	Bush
Hunting	KB	3.42585	59.37208	Tapir Creek	Bush
Hunting	KB	3.50678	59.37744	Marasawatta	Bush
Hunting	KB	3.51614	59.43887		Bush
Hunting	KB	3.46246	59.3525	Quata Pond	Bush
Hunting	KB	3.41163	59.34881	Marapa Creek	Bush
Hunting	KB	3.51777	59.4388	Rock Creek End	Bush
Hunting	KB	3.46594	59.41132	Bruwiatta Bush Mouth	Bush Mouth
Hunting	KB	3.4905	59.40347		Bush Mouth
Hunting	KB	3.46075	59.35396	Chapuli Bru Falls	Mountain Foot
Hunting	KB	3.38144	59.37389	Hiarie Creek	Mountain Foot
Hunting	KB	3.41531	59.44238	Pairawaca Area	Mountain Foot
Hunting	KB	3.50344	59.43395	Cocorite Point	Savannah
Hunting	KB	3.46594	59.41131	Bruwaitta	Savannah
Hunting	KB	3.48094	59.42804	Burrowetta	Savannah
Hunting	KM	3.26216	59.72727	Manicole Creek	Bush
Hunting	KM	3.29919	59.67866		Bush Mouth
Hunting	KM	3.29159	59.69055		Bush Mouth
Hunting	KM	3.27847	59.75319	Itchy Pond Hill	Bush Mouth
Hunting	KM	3.23162	59.68146	Lillia Creek	Up the Mountain
Hunting	KM	3.21025	59.70058	Arrow Creek Camp	Up the Mountain
Hunting	KM	3.23683	59.70188	Eara Creek	Up the Mountain
Hunting	KM	3.24413	59.66857	Alligator Camp	Up the Mountain
Hunting	KM	3.2331	59.67488	Adorie Camp	Up the Mountain
Hunting	KM	3.23186	59.68151	Copa Camp	Up the Mountain
Hunting	KM	3.26581	59.73484	Cedar Creek	
Hunting	KT	3.42094	59.1545	Simoni Creek	Bush
Hunting	KT	3.43526	59.15791	Simoni Creek	Bush
Hunting	KT	3.44189	59.15271	Simoni Creek	Bush
Hunting	KT	3.44172	59.15821	Along Simoni Creek	Bush
Hunting	KT	3.52806	59.16776	Black Water Pond	Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Hunting	KT	3.52307	59.16776	Black Water Pond	Bush
Hunting	KT	3.52285	59.16763	Simoni Creek/Black Water Pond	Bush
Hunting	KT	3.44181	59.15839	Simoni Creek	Bush
Hunting	KT	3.53536	59.17468	Hunt Oil Line #25	Bush
Hunting	KT	3.53124	59.17722	Black Water Creek	Bush
Hunting	KT	3.53132	59.17729	Black Water Creek	Bush
Hunting	KT	3.53	59.14	Calabash Creek	Bush
Hunting	KT	3.43771	59.157	Bamboo Creek	Mountain Foot
Hunting	KT	3.40851	59.15807	Bambo Mountain	Up the Mountain
Hunting	MM	3.343	59.61485		Bush Mouth
Hunting	MM	3.30528	59.63898	Marasha Sping	Mountain Foot
Hunting	MM	3.30882	59.62315	Drugon Mountain	Mountain Foot
Hunting	MM	3.30436	59.57831	Saddle Mountain Creek	Up the Mountain
Hunting	MM	3.30478	59.63096	Frog Creek	Up the Mountain
Hunting	MM	3.326566	59.615483	Kumaka Creek Head	Up the Mountain
Hunting	MM	3.32555	59.62275	Kumaka Creek Head	Up the Mountain
Hunting	MM	3.32645	59.619016	Kumaka Creek Head	Up the Mountain
Hunting	MM	3.325033	59.63025	Kumaka Creek Head	Up the Mountain
Hunting	MM	3.326216	59.6328	Kumaka Creek Head	Up the Mountain
Hunting	MM	3.32765	59.612383	Kumaka Head Waters	Up the Mountain
Hunting	MM	3.30581	59.61151	Gold Creek	Up the Mountain
Hunting	MM	3.30226	59.60029	Pare Creek	Up the Mountain
Hunting	MM	3.27098	59.65418	Manicole Hill Top	Up the Mountain
Hunting	MM	3.30172	59.57356	White Horse Mountain	Up the Mountain
Hunting	MN	3.03825	59.12243	Maam Creek (midway Bush Mouth and Mountain Foot)	Bush
Hunting	MN	2.69165	59.073983	Hiara Creek	Bush
Hunting	MN	2.69165	59.073983		Bush
Hunting	MN	2.6992	59.0146	Hiari Creek	Bush
Hunting	MN	2.6915	59.073983	Foregone Creek	Bush
Hunting	MN	2.846016	58.964033	Kwitiro Area	Bush
Hunting	MN	2.782583	59.009133	Machiwizi Creek	Bush
Hunting	MN	3.041667	59.121083		Bush Mouth
Hunting	MN	2.914817	59.123333		Bush Mouth
Hunting	MN	3.038183	59.12255		Bush Mouth
Hunting	MN	2.99675	59.131067		Bush Mouth
Hunting	MN	3.116117	59.0972	Kara'pudo Creek	Mountain Foot
Hunting	MN	3.03825	59.122483	Stanly O'Connell's Balata Camp Site	Mountain Foot
Hunting	MN	3.113233	59.098833	Aruwa	Mountain Foot
Hunting	MN	3.032466	59.12275	Savannah	Savannah
Hunting	MN	3.0264	59.123883	Savannah	Savannah
Hunting	MN	3.019983	59.125133	Savannah	Savannah

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Hunting	MN	3.016867	59.12435	Savannah	Savannah
Hunting	MN	3.0025	59.127467	Savannah	Savannah
Hunting	MN	2.99405	59.13025	Savannah	Savannah
Hunting	MN	2.997933	59.1298	Savannah	Savannah
Hunting	MN	2.99055	59.132133	Savannah	Savannah
Hunting	MN	2.9868	59.131817	Savannah	Savannah
Hunting	MN	2.95025	59.147717	Cocorite Island, Pokoridi Tun	Swamp
Hunting	MN	3.036733	59.122367	Savannah	Swamp
Hunting	MN	2.9805	59.133333	Creek	Swamp
Hunting	MN	2.958983	59.142467		Swamp
Hunting	MN	2.962367	59.141033	Creek	Swamp
Hunting	MN	2.94695	59.149167	Cocorite Island, Pokoridi Tun	Swamp
Hunting	MN	2.98226	59.02945		Up the Mountain
Hunting	MN	2.698583	59.01085	Bush Hog Mountain	Up the Mountain
Hunting	MN	3.150617	59.11295	Two Head Mountain Top	Up the Mountain
Hunting	MN	2.698267	59.010183	Hog Mountain	Up the Mountain
Hunting	MN	2.69165	59.073983	Bush Hog Creek	Up the Mountain
Hunting	MN	3.14645	59.115717	Top of Two Head Mountain Top	Up the Mountain
Hunting	MN	3.01757	59.02489		Up the Mountain
Hunting	NP	3.39167	59.39124	Piab Flat	Bush
Hunting	NP	3.3743	59.50877	Maipaima Flat	Bush
Hunting	NP	3.36769	59.52774	Granny Creek	Bush
Hunting	NP	3.38483	59.56657	Bush Mouth	Bush Mouth
Hunting	NP	3.36326	59.50225	Maipaima/Shiquima	Mountain Foot
Hunting	NP	3.38635	59.39699	Bamboo Flat	Mountain Foot
Hunting	NP	3.383	59.56503	Nappi Head	Mountain Foot
Hunting	NP	3.36193	59.47878	Shiquima Head	Up the Mountain
Hunting	NP	3.34584	59.56949	Nappi Head	Up the Mountain
Hunting	NP	3.33593	59.58301	Capuchin Bird Creek	Up the Mountain
Hunting	NP	3.32157	59.57384	Mercy Mines Company	Up the Mountain
Hunting	NP	3.32103	59.57286	Tapir Mines Creek Head	Up the Mountain
Hunting	NP	3.29	59.55	Behind Nappi Mountains	Up the Mountain
Hunting	NP	3.35815	59.56325	Nappi Falls	Up the Mountain
Hunting	PK	3.11654	59.86732	Kaputwau	Bush
Hunting	PK	3.11622	59.86794	Kaputwau Creek	Bush
Hunting	PK	3.12668	59.86217	Majo Mountain	Bush
Hunting	PK	3.16934	59.78447	Behind White Rock Mountains	Bush
Hunting	PK	3.16926	59.78974		Bush
Hunting	PK	3.16836	59.79396		Bush
Hunting	PK	3.16456	59.80145		Bush
Hunting	PK	3.12576	59.86527	Maparar	Bush Mouth
Hunting	PK	3.12762	59.86073	Sawariwau Creek	Bush Mouth
Hunting	PK	3.13148	59.86091	Sawariwau Creek	Bush Mouth

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Hunting	PK	3.13117	59.85744	Sawariwau	Bush Mouth
Hunting	PK	3.11466	59.86547	Kaputwau	Bush Mouth
Hunting	PK	3.11396	59.87065	Kaputwau Head	Bush Mouth
Hunting	PK	3.13188	59.86695	Sawariwau Creek	Bush Mouth
Hunting	PK	3.13143	59.86474	Sawariwau Mouth	Bush Mouth
Hunting	PK	3.11856	59.86904	Kaputwau	Bush Mouth
Hunting	PK	3.13107	59.8729	Sawariwau Creek	Bush Mouth
Hunting	PK	3.12636	59.87764	Sawariwau Creek	Bush Mouth
Hunting	PK	3.12811	59.87842	Kaputwau Creek	Bush Mouth
Hunting	PK	3.12405	59.88098	Top Kaputwau	Bush Mouth
Hunting	PK	3.12165	59.8825	Top Kaputwau	Bush Mouth
Hunting	PK	3.11735	59.88547	Kaputwau	Bush Mouth
Hunting	PK	3.16254	59.79349	Trail Entry	Bush Mouth
Hunting	PK	3.12746	59.86053	Sawariwau	Bush Mouth
Hunting	PK	3.11598	59.8647	Kaputwau	Bush Mouth
Hunting	PK	3.12248	59.8772	Sawariwau	Bush Mouth
Hunting	PK	3.13014	59.87001	Turtle Mountain	Mountain Foot
Hunting	PK	3.17589	59.81489	Mango Creek	Mountain Foot
Hunting	PK	3.18092	59.77866	Abram Wau	Mountain Foot
Hunting	PK	3.1659	59.7912	Crab Creek	Mountain Foot
Hunting	PK	3.17759	59.7801	Crab Creek	Mountain Foot
Hunting	PK	3.11991	59.87411	Kaputpau	Mountain Foot
Hunting	PK	3.16877	59.80377	White Rock Mountains Foot	Mountain Foot
Hunting	PK	3.18238	59.77699	Arrow Creek	Mountain Foot
Hunting	PK	3.1776	59.7801	Turtle Island	Up the Mountain
Hunting	PK	3.1776	59.7801	Turtle Mountain	Up the Mountain
Hunting	PK	3.19406	59.76278	Youloou Wau CK	Up the Mountain
Hunting	PK	3.18093	59.77865	Turtle Island (Savannah)	Up the Mountain
Hunting	PK	3.1911	59.78255	Mountains Peaks	Up the Mountain
Hunting	PK	3.18343	59.77615	Bumbie	Up the Mountain
Hunting	PK	3.19257	59.76134	Kodoi-wau creek	Up the Mountain
Hunting	PK	3.1904	59.76825	Kodoi-wau creek	Up the Mountain
Hunting	PK	3.19035	59.76812	Youlouwau Creek	Up the Mountain
Hunting	PS	3.43072	59.52941	Nappi Creek	Bush
Hunting	PS	3.4055	59.52235	Huri Creek (Maipaima)	Bush
Hunting	PS	3.39086	59.51204	Maipaima	Bush
Hunting	PS	3.37708	59.50564	Maipaima Swamp	Bush
Hunting	PS	3.39394	59.51678	Bambo Creek	Bush
Hunting	PS	3.37982	59.50922	Maipaima Creek	Bush
Hunting	PS	3.44089	59.437		Bush
Hunting	PS	3.47816	59.42487	Brian	Bush
Hunting	PS	3.39889	59.37908	Carimon Pond	Bush
Hunting	PS	3.39038	59.39772	Wild Banana Pool	Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Hunting	PS	3.46208	59.43159	Old Farming Area	Bush
Hunting	PS	3.44764	59.43698	Alexis Farming Area	Bush
Hunting	PS	3.45577	59.43415	Justino Farming Area	Bush
Hunting	PS	3.41938	59.42205	Clay Hill/Creek	Bush
Hunting	PS	3.44089	59.5375	Bush Cow Pond	Bush
Hunting	PS	3.42928	59.44043	Horse Creek	Bush
Hunting	PS	3.44832	59.54505	Barlova	Bush Mouth
Hunting	PS	3.48398	59.4276	Cocrite Point	Bush Mouth
Hunting	PS	3.36125	59.50816	Maipaima	Mountain Foot
Hunting	PS	3.3906	59.39792	Nappi Landing	Mountain Foot
Hunting	PS	3.33688	59.4579	Jordon Falls	Up the Mountain
Hunting	PS	3.36534	59.4892	Bank of Guyana	Up the Mountain
Hunting	PS	3.34884	59.50236	Caramani Creek	Up the Mountain
Hunting	PS	3.31082	59.50259	Wamakaru Creek	Up the Mountain
Hunting	PS	3.32	59.5	Wamakaru Creek	Up the Mountain
Hunting	PS	3.32	59.51	Kamarapa Mountain	Up the Mountain
Hunting	QR	3.20351	59.81505	Alligator Creek	Bush
Hunting	QR	3.20752	59.80907	Kanaima Creek	Bush
Hunting	QR	3.20753	59.80752	Kanaima Creek	Bush
Hunting	QR	3.20482	59.80508	Kanaima Creek	Bush Mouth
Hunting	QR	3.20693	59.79596	Kanaima Creek	Bush Mouth
Hunting	QR	3.20687	59.80107	Kanaima Creek	Bush Mouth
Hunting	QR	3.22858	59.74274	Gold Creek	Mountain Foot
Hunting	QR	3.23764	59.76824	Quarrie Creek	Mountain Foot
Hunting	QR	3.23781	59.767679	Quarrie Creek	Mountain Foot
Hunting	QR	3.20067	59.78717	Thunder Creek Head	Mountain Foot
Hunting	QR	3.20233	59.78743	Thunder Creek Farm	Mountain Foot
Hunting	QR	3.23764	59.76824	Quarrie Creek	Mountain Foot
Hunting	QR	3.22057	59.74298	Gold Creek	Up the Mountain
Hunting	QR	3.20155	59.75298	Gold Creek	Up the Mountain
Hunting	QR	3.20522	59.77471	Naja Creek	Up the Mountain
Hunting	QR	3.23567	59.76482	Quarrie Creek	Up the Mountain
Hunting	QR	3.23567	59.76482	Quarrie Creek	Up the Mountain
Hunting	QR	3.22867	59.74326	Gold Creek	Up the Mountain
Hunting	QR	3.22533	59.7447	Naja Creek	Up the Mountain
Hunting	QR	3.20245	59.75338	Naja Creek	Up the Mountain
Hunting	QR	3.19394	59.78128	Thunder Mountain (top)	Up the Mountain
Hunting	QR	3.19653	59.76451	Naja Head	Up the Mountain
Hunting	QR	3.19885	59.78736	Thunder Creek Head	Up the Mountain
Hunting	QR	3.20225	59.80293	Along Kanaima Creek	Up the Mountain
Hunting	QR	3.19937	59.80223	Along Kanaima Creek	Up the Mountain
Hunting	QR	3.19396	59.80049	Along Kanaima Creek	Up the Mountain
Hunting	QR	3.19063	59.79986	Kanaima Mountain Top	Up the Mountain

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Hunting	RP	3.03164	59.33198	Farm Hill	Bush
Hunting	RP	2.97359	59.34214	John Pop Wood	Bush Mouth
Hunting	RP	3.0316	59.33194	Ameurr Wau	Bush Mouth
Hunting	RP	3.06225	59.37932		Bush Mouth
Hunting	RP	3.04471	59.38014	Grass Hopper Creek	Bush Mouth
Hunting	RP	3.05527	59.32424	Kwassiwau Falls	Mountain Foot
Hunting	RP	3.07179	59.32517	Kwassiwau Creek Head	Mountain Foot
Hunting	RP	3.10327	59.30027	Wild Cashew Creek	Mountain Foot
Hunting	RP	3.10327	59.30027	Lobster Creek	Mountain Foot
Hunting	RP	3.11016	59.32222	Dabarri Wau	Mountain Foot
Hunting	RP	2.88603	59.29018	Arrow Mountain	Mountain Foot
Hunting	RP	3.13145	59.28688	Crab Wood Creek	Up the Mountain
Hunting	RP	3.09632	59.32876	Shrimp Creek	Up the Mountain
Hunting	RP	3.09309	59.33522	Rap Rap Wau	Up the Mountain
Hunting	RP	2.86915	59.28983	We We Tau	Up the Mountain
Hunting	RP	3.13918	59.28155	Balata Creek	Up the Mountain
Hunting	SC	3.0995	59.45422	Gun Creek	Bush
Hunting	SC	3.09715	59.45491	Kwapod Creek	Bush
Hunting	SC	3.13169	59.42126	Mapiwerwau	Bush
Hunting	SC	3.04413	59.50612	Orariwau	Bush
Hunting	SC	3.11587	59.4411	Puwau	Bush
Hunting	SC	3.35969	59.32249	Tawu Creek	Bush
Hunting	SC	3.13096	59.4216	Kwapowau	Bush
Hunting	SC	3.04821	59.48669	Maridowau	Bush
Hunting	SC	3.33362	59.25387	Mapari Creek	Bush
Hunting	SC	3.33337	59.25382	Mapari Creek	Bush
Hunting	SC	3.33776	59.24764	Mapari Creek/Macaw Creek Mouth	Bush
Hunting	SC	3.35975	59.3223	Tawau Baok	Bush
Hunting	SC	3.16003	59.33086	Anteater Creek	Bush
Hunting	SC	3.15198	59.32753	Gold Mountain	Mountain Foot
Hunting	SC	3.041816	59.48673	Turukwau	Savannah
Hunting	SC	3.06363	59.47551	Balata Creek	Savannah
Hunting	SC	3.07253	59.46734	Comackwau	Savannah
Hunting	SC	3.04988	59.486	Turukwau	Savannah
Hunting	SC	3.06619	59.47509	Balata Creek	Savannah
Hunting	SC	3.20001	59.36149	Tobacco Mountain	Up the Mountain
Hunting	SC	3.15576	59.33221	Crab Wood Creek Falls	Up the Mountain
Hunting	SH	3.16184	59.7116	Calabash Creek Joined to ArrowCreek	Bush
Hunting	SH	3.14379	59.75681	Calabash Creek	Bush
Hunting	SH	3.14379	59.75681	Arrow Creek Head	Bush
Hunting	SH	3.14379	59.75681	Calabash	Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Hunting	SH	3.16638	59.7445	Calabash Creek (mouth enters Arrow Creek)	Bush
Hunting	SH	3.17563	59.73742	Arrow Creek Camp	Bush
Hunting	SH	3.17526	59.73769	Rudolph Adams Farming Ground	Bush
Hunting	SH	3.16406	59.72309	Arrow Creek Edge	Bush
Hunting	SH	3.16184	59.72116	Dragon Falls Arrow Creek	Bush
Hunting	SH	3.16184	59.72116	Old Farm Ground	Bush
Hunting	SH	3.12732	59.67503	Marra Creek Head	Bush
Hunting	SH	3.12007	59.67931	Saurab	Bush
Hunting	SH	3.11021	59.68028	Marra Creek	Bush
Hunting	SH	3.17894	59.4072	Turtle Pool	Bush
Hunting	SH	3.06636	59.71531	Savannah	Savannah
Hunting	SH	3.13343	59.77319	Caterpillar Mountain	Savannah
Hunting	SH	3.17588	59.63171	Purple Island	Savannah
Hunting	SH	3.18514	59.62519	Warapota Island	Savannah
Hunting	SH	3.1884	59.62229	Warapota Savannah	Savannah
Hunting	SH	3.14686	59.67497	House Lake	Savannah
Hunting	SH	3.19209	59.63621	Whini Landing	Savannah
Hunting	SH	3.15205	59.67272	House Lake Savannah	Savannah
Hunting	SH	3.16007	59.65598	Saurab above Falls	Savannah
Hunting	SH	3.09629	59.69068	Shulinab	Savannah
Hunting	SH	3.13386	59.67339	House Lake Savannah	Savannah
Hunting	SH	3.07495	59.59231	Plum Mountain	Up the Mountain
Hunting	SH	3.07586	59.58876	Plum Mountain	Up the Mountain
Hunting	SH	3.1839	59.73479	Arrow Creek, Mountain Peak	Up the Mountain
Hunting	SH	3.18198	59.73575	Marudi Mountain Trail	Up the Mountain
Hunting	SH	3.14379	59.75681	Caterpillar Mountain	Up the Mountain
Hunting	SH	3.18049	59.74403	Arrow Falls Creek	Up the Mountain
Hunting	SH	3.19317	59.62396	Saurab Falls or Patwa Falls	Up the Mountain
Hunting	SH	3.21552	59.61817	Saarap Top Side	Up the Mountain
Hunting	SH	3.23706	59.60674	Catterpillar Mountain Top	Up the Mountain
Hunting	SN	2.97245	59.23535	Raprapwau	Bush
Hunting	SN	2.99359	59.22685	Kwazaruwau Foot	Bush
Hunting	SN	2.96322	59.23586		Bush
Hunting	SN	2.99536	59.19827	Widikuwau	Bush
Hunting	SN	3.00322	59.22087		Bush
Hunting	SN	2.98061	59.20371	Komoriwau	Bush
Hunting	SN	2.98679	59.20759		Bush
Hunting	SN	2.99649	59.25357	Kwazaru Creek	Bush
Hunting	SN	2.99354	59.25463	Kwazaru Creek Fall	Bush
Hunting	SN	2.96082	59.24044	Kamoriwau	Bush
Hunting	SN	2.98679	59.22758	Kwazaru	Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Hunting	SN	2.96162	59.23873	Kwazaru	Bush
Hunting	SN	2.92312	59.07076	I-Werz-Wao	Bush
Hunting	SN	2.92604	59.06722	I-Werz-Wao	Bush
Hunting	SN	2.91337	59.09956	Katunar	Bush
Hunting	SN	3.06703	58.88689	Matada Bauko	Bush
Hunting	SN	3.07863	59.11071	Old farm Ground	Bush
Hunting	SN	3.14692	58.82608	Cadeuranawao	Bush
Hunting	SN	3.19099	58.81174	Sarackdin Bauk/ Tiger Cat Pool	Bush
Hunting	SN	3.23839	58.78424	Tiger Beads / Machaishuran	Bush
Hunting	SN	3.22	58.8	Chowrian Bauk / Camoudi Pool	Bush
Hunting	SN	3.19898	58.8097	Yachin Pakarran / Malaria Cannister	Bush
Hunting	SN	3.11739	58.83669	Kib Baru Wao	BUSH
Hunting	SN	3.26758	58.77864	Podu wao / Black creek	Bush
Hunting	SN	3.10541	58.86613	Kumit ti an wao	Bush
Hunting	SN	3.0384	58.89443	Chiriki Wao Wanum	Bush
Hunting	SN	3.03336	58.89782	Miri uru	Bush
Hunting	SN	3.00091	58.89583	Kuru Kuru wao	Bush
Hunting	SN	2.98897	58.9127	Maran Bauko	Bush
Hunting	SN	2.97939	58.91492	Pukurid wao	Bush
Hunting	SN	3.08271	58.87533	Min Yawh wao	Bush
Hunting	SN	3.13723	58.83421	Ya-ka-z-ra-wao	Bush
Hunting	SN	3.12408	58.84078	Zra-nai-dik-keu	Bush
Hunting	SN	2.97675	58.91597	Powati Bauko	Bush
Hunting	SN	2.96865	58.92328	Pozrardike wao	Bush
Hunting	SN	2.95834	58.93156	Karaurupao	Bush
Hunting	SN	2.9524	58.95162	Atorin	Bush
Hunting	SN	2.94803	58.95579	Kuroid-Bauko	Bush
Hunting	SN	2.95059	58.96229	Karichi wao	Bush
Hunting	SN	2.94748	58.96899	Damapao	Bush
Hunting	SN	2.94818	58.98583	Taraipuruwao	Bush
Hunting	SN	2.9446	59.00395	Pokoridiwao	Bush
Hunting	SN	3.04122	59.12097		Bush Mouth
Hunting	SN	3.07681	59.11493		Mountain Foot
Hunting	SN	3.11672	59.0976	Balata Camp	Mountain Foot
Hunting	SN	3.12025	59.09791	Two Head Mountain Foot	Mountain Foot
Hunting	SN	3.15062	59.11295	Two Head Mountain	Mountain Foot
Hunting	SN	3.16	59.14	Caramani Mountain Foot	Mountain Foot
Hunting	SN	3.16	59.14	Caramani Mountain Foot	Mountain Foot
Hunting	SN	3.17112	58.83064	Ora-peru-wao	Mountain Foot
Hunting	SN	3.11644	59.09738	Balata Camp	Mountain Foot
Hunting	SN	2.94376	59.24458	Kanudikau	Savannah
Hunting	SN	3	59.13		Savannah

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Hunting	SN	2.95019	59.14763	Achimeri wau	Savannah
Hunting	SN	2.96847	59.13579		Savannah
Hunting	SN	2.96847	59.13579		Savannah
Hunting	SN	2.95018	59.1476	Achimeri Wau	Savannah
Hunting	SN	3.00321	59.22086	Kwazaru Tau	Up the Mountain
Hunting	SN	3.15062	59.11295	Two Head Mountain	Up the Mountain
Hunting	SN	2.97428	59.20187	Kishisabau	
Hunting	SN	3.07989	58.87976	Min Yawh Sab	
Hunting	ST	3.26402	59.71696	Matapi Creek Head	Up the Mountain
Hunting	ST	3.26484	59.72296	Kumu Falls (up)	Up the Mountain
Hunting	ST	3.2546	59.71541		Up the Mountain
Hunting	ST	3.25081	59.70731	Bread Mountain	Up the Mountain
Hunting	ST	3.24114	59.71189	Bread Mountain	Up the Mountain
Hunting	ST	3.23938	59.71114		Up the Mountain
Hunting	ST	3.25854	59.72724		Up the Mountain
Hunting	ST	3.25842	59.72646		Up the Mountain
Hunting	ST	3.22433	59.68637	Bamboo Point	Up the Mountain
Hunting	ST	3.21012	59.70061	Arrow Creek	Up the Mountain
Hunting	YK	3.40401	59.31004	Salipenter Hill	Bush
Hunting	YK	3.42048	59.31076	Kamarapa Creek Mouth	Bush
Hunting	YK	3.48232	59.34791	Balata Creek Mouth	Bush
Hunting	YK	3.50408	59.33665	Aruwa Falls	Bush
Hunting	YK	3.42061	59.31082	Kamarapa Creek Mouth	Bush
Hunting	YK	3.36003	59.32267	Towa Creek Mouth	Bush
Hunting	YK	3.39635	59.30759	Hiari Landing	Bush
Hunting	YK	3.47741	59.35243	Quata Pond Landing	Bush
Hunting	YK	3.50516	59.33325	Arrua Creek Mouth	Bush
Hunting	YK	3.40095	59.3111	Salipenta Landing	Bush
Hunting	YK	3.40896	59.35268	Crab Creek	Mountain Foot
Hunting	YK	3.41188	59.34032	Kamarapa Creek	Mountain Foot
Hunting	YK	3.41201	59.34863	Kamarapa and Piab Creek Mouth	Mountain Foot
Hunting	YK	3.36772	59.30701	Mapari River Mouth	Mountain Foot
Hunting	YK	3.35107	59.31809	Richard Clement Camp Site	Mountain Foot
Hunting	YK	3.34069	59.32896	Sets Stone Pond (Rupununi River)	Mountain Foot
Hunting	YK	3.32169	59.33621	Ants Creek (Rupununi River)	Mountain Foot
Hunting	YK	3.36539	59.30405	Rupununi River, Axe Pool	Mountain Foot
Hunting	YK	3.55689	59.32641	Katoka Creek Mouth	Savannah
Hunting	YK	3.62545	59.34267	Sho-noo-no Landing	Savannah
Hunting	YK	3.38125	59.32754	Hari Creek	Up the Mountain
Hunting	YK	3.39686	59.34473	Crab Creek	Up the Mountain
Hunting	YK	3.33348	59.2357	Caramani Mountain - Mai Ti Kinping	Up the Mountain

### Combined Fishing Resource Site Data Records

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Fishing	HW	3.36254	59.59541	Upper Cruwa	Bush
Fishing	HW	3.37061	59.60579	Cruwa	Bush Mouth
Fishing	HW	3.3415	59.566		Mountain Foot
Fishing	HW	3.36469	59.56875	Silibru Creek	Mountain Foot
Fishing	HW	3.35817	59.56328	Nappi Creek	Mountain Foot
Fishing	HW	3.35078	59.59557	Cruwa Falls	Up the Mountain
Fishing	KB	3.50573	59.40124	Tranzing Pond	Bush
Fishing	KB	3.50298	59.37842	Board Pond	Bush
Fishing	KB	3.50294	59.38427	Mora Point	Bush
Fishing	KB	3.46259	59.35237	Quata Pond	Bush
Fishing	KB	3.46246	59.3525	Quata Pond	Bush
Fishing	KB	3.41163	59.34881	Marapa Crek	Bush
Fishing	KB	3.46061	59.35383	Quata Pond	Bush
Fishing	KB	3.477	59.35273	Rupununi River	Bush
Fishing	KB	3.5008	59.37893	Board Creek	Bush
Fishing	KB	3.46594	59.41132	Bruwiatta Bush Mouth	Bush Mouth
Fishing	KB	3.49676	59.39092	Crab Pond	Bush Mouth
Fishing	KB	3.46075	59.35396	Chapuli Bru Falls	Mountain Foot
Fishing	KB	3.38144	59.37389	Hiarie Creek	Mountain Foot
Fishing	KB	3.38921	59.39765	Kamarapa	Mountain Foot
Fishing	KB	3.38023	59.39545	Kamarapa	Mountain Foot
Fishing	KB	3.36899	59.40689	Kamarapa	Mountain Foot
Fishing	KB	3.38321	59.4451	Pairawaca End	Mountain Foot
Fishing	KB	3.3831	59.44517	Pairawaca	Mountain Foot
Fishing	KB	3.46594	59.41131	Burwaitta	Savannah
Fishing	KB	3.39868	59.44404	Pairawaca	Savannah
Fishing	KB	3.49327	59.38043	Hassar Pond	Savannah
Fishing	KM	3.27678	59.73143	Kumu Creek	Bush
Fishing	KM	3.29159	59.69055		Bush Mouth
Fishing	KM	3.27405	59.75492	Itchy Pond	Bush Mouth
Fishing	KM	3.26014	59.72994	Waramanie Falls	Mountain Foot
Fishing	KM	3.26362	59.74149	Hiarrie Creek	Mountain Foot
Fishing	KT	3.52806	59.16776	Black Water Pond	Bush
Fishing	KT	3.52307	59.16776	Black Water Pond	Bush
Fishing	KT	3.52285	59.16763	Simoni Creek/Black Water Pond	Bush
Fishing	KT	3.44181	59.15839	Simoni Creek	Bush
Fishing	KT	3.53929	59.19379	Simoni Creek	Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Fishing	KT	3.4267	59.15556	Simoni Creek	Bush
Fishing	KT	3.47218	59.16132	Simoni Creek	Bush
Fishing	KT	3.44172	59.15821	Simoni Creek	Bush
Fishing	KT	3.52843	59.18016	Simoni Creek	Bush
Fishing	KT	3.53962	59.19397	Simoni Creek	Bush
Fishing	KT	3.53912	59.19376	Yarrow Creek	Bush
Fishing	KT	3.53124	59.17722	Black Water Creek	Bush
Fishing	KT	3.53132	59.17729	Black Water Creek	Bush
Fishing	MM	3.30528	59.63898	Marasha Sping	Mountain Foot
Fishing	MM	3.30882	59.62315	Drugon Mountain	Mountain Foot
Fishing	MM	3.30478	59.63096	Frog Creek	Up the Mountain
Fishing	MM	3.326216	59.6328	Kumaka Creek Head	Up the Mountain
Fishing	MN	3.03825	59.122483	Maam Creek (midway Bush Mouth and Mountain Foot)	Bush
Fishing	MN	2.689567	59.0795	Machiwii	Bush
Fishing	MN	2.681567	59.088466	Pazonan Lake	Bush
Fishing	MN	2.6668	59.094067	Waradad Mada	Bush
Fishing	MN	2.682167	59.089583	Pidaunii Baok	Bush
Fishing	MN	2.846016	58.964033	Kwitaro River	Bush
Fishing	MN	2.782583	59.009133	Machiwizi Creek	Bush
Fishing	MN	3.041667	59.121083		Bush Mouth
Fishing	MN	2.94695	59.149167	Cocorite Island, Pokoridi Tun	Bush Mouth
Fishing	MN	3.038183	59.12255		Bush Mouth
Fishing	MN	2.99675	59.131067		Bush Mouth
Fishing	MN	3.116117	59.0972	Kara'pudo Creek	Mountain Foot
Fishing	MN	3.113233	59.098833		Mountain Foot
Fishing	MN	3.0258	59.018767		Mountain Foot
Fishing	MN	3.025816	59.018533		Mountain Foot
Fishing	MN	2.9434	59.069883		Mountain Foot
Fishing	MN	3.113233	59.098833	Aruwa	Mountain Foot
Fishing	MN	3.016866	59.12435	Savannah	Savannah
Fishing	MN	2.95025	59.147717	Cocorite Island, Pokoridi Tun	Swamp
Fishing	MN	2.9805	59.133333	Creek	Swamp
Fishing	MN	2.958983	59.142467		Swamp
Fishing	MN	2.962367	59.141033	Creek	Swamp
Fishing	MN	2.9433	59.069833		Up the Mountain
Fishing	MN	3.03825	59.122483	Stanley O'Connell's Balata Camp Site	Up the Mountain
Fishing	NP	3.39391	59.39276	Baboon Creek	Bush
Fishing	NP	3.38814	59.54873	Nappi Creek	Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Fishing	NP	3.36876	59.50535	Maipaima Creek	Bush
Fishing	NP	3.36769	59.52774	Granny Creek	Bush
Fishing	NP	3.37876	59.37721	Piab Flat	Mountain Foot
Fishing	NP	3.36475	59.49791	Prackabi	Mountain Foot
Fishing	NP	3.37986	59.39493	Pimabai	Mountain Foot
Fishing	NP	3.36222	59.50532	Maipaima Falls	Mountain Foot
Fishing	NP	3.389	59.39756	Warabai	Mountain Foot
Fishing	NP	3.3549	59.56417	King Fisher Pool, Nappi Creek	Mountain Foot
Fishing	NP	3.36576	59.49875	Chicma Hog Pool	Mountain Foot
Fishing	NP	3.36215	59.50556	Maipaima Falls	Mountain Foot
Fishing	NP	3.383	59.56503	Nappi Head	Mountain Foot
Fishing	NP	3.40509	59.56892	Nappi	Savannah
Fishing	NP	3.36482	59.48546	Shiquima Head	Up the Mountain
Fishing	NP	3.35687	59.42485	Twinang Quyye	Up the Mountain
Fishing	NP	3.35815	59.56325	Nappi Falls	Up the Mountain
Fishing	PK	3.11654	59.86732	Kaputwau	Bush
Fishing	PK	3.11622	59.86794	Kaputwau Creek	Bush
Fishing	PK	3.12762	59.86073	Sawariwau Creek	Bush Mouth
Fishing	PK	3.13148	59.86091	Sawariwau Creek	Bush Mouth
Fishing	PK	3.13117	59.85744	Sawariwau	Bush Mouth
Fishing	PK	3.11466	59.86547		Bush Mouth
Fishing	PK	3.11396	59.87065	Kaputwau Head	Bush Mouth
Fishing	PK	3.13188	59.86695	Sawariwau Mouth	Bush Mouth
Fishing	PK	3.13143	59.86474	Sawariwau Mouth	Bush Mouth
Fishing	PK	3.11856	59.86904	Kaputwau	Bush Mouth
Fishing	PK	3.13107	59.8729	Sawariwau Creek	Bush Mouth
Fishing	PK	3.12636	59.87764	Sawariwau Creek	Bush Mouth
Fishing	PK	3.12811	59.87842	Kaputwau Creek	Bush Mouth
Fishing	PK	3.12405	59.88098	Top Kaputwau	Bush Mouth
Fishing	PK	3.12165	59.8825	Top Kaputwau	Bush Mouth
Fishing	PK	3.11735	59.88547	Kaputwau	Bush Mouth
Fishing	PK	3.12746	59.86053	Sawariwau	Bush Mouth
Fishing	PK	3.11598	59.8647	Kaputwau	Bush Mouth
Fishing	PK	3.12248	59.8772	Sawariwau	Bush Mouth
Fishing	PK	3.13014	59.87001	Turtle Mountain	Mountain Foot
Fishing	PK	3.18092	59.77866	Abram Wau	Mountain Foot
Fishing	PK	3.1659	59.7912	Crab Creek	Mountain Foot
Fishing	PK	3.1693	59.2898	Crab Creek	Mountain Foot
Fishing	PK	3.11991	59.87411	Kaputpau	Mountain Foot
Fishing	PK	3.1776	59.7801	Turtle Island	Up the Mountain

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Fishing	PK	3.19406	59.76278	Youloou Wau CK	Up the Mountain
Fishing	PK	3.18093	59.77865	Turtle Island (Savannah)	Up the Mountain
Fishing	PK	3.19257	59.76134	Kodoi-wau creek	Up the Mountain
Fishing	PK	3.1904	59.76825	Kodoi-wau creek	Up the Mountain
Fishing	PK	3.19035	59.76812	Youlouwau Creek	Up the Mountain
Fishing	PS	3.43072	59.52941	Nappi Creek	Bush
Fishing	PS	3.4055	59.52235	Huri Creek (Maipaima)	Bush
Fishing	PS	3.39086	59.51204	Maipaima	Bush
Fishing	PS	3.42735	59.53101	Water Dog Creek	Bush
Fishing	PS	3.445	59.54638	Bar Lover Creek	Bush
Fishing	PS	3.39394	59.51678	Bambo Creek	Bush
Fishing	PS	3.44089	59.437		Bush
Fishing	PS	3.47816	59.42487	Brian	Bush
Fishing	PS	3.39889	59.37908	Carimon Pond	Bush
Fishing	PS	3.39038	59.39772	Wild Banana Pool	Bush
Fishing	PS	3.44832	59.54505	Barlova	Bush Mouth
Fishing	PS	3.48398	59.4276	Cocrite Point	Bush Mouth
Fishing	PS	3.35887	59.50691	Maipaima Falls	Mountain Foot
Fishing	PS	3.39577	59.37883	First Wamakaru Parinabuy	Mountain Foot
Fishing	PS	3.3906	59.39792	Nappi Landing	Mountain Foot
Fishing	PS	3.46533	59.55659	Nappi Bridge	Savannah
Fishing	PS	3.36678	59.49906	Shikmi Falls	Up the Mountain
Fishing	PS	3.36392	59.48952	Shikmi Falls	Up the Mountain
Fishing	QR	3.20351	59.81505	Alligator Creek	Bush
Fishing	QR	3.20752	59.80907	Kanaima Creek	Bush
Fishing	QR	3.20753	59.80732	Kanaima Creek	Bush
Fishing	QR	3.20693	59.79596	Kanaima Creek	Bush Mouth
Fishing	QR	3.20687	59.80107	Kanaima Creek	Bush Mouth
Fishing	QR	3.19654	59.76448	Naja Creek	Mountain Foot
Fishing	QR	3.20067	59.78717	Thunder Creek Head	Mountain Foot
Fishing	QR	3.20233	59.78743	Thunder Creek Farm	Mountain Foot
Fishing	QR	3.19653	59.76451	Naja Head	Up the Mountain
Fishing	QR	3.20564	59.7783	Naja Creek	Up the Mountain
Fishing	QR	3.20694	59.77282	Naja Creek	Up the Mountain
Fishing	QR	3.2076	59.77396	Naja Creek	Up the Mountain
Fishing	QR	3.20783	59.73816	Naja Creek	Up the Mountain
Fishing	RP	3.08219	59.36326	Rap Rap Wau Creek	Bush Mouth
Fishing	RP	3.00733	59.35441	Kwassiwau Creek	Bush Mouth
Fishing	RP	2.97388	59.34224	John Pop Pond	Bush Mouth
Fishing	RP	3.05527	59.32424	Kwassiwau Falls	Mountain Foot

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Fishing	RP	3.05399	59.32883	Kwassi-Wau Fall	Mountain Foot
Fishing	RP	2.99913	59.34357	Cashew Pond	Savannah
Fishing	RP	3.13145	59.28688	Crab Wood Creek	Up the Mountain
Fishing	SC	3.0879	59.45926	Gun Creek	Bush
Fishing	SC	3.0993	59.45422	Kuruwakwau	Bush
Fishing	SC	3.09715	59.45491	Kwapod Creek	Bush
Fishing	SC	3.13169	59.42126	Mapiwerwau	Bush
Fishing	SC	3.04821	59.48669	Maudowau	Bush
Fishing	SC	3.04413	59.50612	Orariwau	Bush
Fishing	SC	3.11921	59.43964	Puwau	Bush
Fishing	SC	3.35944	59.32265	Mapir Creek	Bush
Fishing	SC	3.22931	59.3819	Pokoridiwau	Bush
Fishing	SC	3.1092	59.45162	Sword Fish Creek/Moraiwau	Bush
Fishing	SC	3.33362	59.25387	Mapari Creek	Bush
Fishing	SC	3.33337	59.25382	Mapari Creek	Bush
Fishing	SC	3.32776	59.24764	Mapari Creek/Macaw Creek Mouth	Bush
Fishing	SC	3.32697	59.2241	Mapari Falls Top/Haima Last Pool	Bush
Fishing	SC	3.3346	59.30706	Mapari Falls Bottom	Bush
Fishing	SC	3.36744	59.30706	Mapari Mouth	Bush
Fishing	SC	3.33844	59.32899	Dadarina 2 Lakes	Bush
Fishing	SC	3.31162	59.34576	Kumalli Creek	Bush
Fishing	SC	3.31015	59.35201		Bush
Fishing	SC	3.04816	59.48673	Turukwau	Savannah
Fishing	SC	3.06363	59.47551	Balata Creek	Savannah
Fishing	SC	3.07253	59.46734	Comackwau	Savannah
Fishing	SC	3.04988	59.486	Turukwau	Savannah
Fishing	SC	3.06619	59.47509	Balata Creek	Savannah
Fishing	SC	3.15576	59.33221	Crab Wood Creek Falls	Up the Mountain
Fishing	SH	3.16184	59.7116	Calabash Creek Joined to ArrowCreek	Bush
Fishing	SH	3.14379	59.75681	Calabash Creek	Bush
Fishing	SH	3.17563	59.73742	Arrow Creek Camp	Bush
Fishing	SH	3.17526	59.73769	Rudolph Adams Farming Ground	Bush
Fishing	SH	3.12732	59.67503	Marra Creek Head	Bush
Fishing	SH	3.12007	59.67931	Saurab	Bush
Fishing	SH	3.11021	59.68028	Marra Creek	Bush
Fishing	SH	3.17894	59.4072	Turtle Pool	Bush
Fishing	SH	3.04851	59.64849	Child Foot Creek	Bush Mouth

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Fishing	SH	3.17588	59.63171	Purple Island	Savannah
Fishing	SH	3.18514	59.62519	Warapota Island	Savannah
Fishing	SH	3.1884	59.62229	Warapota Savannah	Savannah
Fishing	SH	3.14686	59.67497	House Lake	Savannah
Fishing	SH	3.19209	59.63621	Whini Landing	Savannah
Fishing	SH	3.15205	59.67272	House Lake Savannah	Savannah
Fishing	SH	3.16007	59.65598	Saurab above Falls	Savannah
Fishing	SH	3.09629	59.69068	Shulinab	Savannah
Fishing	SH	3.13386	59.67339	House Lake Savannah	Savannah
Fishing	SH	3.19317	59.62396	Saurab Falls or Patwa Falls	Up the Mountain
Fishing	SH	3.21552	59.61817	Saarap Top Side	Up the Mountain
Fishing	SN	2.92312	59.07076	I-Werz-Wao	Bush
Fishing	SN	2.92604	59.06722	I-Werz-Wao	Bush
Fishing	SN	3.06703	58.88689	Matada Bauko	Bush
Fishing	SN	2.97878	59.24515	Kameri wau	Bush
Fishing	SN	2.96087	59.24047	Kameri wau creek	Bush
Fishing	SN	3.14692	58.82608	Cadeuranawao	Bush
Fishing	SN	3.19099	58.81174	Sarackdin Bauk/ Tiger Cat Pool	Bush
Fishing	SN	3.23839	58.79424	Tiger Beads / Machaishuran	Bush
Fishing	SN	3.22	58.8	Chowrian Bauk / Camoudi Pool	Bush
Fishing	SN	3.19898	58.8097	Yachin Pakarran / Malaria Cannister	Bush
Fishing	SN	3.10541	58.86613	Kumit ti an wao	Bush
Fishing	SN	3.03336	58.89782	Miri uru	Bush
Fishing	SN	3.00091	58.89583	Kuru Kuru wao	Bush
Fishing	SN	2.98897	58.9127	Maran Bauko	Bush
Fishing	SN	2.97939	58.91492	Pukurid wao	Bush
Fishing	SN	3.08271	58.87533	Min Yawh wao	Bush
Fishing	SN	3.07989	58.87976	Min Yawh Sab	Bush
Fishing	SN	3.13723	58.83421	Ya-ka-z-ra-wao	Bush
Fishing	SN	3.12408	58.84078	Zra-nai-dik-keu	Bush
Fishing	SN	2.97675	58.91597	Powati Bauko	Bush
Fishing	SN	2.96865	58.92328	Poazrardike wao	Bush
Fishing	SN	2.95834	58.93156	Karaurupao	Bush
Fishing	SN	2.9524	58.95162	Atorin	Bush
Fishing	SN	2.94803	58.95579	Kuroid-Bauko	Bush
Fishing	SN	2.95059	58.96229	Karichi wao	Bush
Fishing	SN	2.94748	58.96899	Damapao	Bush
Fishing	SN	2.94818	58.98583	Taraipuruwao	Bush
Fishing	SN	2.9446	59.00395	Pokoridiwao	Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Fishing	SN	3.26758	58.77864	Podu Wao / Black Creek	Bush
Fishing	SN	3.11739	58.83669	Kib-Ba-ru-wao	Bush
Fishing	SN	3.04122	59.12097		Bush Mouth
Fishing	SN	3.07681	59.11493		Mountain Foot
Fishing	SN	3.11672	59.0976	Balata Camp	Mountain Foot
Fishing	SN	3.17112	58.83064	Ora-peru-wao	Mountain Foot
Fishing	SN	3.11644	59.09738	Balata Camp	Mountain Foot
Fishing	SN	2.9469	59.21771	Achimerwau Creek	Savannah
Fishing	SN	3	59.13582		Savannah
Fishing	SN	2.95019	59.14763	Achimeri wau	Savannah
Fishing	SN	2.96847	59.13579		Savannah
Fishing	SN	2.96847	59.13579		Savannah
Fishing	SN	2.95018	59.1476	Achimeri Wau	Savannah
Fishing	SN	3.00321	59.22086	Kwazaru Tau	Up the Mountain
Fishing	SN	3.0384	58.89443	Chiriki Wao Wanum	
Fishing	ST	3.30474	59.63142	Dragon Falls	Mountain Foot
Fishing	ST	3.21012	59.70061	Arrow Creek	Up the Mountain
Fishing	YK	3.46252	59.35236	Quata Pond	Bush
Fishing	YK	3.40546	59.3142		Bush
Fishing	YK	3.42048	59.31076	Kamarapa Creek Mouth	Bush
Fishing	YK	3.35977	59.32253	Atawa Creek Mouth	Bush
Fishing	yK	3.38574	59.30788	Hiari Creek Mouth	Bush
Fishing	YK	3.58373	59.33377	Hassar Creek	Bush
Fishing	YK	3.47312	59.34568	Katoka Creek Mouth	Bush
Fishing	YK	3.46602	59.34288	Aruwa Creek	Bush
Fishing	YK	3.50614	59.35325	Awariku Creek	Bush
Fishing	YK	3.50472	59.33335	Aruwa Creek Mouth	Bush
Fishing	YK	3.48239	59.34784	Balata Creek Mouth	Bush
Fishing	YK	3.47644	59.35655	Quata Creek Mouth	Bush
Fishing	YK	3.44847	59.32059	Perai Creek Mouth	Bush
Fishing	YK	3.42591	59.30479	Tubu Creek Mouth	Bush
Fishing	YK	3.4416	59.3275	Paragua Creek Mouth	Bush
Fishing	YK	3.36771	59.30683	Mapari Creek	Bush
Fishing	YK	3.57753	59.3295	Foot Ball Socks Creek Mouth	Bush
Fishing	YK	3.40926	59.30762	Salipenta Creek Mouth	Bush
Fishing	YK	3.42072	59.31089	Kamapa Creek Mouth	Bush
Fishing	YK	3.61079	59.33985	Congo Pong Creek	Bush
Fishing	YK	3.55719	59.32652	Katoka Creek Mouth	Bush
Fishing	YK	3.42444	59.30611	Tuba Creek	Bush
Fishing	YK	3.44918	59.32002	Perai Pond Creek Mouth	Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Fishing	YK	3.48232	59.34791	Balata Creek Mouth	Bush
Fishing	YK	3.50408	59.33665	Aruwa Falls	Bush
Fishing	YK	3.42061	59.31082	Kamarapa Creek Mouth	Bush
Fishing	YK	3.36003	59.32267	Towa Creek Mouth	Bush
Fishing	YK	3.39635	59.30759	Hiari Landing	Bush
Fishing	YK	3.47741	59.35243	Quata Pond Landing	Bush
Fishing	YK	3.50516	59.33325	Arrua Creek Mouth	Bush
Fishing	YK	3.40095	59.3111	Salipenta Landing	Bush
Fishing	YK	3.41188	59.34032	Kamarapa Creek	Mountain Foot
Fishing	YK	3.41201	59.34863	Kamarapa and Piab Creek Mouth	Mountain Foot
Fishing	YK	3.36451	59.30368	Mapari River	Mountain Foot
Fishing	YK	3.36473	59.30124	Mapari River	Mountain Foot
Fishing	YK	3.36372	59.29976	Mapari River	Mountain Foot
Fishing	YK	3.36372	59.29976	Mapari River	Mountain Foot
Fishing	YK	3.35635	59.28203	Mapari River	Mountain Foot
Fishing	YK	3.35544	59.27806	Mapari River	Mountain Foot
Fishing	YK	3.34956	59.27012	Mapari River	Mountain Foot
Fishing	YK	3.34871	59.26823	Mapari River	Mountain Foot
Fishing	YK	3.34557	59.2653	Mapari River	Mountain Foot
Fishing	YK	3.33507	59.25517	Mapari River	Mountain Foot
Fishing	YK	3.3338	59.25361	Mapari Falls Landing	Mountain Foot
Fishing	YK	3.36772	59.30701	Mapari River Mouth	Mountain Foot
Fishing	YK	3.35107	59.31809	Richard Clement Camp Site	Mountain Foot
Fishing	YK	3.34069	59.32896	Sets Stone Pond (Rupununi River)	Mountain Foot
Fishing	YK	3.32169	59.33621	Ants Creek (Rupununi River)	Mountain Foot
Fishing	YK	3.36539	59.30405	Rupununi River, Axe Pool (Mountain)	Mountain Foot
Fishing	YK	3.66821	59.34217	Yupukari Landing	Savannah
Fishing	YK	3.55689	59.32641	Katoka Creek Mouth	Savannah
Fishing	YK	3.62545	59.34267	Sho-noo-no Landing	Savannah

### Combined Gathering Resource Site Data Records

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Gathering	HW	3.36254	59.59541	Upper Cruwa	Bush
Gathering	HW	3.3707	59.60577	Cruwa	Bush Mouth
Gathering	HW	3.37061	59.60579	Cruwa	Bush Mouth
Gathering	HW	3.38108	59.5866	Ti-ma-nada	Bush Mouth
Gathering	HW	3.35078	59.59557	Cruwa Falls	Mountain Foot
Gathering	HW	3.3415	59.566	Silibru	Mountain Foot
Gathering	HW	3.3396	59.6106	White Man Mountain	Up the Mountain
Gathering	HW	3.33574	59.61006	White Man Mountain	Up the Mountain
Gathering	HW	3.32625	59.6051	Kumaka Creek	Up the Mountain
Gathering	HW	3.32689	59.60179	Kumaka Creek	Up the Mountain
Gathering	HW	3.32287	59.59433	Kumaka Mountain	Up the Mountain
Gathering	HW	3.33702	59.57694	Mercy Creek	Up the Mountain
Gathering	HW	3.31046	59.58292	Manicole Mountains	Up the Mountain
Gathering	HW	3.31127	59.58279	Labaria Creek	Up the Mountain
Gathering	HW	3.33936	59.58384	Cow Bird Creek	Up the Mountain
Gathering	HW	3.34381	59.58844	Cruwa Mountain	Up the Mountain
Gathering	HW	3.31136	59.58189	Horse Mountain	Up the Mountain
Gathering	HW	3.37073	59.60582	Horse Mountain	Up the Mountain
Gathering	HW	3.3228	59.59462		Up the Mountain
Gathering	HW	3.31706	59.58275		Up the Mountain
Gathering	HW	3.32382	59.59649		Up the Mountain
Gathering	HW	3.32705	59.60894	Kumaka Creek	Up the Mountain
Gathering	HW	3.33907	59.61055	White Man Creek Head	Up the Mountain
Gathering	HW	3.33626	59.61026	White Man Creek Head	Up the Mountain
Gathering	HW	3.3397	59.6119	White Man Creek Head	Up the Mountain
Gathering	HW	3.32858	59.55678		Up the Mountain
Gathering	HW	3.34022	59.61217	Nappi Creek Head	Up the Mountain
Gathering	HW	3.332154	59.555194	Nappi Creek Panda	Up the Mountain
Gathering	HW	3.33479	59.57713	Mercy Creek	Up the Mountain
Gathering	KB	3.42585	59.37208	Karlieoti Creek	Bush
Gathering	KB	3.42585	59.37208	Tapir Creek	Bush
Gathering	KB	3.51634	59.43896		Bush
Gathering	KB	3.4025	59.34711	Marapa Lake	Bush
Gathering	KB	3.50068	59.43513	Tranzing Mountain	Bush
Gathering	KB	3.46199	59.43191	Parica Hill	Bush
Gathering	KB	3.41522	59.44243	Pairawaca	Bush
Gathering	KB	3.41353	59.44226	Pairawaca	Bush
Gathering	KB	3.40964	59.44301	Pairawaca	Bush
Gathering	KB	3.39716	59.44428	Pairawaca	Mountain Foot

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Gathering	KB	3.36849	59.40925	Karamapa	Mountain Foot
Gathering	KB	3.39626	59.44411	Pairawaca	Mountain Foot
Gathering	KB	3.3951	59.44461	Pairawaca	Mountain Foot
Gathering	KM	3.28937	59.69806		Bush
Gathering	KM	3.266	59.73396		Bush
Gathering	KM	3.2673	59.73971	Harrie Hill	Bush
Gathering	KM	3.27255	59.75291		Bush
Gathering	KM	3.29858	59.67854		Bush Mouth
Gathering	KM	3.2917	59.70968		Bush Mouth
Gathering	KM	3.29334	59.69092		Bush Mouth
Gathering	KM	3.26455	59.72258	Kumu Falls	Mountain Foot
Gathering	KM	3.26517	59.72328	Kumu Falls	Mountain Foot
Gathering	KM	3.22442	59.68657	Hiarrie Mountain	Up the Mountain
Gathering	KM	3.21045	59.70001	Bambo Area	Up the Mountain
Gathering	KM	3.2507	59.69423	Manicole Creek	Up the Mountain
Gathering	KM	3.25601	59.70912	Kumu Falls	Up the Mountain
Gathering	KM	3.26404	59.71692		Up the Mountain
Gathering	KM	3.28459	59.70813	Crapo Pond	
Gathering	KT	3.47233	59.16144	Simoni Creek	Bush
Gathering	KT	3.43793	59.15676	Simoni Creek	Bush
Gathering	KT	3.44181	59.15839	Yarrow Creek	Bush
Gathering	KT	3.53124	59.17722	Black Water Creek	Bush
Gathering	KT	3.53132	59.17729	Black Water Creek	Bush
Gathering	KT	3.40422	59.1609	Bambo Mountain	Up the Mountain
Gathering	KT	3.41157	59.15692	Bambo Mountain	Up the Mountain
Gathering	KT	3.41157	59.15692	Bambo Mountain	Up the Mountain
Gathering	KT	3.42098	59.1545	Bambo Mountain	Up the Mountain
Gathering	KT	3.43395	59.15805	Bambo Mountain	Up the Mountain
Gathering	MM	3.337733	59.636933	Arakapirin Creek	Bush Mouth
Gathering	MM	3.30528	59.63898	Marasha Sping	Mountain Foot
Gathering	MM	3.30882	59.62315	Drugon Mountain	Mountain Foot
Gathering	MM	3.339033	59.636916		Savannah
Gathering	MM	3.30436	59.57831	Saddle Mountain Creek	Up the Mountain
Gathering	MM	3.30428	59.63096	Frog Creek	Up the Mountain
Gathering	MM	3.326566	59.615483	Kumaka Creek Head	Up the Mountain
Gathering	MM	3.32555	59.62275	Kumaka Creek Head	Up the Mountain
Gathering	MM	3.32645	59.619016	Kumaka Creek Head	Up the Mountain
Gathering	MM	3.325033	59.63025	Kumaka Creek Head	Up the Mountain
Gathering	MM	3.326216	59.6328	Kumaka Creek Head	Up the Mountain
Gathering	MM	3.32765	59.612383	Kumaka Head Waters	Up the Mountain

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Gathering	MM	3.332833	59.611433		Up the Mountain
Gathering	MM	3.33645	59.611916		Up the Mountain
Gathering	MM	3.28237	59.64661	Mountain Top- Nibi Hill	Up the Mountain
Gathering	MM	3.27132	59.65399	Mountain Top	Up the Mountain
Gathering	MM	3.27992	59.65561	Clement Area	Up the Mountain
Gathering	MM	3.28193	59.64833	Clement Area	Up the Mountain
Gathering	MM	3.29038	59.6328	Hydro Dam	Up the Mountain
Gathering	MM	3.29028	59.63263	Hydro Dam	Up the Mountain
Gathering	MM	3.27961	59.6472	Clement Falls	Up the Mountain
Gathering	MM	3.27955	59.65581	Mountain Top	Up the Mountain
Gathering	MM	3.28205	59.64841	Nibi Hill	Up the Mountain
Gathering	MM	3.28555	59.64669	Hydro Dam	Up the Mountain
Gathering	MM	3.30581	59.61151	Gold Creek	Up the Mountain
Gathering	MM	3.30226	59.60029	Para Creek	Up the Mountain
Gathering	MM	3.30172	59.57356	White Horse Mountain	Up the Mountain
Gathering	MN	2.715067	59.119183	Gabada Wa'o	Bush
Gathering	MN	2.69165	59.073983	Chiwoodnau	Bush
Gathering	MN	2.6992	59.0146	Hiari Creek	Bush
Gathering	MN	2.71855	59.1221	Ishii Wa'o	Bush
Gathering	MN	2.715067	59.119183	Gabad Wa'o	Bush
Gathering	MN	2.689567	59.0795	Machiwii	Bush
Gathering	MN	2.681617	59.088467	Mashun Bauk	Bush
Gathering	MN	2.703733	59.102083	Karshruanau	Bush
Gathering	MN	2.69165	59.073983	Marnicole Creek	Bush
Gathering	MN	2.666733	59.094	Young Eagle Mountain	Bush
Gathering	MN	2.701817	59.1332		Bush
Gathering	MN	2.782583	59.009133	Machiwizi Creek	Bush
Gathering	MN	2.8	59.016666	Going Quitaro	Bush
Gathering	MN	3.041666	59.121083		Bush Mouth
Gathering	MN	2.723433	59.127517		Bush Mouth
Gathering	MN	3.038183	59.12255		Bush Mouth
Gathering	MN	2.689567	59.0795	Pidaunu Nao	Bush Mouth
Gathering	MN	3.116117	59.0972	Kara'pudo Creek	Mountain Foot
Gathering	MN	3.113233	59.098833		Mountain Foot
Gathering	MN	2.987567	59.028083		Mountain Foot
Gathering	MN	3.03825	59.122483	Stanley O'Connell's Balata Camp Site	Mountain Foot
Gathering	MN	3.113233	59.098833	Aruwa	Mountain Foot
Gathering	MN	3.150617	59.11295	Two Head Mountain Top	Up the Mountain
Gathering	MN	3.14645	59.115717	Top of Two Head Mtn Top	Up the Mountain

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Gathering	MN	3.03825	59.122483	Maam Creek (midway Bush Mouth and Mountain Foot)	
Gathering	NP	3.38835	59.534	Humming Bird Hill	Bush
Gathering	NP	3.39196	59.53486	Gravel Morukada Hill	Bush
Gathering	NP	3.39715	59.53623	Gravel Low Land	Bush
Gathering	NP	3.37098	59.56452	Upper Chilibar Area	Bush
Gathering	NP	3.37749	59.57438		Bush
Gathering	NP	3.36769	59.52774	Granny Creek	Bush
Gathering	NP	3.37158	59.55362	Murukqua	Bush
Gathering	NP	3.393216	59.54936	Nappi Creek	Bush Mouth
Gathering	NP	3.38483	59.56676	Bush Mouth	Bush Mouth
Gathering	NP	3.38712	59.39673	Bamboo Flat	Mountain Foot
Gathering	NP	3.383	59.56503	Nappi Head	Mountain Foot
Gathering	NP	3.40205	59.56629	Road to Nappi Head	Savannah
Gathering	NP	3.41843	59.57716	Village	Savannah
Gathering	NP	3.36584	59.49504	Bank of Guyana	Up the Mountain
Gathering	NP	3.36538	59.48992	Bank of Guyana	Up the Mountain
Gathering	NP	3.3598	59.47379	Shiquima Head	Up the Mountain
Gathering	NP	3.35905	59.46363	Branch of Wamacaro	Up the Mountain
Gathering	NP	3.35971	59.46892	Shiquima Head	Up the Mountain
Gathering	NP	3.336628	59.49761	Bank of Guyana	Up the Mountain
Gathering	NP	3.35687	59.42485	Twinang Quyye	Up the Mountain
Gathering	NP	3.36363	59.50631	Maipaima Head	Up the Mountain
Gathering	NP	3.34584	59.56949	Nappi Head	Up the Mountain
Gathering	NP	3.33593	59.58301	Capuchin Bird Creek	Up the Mountain
Gathering	NP	3.32157	59.57384	Mercy Mines Company	Up the Mountain
Gathering	NP	3.32103	59.57286	Tapir Mines Creek Head	Up the Mountain
Gathering	NP	3.29	59.55	Behind Nappi Mountains	Up the Mountain
Gathering	NP	3.35815	59.56325	Nappi Falls	Up the Mountain
Gathering	NP	3.28711	59.55505	Tick Creek	Up the Mountain
Gathering	NP	3.28404	59.53659	Wamakaru Head	Up the Mountain
Gathering	NP	3.27612	59.52162	Wamakaru Head	Up the Mountain
Gathering	PK	3.11654	59.88732	Kaputwau	Bush
Gathering	PK	3.11622	59.86794	Kapatuwau Creek	Bush
Gathering	PK	3.12666	59.85888	Majo Mountain	Bush
Gathering	PK	3.12668	59.86217	Majo Mountain	Bush
Gathering	PK	3.12746	59.86053	Sawariwau Creek	Bush
Gathering	PK	3.16934	59.78447	Behind White Rock Mountains	Bush
Gathering	PK	3.16926	59.78974		Bush
Gathering	PK	3.16836	59.79396		Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Gathering	PK	3.16456	59.80145		Bush
Gathering	PK	3.12576	59.86527	Maparar	Bush Mouth
Gathering	PK	3.12762	59.86073	Sawariwau Creek	Bush Mouth
Gathering	PK	3.13148	59.86091	Sawariwau Creek	Bush Mouth
Gathering	PK	3.13117	59.85744	Sawariwau	Bush Mouth
Gathering	PK	3.11466	59.86547	Kaputwau Top	Bush Mouth
Gathering	PK	3.11396	59.87065	Kaputwau	Bush Mouth
Gathering	PK	3.13188	59.86695		Bush Mouth
Gathering	PK	3.11956	59.86204	Kaputwau	Bush Mouth
Gathering	PK	3.13107	59.8729	Sawariwau Creek	Bush Mouth
Gathering	PK	3.12405	59.88098	Top Kaputwau	Bush Mouth
Gathering	PK	3.12165	59.8825	Top Kaputwau	Bush Mouth
Gathering	PK	3.11735	59.88547	Kaputwau	Bush Mouth
Gathering	PK	3.11598	59.8647	Kaputwau	Bush Mouth
Gathering	PK	3.12248	59.8772	Sawariwau	Bush Mouth
Gathering	PK	3.13014	59.82001	Turtle Mountain	Mountain Foot
Gathering	PK	3.11991	59.87411	Kaputpau	Mountain Foot
Gathering	PK	3.18238	59.77699	Arrow Creek	Mountain Foot
Gathering	PK	3.1911	59.78255	Mountains Peaks	Up the Mountain
Gathering	PK	3.18343	59.77615	Jumbie Mountains	Up the Mountain
Gathering	PK	3.19035	59.7683	Muckru Island	Up the Mountain
Gathering	PK	3.13143	59.86474	Sawariwau Mouth	
Gathering	PK	3.12636	59.87764	Sawariwau	
Gathering	PS	3.43072	59.52941	Nappi Creek	Bush
Gathering	PS	3.4055	59.52235	Huri Creek (Maipaima)	Bush
Gathering	PS	3.39086	59.51204	Maipaima	Bush
Gathering	PS	3.37708	59.50564	Maipaima Swamp	Bush
Gathering	PS	3.44401	59.54499	Bar Lover Creek	Bush
Gathering	PS	3.43482	59.53314	Water Dog Hill	Bush
Gathering	PS	3.42291	59.52443	Water Dog Creek	Bush
Gathering	PS	3.39394	59.51678	Bambo Creek	Bush
Gathering	PS	3.38519	59.51282	Maipaima	Bush
Gathering	PS	3.38521	59.51262	Maipaima	Bush
Gathering	PS	3.44089	59.437		Bush
Gathering	PS	3.41938	59.42205	Clay Hill/Creek	Bush
Gathering	PS	3.44089	59.5375	Bush Cow Pond	Bush
Gathering	PS	3.42928	59.44043	Horse Creek	Bush
Gathering	PS	3.48398	59.4276	Cocrite Point	Bush Mouth
Gathering	PS	3.3906	59.39792	Nappi Landing	Mountain Foot
Gathering	PS	3.35688	59.4579	Jordan Falls	Up the Mountain

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Gathering	PS	3.36534	59.4892	Bank of Guyana	Up the Mountain
Gathering	PS	3.31081	59.5265	Wamakaru Creek	Up the Mountain
Gathering	PS	3.34884	59.50236	Caramani Creek	Up the Mountain
Gathering	PS	3.31082	59.50259	Wamakaru	Up the Mountain
Gathering	PS	3.33	59.5	Wamakaru Mountains	Up the Mountain
Gathering	PS	3.32	59.5	Kamarapa Creek	Up the Mountain
Gathering	PS	3.32	59.51	Wamakaru Mountain	Up the Mountain
Gathering	PS	3.32	59.53	Wamakaru Creek	Up the Mountain
Gathering	QR	3.20351	59.81505	Alligator Creek	Bush
Gathering	QR	3.20752	59.80907	Kanaima Creek	Bush
Gathering	QR	3.20753	59.80752	Kanaima Creek	Bush
Gathering	QR	3.21971	59.78262		Bush Mouth
Gathering	QR	3.20482	59.80508	Kanaima Creek	Bush Mouth
Gathering	QR	3.20225	59.80293	Along Kanaima Creek	Bush Mouth
Gathering	QR	3.20693	59.79596	Kanaima Creek	Bush Mouth
Gathering	QR	3.20687	59.80107	Kanaima Creek	Bush Mouth
Gathering	QR	3.23181	59.74883	Quarrie Creek	Mountain Foot
Gathering	QR	3.23596	59.76376	Quarrie Creek	Mountain Foot
Gathering	QR	3.23781	59.76798	Quarrie Creek	Mountain Foot
Gathering	QR	3.20067	59.78717	Thunder Creek Head	Mountain Foot
Gathering	QR	3.20233	59.78743	Thunder Creek Farm	Mountain Foot
Gathering	QR	3.20766	59.73805	Gold Creek	Up the Mountain
Gathering	QR	3.20155	59.75298	Gold Creek	Up the Mountain
Gathering	QR	3.19936	59.76469	Gold Creek	Up the Mountain
Gathering	QR	3.2076	59.77396	Naja Creek	Up the Mountain
Gathering	QR	3.23567	59.76482		Up the Mountain
Gathering	QR	3.19885	59.78736	Thunder Creek Head	Up the Mountain
Gathering	QR	3.22858	59.74326	Gold Creek	Up the Mountain
Gathering	QR	3.19937	59.80223	Along Kanaima Creek	Up the Mountain
Gathering	QR	3.19396	59.80049	Along Kanaima Creek	Up the Mountain
Gathering	QR	3.19063	59.79986	Kanaima Mountain Top	Up the Mountain
Gathering	RP	3.03164	59.33198	Farm Hill	Bush
Gathering	RP	3.08188	59.3594		Bush
Gathering	RP	3.08033	59.36196		Bush
Gathering	RP	3.02041	59.36832	Grass Hopper Creek	Bush
Gathering	RP	2.96179	59.3381	Buru Bau	Bush
Gathering	RP	2.97443	59.3424	John Pop Bush	Bush
Gathering	RP	2.95367	59.32501	Ma-Kur-Pan	Bush
Gathering	RP	2.96163	59.32883	Farm Mountain	Bush
Gathering	RP	2.99971	59.33414	O-Mez-Bau	Bush Mouth

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Gathering	RP	3.04471	59.38014	Grass Hopper Creek	Bush Mouth
Gathering	RP	3.01111	59.36203	Kwassi wau Creek	Bush Mouth
Gathering	RP	2.95529	59.35088	Wichi-bai-toon	Bush Mouth
Gathering	RP	3.10327	59.30027	Wild Cashew Creek	Mountain Foot
Gathering	RP	3.06003	59.32709	Kwassi wau Mountain	Mountain Foot
Gathering	RP	3.11016	59.32222		Mountain Foot
Gathering	RP	3.16633	59.27958	Meinn Tau	Up the Mountain
Gathering	RP	3.1519	59.27097	Muckru Creek	Up the Mountain
Gathering	RP	3.1313	59.28554	Labstar Mountain	Up the Mountain
Gathering	RP	3.15188	59.27096	Balata Camp Site	Up the Mountain
Gathering	RP	3.08444	59.35808		Up the Mountain
Gathering	SC	3.060483	59.476783	Balata Creek	Bush
Gathering	SC	3.06915	59.468716	Comack Wau	Bush
Gathering	SC	3.084433	59.460183	Gun Creek	Bush
Gathering	SC	3.093783	59.456283	Kwapod	Bush
Gathering	SC	3.116	59.440966	Pu Wau	Bush
Gathering	SC	3.128883	59.4222	Mapewer	Bush
Gathering	SC	3.144816	59.42055	Marurawau	Bush
Gathering	SC	3.173416	59.405783	Crab Wood Creek	Bush
Gathering	SC	3.18525	59.4021	Manaru Wau	Bush
Gathering	SC	3.197483	59.394566	Kumuran	Bush
Gathering	SC	3.243533	59.378166	Meriwau Wao	Bush
Gathering	SC	3.273933	59.36405	Arrow-Bai-Wau	Bush
Gathering	SC	3.30415	59.34105	Atori-Wau	Bush
Gathering	SC	3.318166	59.337583	Mata Wau	Bush
Gathering	SC	3.364233	59.30855	Mapari Creek	Bush
Gathering	SC	3.16003	59.33086	Anteater Creek	Bush
Gathering	SC	3.19063	59.37032	Aruwa Creek	Bush
Gathering	SC	3.20115	59.400633	Kuta wao	Bush
Gathering	SC	3.0458	59.487433	Torokau	Bush Mouth
Gathering	SC	3.18607	59.39385	Manar Wau	Mountain Foot
Gathering	SC	3.18609	59.39392	Manar Wau	Mountain Foot
Gathering	SC	3.18704	59.39381	Manar Wau	Mountain Foot
Gathering	SC	3.19723	59.39347	Kumarau	Mountain Foot
Gathering	SC	3.330566	59.255233	Mapari Campsite	Mountain Foot
Gathering	SC	3.3567	59.32403	Taw-Ao	Mountain Foot
Gathering	SC	3.3275	59.336916	Komiirri Wao	Mountain Foot
Gathering	SC	3.304666	59.353483	Mapouri Wao	Mountain Foot
Gathering	SC	3.290733	59.3535	Fish Pond	Mountain Foot
Gathering	SC	3.25325	59.375516	Achaawudu Wao	Mountain Foot

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Gathering	SC	3.223716	59.3914	Cashew Creek	Mountain Foot
Gathering	SC	3.18116	59.4095	Wurada Wao	Mountain Foot
Gathering	SC	3.1647	59.412166	Moroi Wao	Mountain Foot
Gathering	SC	3.09783	59.455483	Koriwak Wao	Mountain Foot
Gathering	SC	3.15198	59.32753	Gold Mountain Foot	Mountain Foot
Gathering	SC	3.208316	59.40075	Pokuridi Wao	Savannah
Gathering	SC	3.19729	59.39357	Kamarau	Up the Mountain
Gathering	SC	3.32215	59.246583	Macaw Creek	Up the Mountain
Gathering	SC	3.324583	59.238266	Mapari Creek	Up the Mountain
Gathering	SC	3.15576	59.33221	Crabwood Creek Falls	Up the Mountain
Gathering	SC	3.20001	59.36149	Tobacco Mountain	Up the Mountain
Gathering	SH	3.16184	59.7116	Calabash Creek Joined to ArrowCreek	Bush
Gathering	SH	3.17563	59.73742	Arrow Creek Camp	Bush
Gathering	SH	3.17526	59.73769	Rudolph Adams Farming Ground	Bush
Gathering	SH	3.12978	59.67403	Arrow Creek	Bush
Gathering	SH	3.11	59.68043	Morra Creek	Bush
Gathering	SH	3.12975	59.67405	Saurib Creek	Bush Mouth
Gathering	SH	3.14482	59.6758	Saurib Top Side	Savannah
Gathering	SH	3.09972	59.65825	Shulinab	Savannah
Gathering	SH	3.14377	59.67904	House Lake	Savannah
Gathering	SH	3.13317	59.67335	House Lake Savannah	Savannah
Gathering	SH	3.1839	59.73479	Arrow creek, Mountain Peak	Up the Mountain
Gathering	SH	3.21386	59.61738	Kumaka Hill	Up the Mountain
Gathering	SH	3.22576	59.61354	Locust Creek Mouth	Up the Mountain
Gathering	SH	3.22764	59.62855	Sawarawau	Up the Mountain
Gathering	SH	3.23443	59.5987	Caterpillar Mountain	Up the Mountain
Gathering	SH	3.23066	59.61019	Shiswana	Up the Mountain
Gathering	SH	3.22855	59.63442	Sawarawau	Up the Mountain
Gathering	SH	3.22781	59.63232	Sawarawau	Up the Mountain
Gathering	SH	3.22682	59.57544	Purple Rock	Up the Mountain
Gathering	SN	2.92312	59.07076	I-Werz-Wao	Bush
Gathering	SN	2.92604	59.06722	I-Werz-Wao	Bush
Gathering	SN	2.91337	59.09956	Katunar	Bush
Gathering	SN	3.06703	58.88689	Matada Bauko	Bush
Gathering	SN	3.07863	59.11071	Old Farm Ground	Bush
Gathering	SN	3.14692	58.82608	Cadeuranawao	Bush
Gathering	SN	3.19099	58.81174	Sarackdin Bauk/ Tiger Cat Pool	Bush
Gathering	SN	3.23839	58.79424	Tiger Beads / Machaishuran	Bush

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Gathering	SN	3.22	58.8	Chowrian Bauk / Camoudi Pool	Bush
Gathering	SN	3.19898	58.8097	Yachin Pakarran / Malaria Cannister	Bush
Gathering	SN	3.11739	58.83669	Kib Baru Wao	Bush
Gathering	SN	3.26758	58.77864	Podu wao / Black creek	Bush
Gathering	SN	3.10541	58.86613	Kumit ti an wao	Bush
Gathering	SN	3.03336	58.89782	Miri uru	Bush
Gathering	SN	3.00091	58.89583	Kuru Kuru wao	Bush
Gathering	SN	2.98897	58.9127	Maran Bauko	Bush
Gathering	SN	2.97939	58.91492	Pukurid wao	Bush
Gathering	SN	3.08271	58.87533	Min Yawh wao	Bush
Gathering	SN	3.13723	58.83421	Ya-ka-z-ra-wao	Bush
Gathering	SN	3.12408	58.84078	Zra-nai-dik-keu	Bush
Gathering	SN	2.97675	58.91597	Powati Bauko	Bush
Gathering	SN	2.96865	58.92328	Poazrardike wao	Bush
Gathering	SN	2.95834	58.93156	Karaurupao	Bush
Gathering	SN	2.9524	58.95162	Atorin	Bush
Gathering	SN	2.94803	58.95579	Kuroid-Bauko	Bush
Gathering	SN	2.95059	58.96229	Karichi wao	Bush
Gathering	SN	2.94748	58.96899	Damapao	Bush
Gathering	SN	2.94818	58.98583	Taraipuruwao	Bush
Gathering	SN	2.9446	59.00395	Pokoridiwao	Bush
Gathering	SN	3.07681	59.11493		Mountain Foot
Gathering	SN	3.12025	59.09791	Two Head Mountain Foot	Mountain Foot
Gathering	SN	3.15062	59.11295	Two Head Mountain	Mountain Foot
Gathering	SN	3.16	59.14	Caramani Mountain Foot	Mountain Foot
Gathering	SN	3.17112	58.83064	Ora-peru-wao	Mountain Foot
Gathering	SN	3.11644	59.09738	Balata Camp	Mountain Foot
Gathering	SN	3.15062	59.11295	Two Head Mountain	Up the Mountain
Gathering	SN	3.0384	58.89443	Chiriki Wao Wanum	
Gathering	SN	3.07989	58.87976	Min Yawh Sab	
Gathering	ST	3.16279	59.79348	White Rock	Bush Mouth
Gathering	ST	3.30477	59.63142	Dragon Falls	Mountain Foot
Gathering	ST	3.17558	59.7899	White Rock/Yarrow creek	Mountain Foot
Gathering	ST	3.30195	59.6404	Wild Yam Bay	Mountain Foot
Gathering	ST	3.3052	59.63141	Arrura Mountain	Mountain Foot
Gathering	ST	3.30599	59.64721	Cruza Creek	Mountain Foot
Gathering	ST	3.26402	59.71696	Matapi Creek	Up the Mountain
Gathering	ST	3.17042	59.78606	White Rock/Quata Mountain	Up the Mountain
Gathering	ST	3.17279	59.78704	White Rock/Quata Mountain	Up the Mountain

Resource	Village	Degrees N	Degrees W	Area Name	Use Zone
Gathering	ST	3.26484	59.72296	Kumu Falls (up)	Up the Mountain
Gathering	ST	3.2546	59.71541		Up the Mountain
Gathering	ST	3.25081	59.70731	Bread Mountain	Up the Mountain
Gathering	ST	3.24114	59.71189	Bread Mountain	Up the Mountain
Gathering	ST	3.23938	59.71114		Up the Mountain
Gathering	ST	3.25854	59.72724		Up the Mountain
Gathering	ST	3.25842	59.72646		Up the Mountain
Gathering	ST	3.22433	59.68637	Bamboo Point	Up the Mountain
Gathering	ST	3.21012	59.70061	Arrow Creek	Up the Mountain
Gathering	YK	3.48358	59.34676	Aruwa Falls Area	Bush
Gathering	YK	3.48232	59.34791	Balata Creek Mouth	Bush
Gathering	YK	3.50408	59.33665	Aruwa Falls	Bush
Gathering	YK	3.42061	59.31082	Kamarapa Creek Mouth	Bush
Gathering	YK	3.36003	59.32267	Towa Creek Mouth	Bush
Gathering	YK	3.39635	59.30759	Hiari Landing	Bush
Gathering	YK	3.47741	59.35243	Quata Pond Landing	Bush
Gathering	YK	3.50516	59.33325	Arrua Creek Mouth	Bush
Gathering	YK	3.40095	59.3111	Salipenta Landing	Bush
Gathering	YK	3.36451	59.30368	Mapari River Mouth	Mountain Foot
Gathering	YK	3.36473	59.30124	Mapari River	Mountain Foot
Gathering	YK	3.36372	59.29976	Mapari River	Mountain Foot
Gathering	YK	3.36372	59.29976	Mapari River	Mountain Foot
Gathering	YK	3.35635	59.28203	Mapari River	Mountain Foot
Gathering	YK	3.35544	59.27806	Mapari River	Mountain Foot
Gathering	YK	3.34956	59.27012	Mapari River	Mountain Foot
Gathering	YK	3.34871	59.26823	Mapari River	Mountain Foot
Gathering	YK	3.34557	59.2653	Mapari River	Mountain Foot
Gathering	YK	3.33507	59.25517	Mapari River	Mountain Foot
Gathering	YK	3.3338	59.25361	Mapari Falls Landing	Mountain Foot
Gathering	YK	3.36772	59.30701	Mapari River Mouth	Mountain Foot
Gathering	YK	3.35107	59.31809	Richard Clement Camp Site	Mountain Foot
Gathering	YK	3.34069	59.32896	Sets Stone Pond (Rupununi River)	Mountain Foot
Gathering	YK	3.32169	59.33621	Ants Creek (Rupununi River)	Mountain Foot
Gathering	YK	3.36539	59.30405	Rupununi River, Axe Pool (Mountain)	Mountain Foot
Gathering	YK	3.55689	59.32641	Katoka Creek Mouth	Savannah
Gathering	YK	3.62545	59.34267	Sho-noo-no Landing	Savannah
Gathering	YK	3.33348	59.2537	Caramani Mountain - Mai Ti Kin Iping	Up the Mountain

## APPENDIX THREE

### FIELD OBSERVATION DATA FORM AND SUMMARY RESULTS TABLES

<p style="text-align: center;">Date</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; border: none;">Month</td> <td style="text-align: center; border: none;">Day</td> <td style="text-align: center; border: none;">Year</td> </tr> <tr> <td style="border: 1px solid black; width: 30px; height: 20px;"></td> <td style="border: 1px solid black; width: 30px; height: 20px;"></td> <td style="border: 1px solid black; width: 30px; height: 20px; text-align: center;">2002</td> </tr> </table> <p style="text-align: center; border: 1px solid black; margin-top: 5px;">Group</p>	Month	Day	Year			2002	<p style="text-align: center;">Point Identification</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; border: none;">GPS Unit</td> <td style="text-align: center; border: none;">Village</td> <td style="text-align: center; border: none;">Feature</td> <td style="text-align: center; border: none;">Waypoint</td> </tr> <tr> <td style="border: 1px solid black; width: 20%;"></td> </tr> </table> <p style="text-align: center;">Code</p>	GPS Unit	Village	Feature	Waypoint					<p style="text-align: center;">Coordinates</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; border: none;">North</td> <td style="text-align: center; border: none;">West</td> </tr> <tr> <td style="border: 1px solid black; width: 50%;"></td> <td style="border: 1px solid black; width: 50%;"></td> </tr> </table>	North	West		
Month	Day	Year																		
		2002																		
GPS Unit	Village	Feature	Waypoint																	
North	West																			
<p style="font-size: small;">Feature Codes: Farming=F; Hunting=H; Fishing=F; Gathering=G</p>																				
<p style="text-align: center;">Area Identification</p> <p style="text-align: center;">Name <input style="width: 80%;" type="text"/></p> <p style="text-align: center;">Use Zone</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; border: none;">Savannah</td> <td style="text-align: center; border: none;"><input type="checkbox"/></td> <td style="text-align: center; border: none;">Bushy Forest</td> <td style="text-align: center; border: none;"><input type="checkbox"/></td> <td style="text-align: center; border: none;">Bush</td> <td style="text-align: center; border: none;"><input type="checkbox"/></td> </tr> <tr> <td style="text-align: center; border: none;">Mountain Forest</td> <td style="text-align: center; border: none;"><input type="checkbox"/></td> <td style="text-align: center; border: none;">Up the Mountains</td> <td style="text-align: center; border: none;"><input type="checkbox"/></td> <td colspan="2"></td> </tr> </table>			Savannah	<input type="checkbox"/>	Bushy Forest	<input type="checkbox"/>	Bush	<input type="checkbox"/>	Mountain Forest	<input type="checkbox"/>	Up the Mountains	<input type="checkbox"/>								
Savannah	<input type="checkbox"/>	Bushy Forest	<input type="checkbox"/>	Bush	<input type="checkbox"/>															
Mountain Forest	<input type="checkbox"/>	Up the Mountains	<input type="checkbox"/>																	
<b>GATHERING</b>																				
<p style="text-align: center;">Site Use Status</p> <p style="text-align: center;">Active <input type="checkbox"/></p> <p style="text-align: center;">Inactive <input type="checkbox"/></p>	<p style="text-align: center;">Species Collected</p> <p style="text-align: center;">Palm Leaves <input type="checkbox"/></p> <p style="text-align: center;">Wild Fruits <input type="checkbox"/></p> <p style="text-align: center;">Muckru <input type="checkbox"/></p> <p style="text-align: center;">Medicine <input type="checkbox"/></p> <p style="text-align: center;">Others <input style="width: 50%;" type="text"/></p>	<p style="text-align: center;">Methods Used</p> <p style="text-align: center;">Cut and Carry <input type="checkbox"/></p> <p style="text-align: center;">Tapping <input type="checkbox"/></p> <p style="text-align: center;">Picking <input type="checkbox"/></p> <p style="text-align: center;">Pork-knocking <input type="checkbox"/></p> <p style="text-align: center;">Others <input style="width: 50%;" type="text"/></p>	<p style="text-align: center;">Frequency of Use</p> <p style="text-align: center;">Daily <input type="checkbox"/></p> <p style="text-align: center;">2-4 times/week <input type="checkbox"/></p> <p style="text-align: center;">Monthly <input type="checkbox"/></p> <p style="text-align: center;">4-6 times/year <input type="checkbox"/></p> <p style="text-align: center;">1-2 times/year <input type="checkbox"/></p> <p style="text-align: center;">Other <input style="width: 50%;" type="text"/></p>	<p style="text-align: center;">Amount Collected</p> <input style="width: 100%; height: 20px;" type="text"/>																
<p style="text-align: center;">Use of Collection</p> <p style="text-align: center;">Domestic Consumption <input type="checkbox"/></p> <p style="text-align: center;">Sale Outside of Village <input type="checkbox"/></p> <p style="text-align: center;">Both <input type="checkbox"/></p> <p style="text-align: center;">% Amount sold outside village <input style="width: 50%;" type="text"/></p>	<p style="text-align: center;">Threats to Site</p> <p style="text-align: center;">Over-Harvesting <input type="checkbox"/></p> <p style="text-align: center;">Mining <input type="checkbox"/></p> <p style="text-align: center;">Poaching <input type="checkbox"/></p> <p style="text-align: center;">Logging <input type="checkbox"/></p> <p style="text-align: center;">Other <input style="width: 50%;" type="text"/></p>	<p style="text-align: center;">Condition of Resource</p> <p style="text-align: center;">Excellent <input type="checkbox"/></p> <p style="text-align: center;">Good <input type="checkbox"/></p> <p style="text-align: center;">Poor <input type="checkbox"/></p> <p style="text-align: center;">Very Poor <input type="checkbox"/></p> <div style="border: 1px solid black; padding: 5px; min-height: 50px;"> <p style="font-size: small; text-align: center;">Notes</p> </div>																		
<b>FARMING</b>																				
<p style="text-align: center;">Farmer's Name</p> <input style="width: 100%;" type="text"/>		<p style="text-align: center;">Site Use Status</p> <p style="text-align: center;">Active <input type="checkbox"/></p> <p style="text-align: center;">Fallow <input type="checkbox"/></p> <p style="text-align: center;">Abandoned <input type="checkbox"/></p>	<p style="text-align: center;">Age of Farm</p> <input style="width: 50%;" type="text"/>	<p style="text-align: center;">Persons Fed</p> <input style="width: 50%;" type="text"/>																
<p style="text-align: center;">Method of Extension</p> <p style="text-align: center;">Shifting <input type="checkbox"/></p> <p style="text-align: center;">Extension <input type="checkbox"/></p> <p style="text-align: center;">Rotation <input type="checkbox"/></p> <p style="text-align: center;">Other <input style="width: 50%;" type="text"/></p>	<p style="text-align: center;">Size of Farm</p> <p style="text-align: center;">&lt; 1 acre <input type="checkbox"/></p> <p style="text-align: center;">1 acre <input type="checkbox"/></p> <p style="text-align: center;">2-5 acre <input type="checkbox"/></p> <p style="text-align: center;">&gt; 5 acre <input type="checkbox"/></p>	<p style="text-align: center;">Soil Type</p> <p style="text-align: center;">Gravelly <input type="checkbox"/></p> <p style="text-align: center;">Sandy <input type="checkbox"/></p> <p style="text-align: center;">Clayey <input type="checkbox"/></p> <p style="text-align: center;">Peggasse <input type="checkbox"/></p> <p style="text-align: center;">Loamy <input type="checkbox"/></p>	<p style="text-align: center;">Main Crops Planted</p> <p style="text-align: center;">Cassava <input type="checkbox"/></p> <p style="text-align: center;">Banana <input type="checkbox"/></p> <p style="text-align: center;">Peanuts <input type="checkbox"/></p> <p style="text-align: center;">Mixed <input type="checkbox"/></p> <p style="text-align: center;">Other <input style="width: 50%;" type="text"/></p>																	
<p style="text-align: center;">Yield per Acre</p> <input style="width: 100%; height: 20px;" type="text"/>	<p style="text-align: center;">Threats to Site</p> <p style="text-align: center;">Over-farming <input type="checkbox"/></p> <p style="text-align: center;">Mining <input type="checkbox"/></p> <p style="text-align: center;">Wildlife <input type="checkbox"/></p> <p style="text-align: center;">Logging <input type="checkbox"/></p> <p style="text-align: center;">Other <input style="width: 50%;" type="text"/></p>	<p style="text-align: center;">Pest and Diseases</p> <p style="text-align: center;">Deer <input type="checkbox"/></p> <p style="text-align: center;">Caterpillar <input type="checkbox"/></p> <p style="text-align: center;">Acoushi Ants <input type="checkbox"/></p> <p style="text-align: center;">Hogs <input type="checkbox"/></p> <p style="text-align: center;">Other <input style="width: 50%;" type="text"/></p>	<div style="border: 1px solid black; padding: 5px; min-height: 100px;"> <p style="font-size: small; text-align: center;">Notes</p> </div>																	
<p style="text-align: center;">Use of Produce</p> <p style="text-align: center;">Domestic Consumption <input type="checkbox"/></p> <p style="text-align: center;">Sale Outside of Village <input type="checkbox"/></p> <p style="text-align: center;">Both <input type="checkbox"/></p> <p style="text-align: center;">% Amount sold outside village <input style="width: 50%;" type="text"/></p>																				

Date <input type="text"/> <input type="text"/> <input type="text"/> 2002 Group <input type="text"/>	<b>Point Identification</b> GPS Unit <input type="text"/> Village <input type="text"/> Feature <input type="text"/> Waypoint <input type="text"/> Code <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<b>Coordinates</b> North <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> West <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Feature Codes: Farming - F, Hunting - H, Fishing - F, Gathering - G	<b>Area Identification</b> Name <input type="text"/>	Use Zone Savannah <input type="checkbox"/> Bush Month <input type="checkbox"/> Bush <input type="checkbox"/> Mountain Foot <input type="checkbox"/> Up the Mountain <input type="checkbox"/>

**HUNTING**

Type of Site	Site Use Status	Species Hunted	Methods Used	Frequency of Use
Feeding Area <input type="checkbox"/>	Active <input type="checkbox"/>	Bush Cow <input type="checkbox"/>	Bow & Arrow <input type="checkbox"/>	Daily <input type="checkbox"/>
Track <input type="checkbox"/>	Inactive <input type="checkbox"/>	Deer <input type="checkbox"/>	Hunting Dogs <input type="checkbox"/>	2-4 times/week <input type="checkbox"/>
Drinking Pond <input type="checkbox"/>		Bush Hog <input type="checkbox"/>	Guns <input type="checkbox"/>	Monthly <input type="checkbox"/>
Nesting Area <input type="checkbox"/>		Powis <input type="checkbox"/>	Traps <input type="checkbox"/>	4-6 times/year <input type="checkbox"/>
Other <input type="text"/>		Others <input type="text"/>	Others <input type="text"/>	1-2 times/year <input type="checkbox"/>
				Other <input type="text"/>

Amount of Catch	Use of Catch	Threats to Site	Condition of Resource
Less than 3 <input type="checkbox"/>	Domestic Consumption <input type="checkbox"/>	Over-hunting <input type="checkbox"/>	Excellent <input type="checkbox"/> Good <input type="checkbox"/>
4-10 <input type="checkbox"/>	Sale Outside of Village <input type="checkbox"/>	Mining <input type="checkbox"/>	Poor <input type="checkbox"/> Very Poor <input type="checkbox"/>
10-20 <input type="checkbox"/>	Both <input type="checkbox"/>	Poaching <input type="checkbox"/>	Notes <input type="text"/>
20-50 <input type="checkbox"/>	% Amount sold <input type="text"/>	Logging <input type="checkbox"/>	
More than 50 <input type="checkbox"/>	outside village	Other <input type="text"/>	

**FISHING**

Type of Site	Site Use Status	Species Fished	Methods Used	Frequency of Use
River <input type="checkbox"/>	Active <input type="checkbox"/>	Huri <input type="checkbox"/>	Hook and line <input type="checkbox"/>	Daily <input type="checkbox"/>
Creek <input type="checkbox"/>	Inactive <input type="checkbox"/>	Yarou <input type="checkbox"/>	Poisoning <input type="checkbox"/>	2-4 times/week <input type="checkbox"/>
Pond <input type="checkbox"/>		Lukunani <input type="checkbox"/>	Seine/ Cast Net <input type="checkbox"/>	Monthly <input type="checkbox"/>
Other <input type="text"/>		Patwa <input type="checkbox"/>	Bow and Arrows <input type="checkbox"/>	4-6 times/year <input type="checkbox"/>
		Others <input type="text"/>	Others <input type="text"/>	1-2 times/year <input type="checkbox"/>
				Other <input type="text"/>

Amount of Catch	Use of Catch	Threats to Site	Condition of Resource
Less than 3 <input type="checkbox"/>	Domestic Consumption <input type="checkbox"/>	Over-fishing <input type="checkbox"/>	Excellent <input type="checkbox"/> Good <input type="checkbox"/>
3-10 <input type="checkbox"/>	Sale Outside of Village <input type="checkbox"/>	Mining <input type="checkbox"/>	Poor <input type="checkbox"/> Very Poor <input type="checkbox"/>
10-20 <input type="checkbox"/>	Both <input type="checkbox"/>	Poaching <input type="checkbox"/>	Notes <input type="text"/>
20-50 <input type="checkbox"/>	% Amount sold <input type="text"/>	Poisons <input type="checkbox"/>	
More than 50 <input type="checkbox"/>	outside village	Other <input type="text"/>	

## Field Observation Data-Farming

Total Number of Points 308

### Use Zone

Savannah	Bush Mouth	Bush	Mountain Foot	Up The Mountain	No Response		
3	62	169	48	24	2		
1%	20%	55%	16%	8%	1%		

### Use Status

Active	Fallow	Abandoned	No Response				
288	17	2	1				
94%	6%	1%	0%				

### Method of Extension

Shifting	Extension	Rotation	Other	No response			
84	172	21	6	25			
27%	56%	7%	2%	8%			

### Size of Farm

< 1 Acre	1 Acre	2-5 Acre	> 5 Acre	No Response			
53	96	103	45	11			
17%	31%	33%	15%	4%			

### Number of Persons Dependent on Farm

Total	Average						
1658	5.64						

### Soil Type

Gravelly	Sandy	Clayey	Peggasse	Loamy	No Response		
27	162	20	6	82	11		
9%	53%	6%	2%	27%	4%		

### Main Crops Planted

Cassava	Banana	Peanuts	Mixed	Other	No Response		
92	23	9	168	9	7		
30%	7%	3%	55%	3%	2%		

### Use of Produce

Domestic Consumption.	Sale	Both	No Response				
203	9	76	18				
66%	3%	25%	6%				

### Threats to Site

Over-Farming	Mining	Wildlife	Logging				
6	15	35	3				

### Pest and Diseases

Deer	Caterpillar	Acoushi Ants	Crickets	Hogs	Monkeys	Birds	Agouti
150	142	196	4	143	12	1	47

## Field Observation Data - Hunting

Total Number of Points 376

### Use Zone

Savannah	Bush Mouth	Bush	Mountain Foot	Up The Mountain	Swamp	Not Stated
36	41	137	53	100	6	3
10%	11%	36%	14%	27%	2%	1%

### Type of Site

Feeding Area	Track	Drinking Pond	Nesting Area	Combined	No Response
113	38	16	3	203	3
30%	10%	4%	1%	54%	1%

### Use Status

Active	Inactive	No Response
361	3	12
96%	1%	3%

### Species

Bush Cow	Deer	Bush Hog	Powis	Armadillo	Turtles	Labba	Acouri
318	327	316	274	33	84	126	4

### Methods

Bow and Arrows	Hunting Dogs	Guns	Traps
345	308	279	63

### Frequency of Use

Daily	2-4X/week	monthly	4-6 X /year	1-2 X /year	No Response
16	88	118	79	68	7
4%	23%	31%	21%	18%	2%

### Amount of Catch

< 3	3 to 10	10 to 20	20 to 50	> 50	No Response
223	78	50	6	4	15
59%	21%	13%	2%	1%	4%

### Use of Catch

Dom. Consumpt	Sale	Both	No Response
338	1	26	11
90%	0%	7%	3%

### Threats to Site

Over-Hunting	Mining	Poaching	Logging
15	3	4	5

### Condition of Resource

Excellent	Good	Poor	Very Poor	No Respect
215	144	1	1	15
57%	38%	0%	0%	4%

Percentages represent fraction of total points geo-referenced. They are shown when only one response per question was possible

## Field Observation Data - Fishing

Total Number of Points 300

### Use Zone

Savannah	Bush Mouth	Bush	Mountain Foot	Up The Mountain	Swamp	Not Stated
30	35	138	65	27	4	1
10%	12%	46%	22%	9%	1%	0%

### Type of Site

River	Creek	Pond	Other	No Response		
77	194	24	2	3		
26%	65%	8%	1%	1%		

### Use Status

Active	Inactive	No Response				
289	4	7				
96%	1%	2%				

### Species Fished

Arapima	Tiger Fish	Lukunani	Biaira	Houri	Yarrow	
3	77	120	43	220	208	

Patwa	Piaba	Haimara	Kassi			
202	53	73	63			

### Methods Used

Hook and Line	Poisoning	Cast Net/Seine	Bow and Arrows			
276	49	181	231			

### Frequency of Use

Daily	2-4X/week	Month	4-6 X /year	1-2 X /year	No Response	
40	85	81	51	34	9	
13%	28%	27%	17%	11%	3%	

### Amount of Catch

< 3	3 to 10	10 to 20	20 to 50	> 50	No Response	
5	51	83	75	82	4	
2%	17%	28%	25%	27%	1%	

### Use of Catch

Dom. Consumpt	Sale	Both	No Response			
272	4	19	5			
91%	1%	6%	2%			

### Threats to Site

Over-Fishing	Mining	Poaching	Poisons			
27	11	7	14			

### Condition of Resource

Excellent	Good	Poor	Very Poor	No Response		
166	129	2	1	2		

## Field Observation Data - Gathering

Total Number of Points 391

### Use Zone

Savannah	Bush Mouth	Bush	Mountain Foot	Up The Mountain	No Response
10	40	134	71	130	6
3%	10%	34%	18%	33%	2%

### Use Status

Active	Inactive				
382	9				
98%	2%				

### Species Collected

Palm Leaves	House Poles	Muckru	Nibbi	Wild Fruits	
151	13	193	100	229	

### Methods Used

Cut and Carry	Tapping	Picking	Pork knocking		
327	82	197	28		

### Frequency of Use

Daily	2-4 times /week	Monthly	4-6 Times /year	1-2 Times /year	No Response
25	37	73	94	150	12
6%	9%	19%	24%	38%	3%

### Use of Collection

Dom. Consumpt	Sale	Both	No Response		
339	18	19	15		
87%	5%	5%	4%		

### Threats to Site

Over-Harvesting	Mining	Poaching	Logging		
12	0	1	20		

### Condition of Resource

Excellent	Good	Poor	Very Poor	No Response	
198	180	2	0	11	
51%	46%	1%	0%	3%	

## **APPENDIX FOUR**

### **VILLAGE SURVEY INTERVIEW QUESTIONNAIRE AND SUMMARY RESULTS TABLES**

#### **Conservation International Guyana**

#### **COMMUNITY RESOURCE EVALUATION VILLAGE SURVEY**

##### **FARMING**

- (1) How many farms do you have?
- (2) Where are your farm(s) located (savannah, bush mouth, up the mountain etc.)?
- (3) How big is your farm(s)?
- (4) How do you get to your farm (bicycle, walking, boat etc.)?
- (5) How far away is your farm (hours/minutes)?
- (6) How often do you go to your farm?
- (7) How much of your produce do you sell and where?
- (8) What are the threats that affect your farm?
- (9) What do you think is the biggest threat to your farm?
- 10) How do you solve these problems?
- (11) What has changed?

##### **HUNTING AND FISHING**

- (1) Where do you go to hunt / fish?
- (2) How often do you go there to fish/hunt?
- (3) What are the methods that you use (e.g. hook and line, seine etc.)?
- (4) Do you sell any of the fish or game that you catch (in the village, Lethem etc.) and how much of it do you sell?
- (5) What are the threats that affect your hunting/fishing resources?

(4) Do you have to go further to fish or hunt than you did in the past?

(5) How much further do you have to go (time)?

(6) Is the fish or game as available as it used to be in the past?

(7) Is there any animal/fish that is not there anymore?

(8) What has changed?

### **GATHERING**

(1) Where do you go to gather materials?

(2) How often do you go to gather materials?

(3) Do you sell any of the materials that you gather (in the village, Lethem etc.) and how much do you sell?

(4) What are the threats to the resources that you gather?

(5) Are the resources that you gather, as available as in the past?

(6) Do you have to go further than you did before?

(7) How much further do you have to go (time/miles)?

(8) Is there any material that you used to gather that is not there anymore?

(9) What has changed?

## Village Survey Data: Farming

Total Responses 557

### Age

15-28	29-40	41-55	Above 55	Not Stated			
86	147	171	125	28			
15%	26%	31%	22%	5%			

### Gender

Male	Female	Not Indicated					
295	257	5					
53%	46%	1%					

### Number of Dependants

Total	Average						
3154	5.66						

### Number of Farm Sites

Total	Average						
1334	2.39						

### Size of Farm

< 1 Acre	1>2 Acre	2-4 Acre	> 5 acres	Other	No Response	Total Acres	Average Size
97	153	181	33	93	0	1490	2.67
17%	27%	32%	6%	17%	0%		

### Farming Zone

Savannah	Bush	Bush Mouth	Deep Bush	Mountain Foot	Up the Mountain	Other	No Response
31	57	193	85	64	78	49	0
6%	10%	35%	15%	11%	14%	9%	0%

### Methods of Transportation

Walking	Bicycle	Bullock Cart	Boat	Other	No Response		
364	212	139	77	13	1		
65%	38%	25%	14%	2%	0%		

### Frequency of Use

Daily	2 x wk	3 x wk	4 x wk	5 x wk	Weekly	2 x mth	3 x mth
188	59	40	15	3	150	5	1
34%	11%	7%	3%	1%	27%		

Monthly	Seasonally	Quarterly	2 x Yr	Yearly	Other	No Response	
13	7	0	1	0	11	64	
2%	1%	0%	0%	0%	2%	11%	

#### Use of Produce

Domestic Consumption	Sale	Both	No Response				
154	17	320	68				
28%	3%	57%	12%				

#### Threats to Farms

Wild Animals	Acoushi Ants	Weather	Caterpillars	Domestic Animals	Monkeys	Weeds	Fire
376	352	77	45	57	44	11	4
Acouri	Rodents	Birds	People	Disrespect	Other	No Response	
0	6	16	7	10	50	1	

#### Biggest Threat to the Farm

Wild animals	Birds	Acoushi Ants	Caterpillars/ Insects	Domestic animals	Weeds	Fire	Weather
161	2	241	10	24	9	3	38
People/Theft/ Disrespect	Other	No threats	No Response				
7	4	8	50				

**Village Survey Data: Hunting**  
**Total Responses 165**

**Age**

	15-28	29-40	41-55	Above 55	Not Indicated			
23	51	57	33	1				
	14%	31%	35%	20%	0%			

**Gender**

	Male	Female	Not Indicated				
126	39	0					
	76%	24%	0%				

**Number of Dependants**

	Total	Average					
959	5.81						

**Frequency of Use**

	Daily	2 x wk	3 x wk	4 x wk	5 x wk	Weekly	2 x mth	3 x mth
16	4	1	0	0	42	0	0	
	10%	2%	1%	0%	0%	25%	0%	0%

	Monthly	Seasonally	Quarterly	2 x Yr	Yearly	Other	No Response	
36	17	3	0	2	39	5		
	22%	10%	2%	0%	1%	24%	3%	

**Methods Used**

	Arrow & Bows	Guns	Dogs	Other	No Response	Traps		
89	15	19	7	33	2			
	54%	9%	12%	4%	20%			

**Hunting Zone**

	Savannah	Bush Mouth	Bush	Mountain Foot	Up The Mountain	Deep Bush	Other	No Response
17	7	22	13	26	56	9	15	
	10%	4%	13%	8%	16%	34%	5%	9%

**Hunting Site**

	Feeding area	Track	Pond	Creek	Nesting area	Combined	No Response	
0	0	1	7	0	95	62		
	0%	0%	1%	4%	0%	58%	38%	

**Use of Catch**

	Dom. Consumpt	Sale	Both	No Response			
107	5	48	5				

65%      3%      29%      3%

**Threats to Site**

Over-Hunting	Mining	Weather	New Methods	Fire	Population	Tiger	Outsiders
17	0	17	3	13	39	4	29
10%	0%	10%	2%	8%	24%	2%	18%

Increase of hunters	Malaria	Logging	Other	No Response			
1	3	1	1	29			
1%	2%	1%	1%	18%			

**Do You Go Further to Hunt?**

Yes	No	No Response					
129	11	25					
78%	7%	15%					

**Change In Resource availability**

Yes	No	No Response					
92	10	63					
56%	6%	38%					

**Extinct or Scarce Species**

Deer	Armadillo	Turtles	Birds	Other			
17	18	12	2	12			
10%	11%	7%	1%	7%			

## Village Survey Data: Fishing

**Total Responses 448**

### Age

	15-28	29-40	41-55	Above 55	Not Indicated			
65	135	138	104	6				
	15%	30%	31%	23%	1%			

### Gender

	Male	Female	Not Indicated					
273	170	5						
	61%	38%	1%					

### Number of Dependants

	Total	Average						
2639	5.89							

### Frequency of Use

	Daily	2 x wk	3 x wk	4 x wk	5 x wk	Weekly	2 x mth	3 x mth
144	28	9	2	0	114	7	3	
	32%	6%	2%	0%	0%	25%	2%	1%

	Monthly	Seasonally	Quarterly	2 x Yr	Yearly	Other	No Response	
37	20	3	0	4	74	3		
	8%	4%	1%	0%	1%	17%	1%	0%

### Fishing Zone

	Savannah	Bush Mouth	Bush	Deep Bush	Mountain Foot	Up Mountain	Other	No Response
127	12	66	41	26	32	7	137	
	28%	3%	15%	9%	6%	7%	2%	31%

### Fishing Site

	River	Creek	Pond	Falls	Combined	No Response		
46	241	17	5	121	18			
	10%	54%	4%	1%	27%	4%		

### Use of Catch

	Dom. Consumpt	Sale	Both	No Response				
298	10	138	2					
	67%	2%	31%	0%				

**Methods Used**

Hook and Line	Poisoning	Cast Nets	Bow and Arrow	Seine	New Method	No Response	
356	42	91	117	227	86	28	
79%	9%	20%	26%	51%	19%	6%	

**Threats to Site**

Over fishing	Weather	Poison	Population	New_Methods	Outsiders	Fire	Crabs
46	55	95	98	59	33	17	5
Stop Off	Pollution	Disrespect	Gator/Caiman	Perai	Water dog	Other	No Response
2	2	3	6	3	5	48	32

**Do you Fish Further?**

Yes	No	No Response					
335	34	79					
75%	8%	18%					

**Change In Resource Availability**

Yes	No	No Response					
303	22	123					
68%	5%	27%					

**Extinct or Scarce Species**

Arapaima	Big Fishes	Lukunani	Turtles	Arawana	Yakatu	Tiger Fish	Other
71	35	33	20	19	15	41	47
16%	8%	7%	4%	4%	3%	9%	10%

## Village Survey Data: Gathering

**Total Responses 366**

### Age

	15-28	29-40	41-55	Above 55	Not Indicated			
51	107	127	77	4				
	14%	29%	35%	21%	1%			

### Gender

	Male	Female	Not Indicated				
236	126	4					
	64%	34%	1%				

### Number of Dependants

	Total	Average					
2152	5.88						

### Frequency of Use

	Daily	3 xwk	Weekly	3 x mth	Monthly	Quarterly	Seasonally	2 x Yr
11	1	11	3	21	7	18	7	
	3%	0%	3%	1%	6%	2%	5%	2%

	Yearly	Every 2 yrs	Every 5 yrs	Other	No Response		
63	9	21	162	24			
	17%	2%	6%	44%	7%		

### Gathering Zone

	Savannah	Bush Mouth	Bush	Mountain Foot	Up The Mountain	Deep Bush	Other	No Response
16	46	57	57	71	58	12	49	
	4%	13%	16%	16%	19%	16%	3%	13%

### Use of Catch

	Dom. Consumpt	Sale	Both	No Response			
229	12	68	57				
	63%	3%	19%	16%			

### Threats to Site

	Over-Harvesting	Weather	Population	Fire	Woodants	Clearing land/farms	Outsiders	Logging/Cutting
46	7	77	68	10	6	8	13	
	Overlap res	acoushi ansts	New methods	Wastage	Other	No Response		
2	1	6	8	29	100			

**Do you Gather Further?**

Yes	No	No Response					
145	44	177					
40%	12%	48%					

**Change In Resource availability**

Yes	No	No Response					
190	95	81					
52%	26%	22%					

**Extinct or Scarce Species**

Manicole	Arowa leaves	Cedar	Grn/Purp Heart				
2	2	25	4				

**APPENDIX FIVE**

**EVALUATION QUESTIONNAIRE  
CRE Evaluation Survey**

Please answer the following questions by placing a tick (✓) in the box that best says what you think.

**1. Check the box that best says why the CRE was done in your village.**

- to help us to learn about our resources
- to help the village to share information about how the Kanuku Mountains are used.
- to make a map of the area
- Other \_\_\_\_\_

**2. Do you think the CRE participant group represented all parts of your village?**

- Yes-very well
- Partly, but could have been better
- No

If you marked PARTLY or NO, what groups were not represented?

---

**3. How well did the tools you created at the CRE Workshop help you communicate your resource use?**

- | <b>Resource List</b>               | <b>Seasonal Calendar</b>           | <b>Sketch Maps</b>                 |
|------------------------------------|------------------------------------|------------------------------------|
| <input type="checkbox"/> Very Much | <input type="checkbox"/> Very Much | <input type="checkbox"/> Very Much |
| <input type="checkbox"/> A little  | <input type="checkbox"/> A little  | <input type="checkbox"/> A little  |
| <input type="checkbox"/> Not Much  | <input type="checkbox"/> Not Much  | <input type="checkbox"/> Not Much  |

**4. Do you feel that you had an opportunity to share your knowledge?**

- |                                    |                                   |                                   |
|------------------------------------|-----------------------------------|-----------------------------------|
| <input type="checkbox"/> Very Much | <input type="checkbox"/> A little | <input type="checkbox"/> Not much |
|------------------------------------|-----------------------------------|-----------------------------------|

**5. Did you personally learn more about how your village uses the mountains?**

- |                                    |                                   |                                   |
|------------------------------------|-----------------------------------|-----------------------------------|
| <input type="checkbox"/> Very Much | <input type="checkbox"/> A little | <input type="checkbox"/> Not much |
|------------------------------------|-----------------------------------|-----------------------------------|

**6. Has the workshop allowed you to express you resource use to people outside your village?**

- |                                    |                                   |                                   |
|------------------------------------|-----------------------------------|-----------------------------------|
| <input type="checkbox"/> Very Much | <input type="checkbox"/> A little | <input type="checkbox"/> Not much |
|------------------------------------|-----------------------------------|-----------------------------------|

**7. Were the village surveys a good way to gather information from other villagers?**

- |                                    |                                   |                                   |
|------------------------------------|-----------------------------------|-----------------------------------|
| <input type="checkbox"/> Very Much | <input type="checkbox"/> A little | <input type="checkbox"/> Not much |
|------------------------------------|-----------------------------------|-----------------------------------|

**8. Do you think the “Bush Trips” were a good way to see and learn about where the village uses the Mountains?**

- |                                    |                                   |                                   |
|------------------------------------|-----------------------------------|-----------------------------------|
| <input type="checkbox"/> Very Much | <input type="checkbox"/> A little | <input type="checkbox"/> Not much |
|------------------------------------|-----------------------------------|-----------------------------------|

**9. Did the CRE help you learn more about the threats to your resources?**

- |                                    |                                   |                                   |
|------------------------------------|-----------------------------------|-----------------------------------|
| <input type="checkbox"/> Very Much | <input type="checkbox"/> A little | <input type="checkbox"/> Not much |
|------------------------------------|-----------------------------------|-----------------------------------|

**10. Do you think a Protected Area could help preserve your resources for the future?**

- Very Much       A little       No       Don't know

**11. Why you think the Government of Guyana wants to protect the Kanuku Mountains?**

---

---

**12. Did today's workshop help you understand the results of the CRE?**

- Very Much       A little       Not much

**13. Did you understand the information presented in today's workshop?**

**Bush Reports**

- Very Much  
 A little  
 Not Much

**New Maps**

- Very Much  
 A little  
 Not Much

**Graphs and Tables**

- Very Much  
 A little  
 Not Much

**14. Did the interpretation into the local language help you understand the CRE and the information presented today?**

- Very Much       A little       Not much

**15. Do you agree that the information reported in today's workshop is what you shared during the CRE?**

- Yes       Partly       No

If you answered PARTLY, or NO, what information did you not agree with?

---

**16. What do you need to know more about?**

- Why the government wants to protect the Kanuku's  
 Protected Areas in general       How protected areas are managed  
 Conservation International       Other \_\_\_\_\_

**17. What is the best way to bring you this information?**

- Workshops       Written Materials  
 Radio       Newsletters  
 Other \_\_\_\_\_

**18. Is having a Community Coordinator a good way to help your village understand about Protected Areas?**

- Yes       No

Please explain your answer.

---

## Evaluation Questionnaire Responses - All Villages

### Total Responses

405

1) Which best says why the CRE was done in your village?

To help us learn more about our resources	
213	
To help villagers share info about how the Kanuku Mountains are used	
249	
To make a map of the area	Other
73	2

2) Do you think that the CRE participant group represented all parts of your village?

Yes-very well	Partly but could have been better	No	# Responses	Not Stated
333	56	4	393	11
85%	14%	1%		

3) How well did the tools you created at the CRE Workshop help you to communicate your resource use?

(a) The Resource List

Very Much	A Little	Not Much	# Responses	Not stated
296	48	17	361	43
82%	13%	5%		

(b) The Seasonal Calendar

Very Much	A Little	Not Much	# Responses	Not stated
260	57	14	331	73
79%	17%	4%		

(c) The Sketch Maps

Very Much	A Little	Not Much	# Responses	Not stated
255	49	33	337	67
76%	12%	8%		17%

4) Do you feel that you had the opportunity to share your knowledge?

Very Much	A Little	Not Much	# Responses	Not stated
235	90	45	370	34
64%	24%	12%		

5) Did you personally learn more about how your village uses the mts?

Very Much	A Little	Not Much	# Responses	Not stated
278	60	40	378	26
74%	16%	11%		

6) Has the workshop allowed you to express your resource use to people outside your village?

Very Much	A Little	Not Much	# Responses	Not stated	
225	72	63	360	44	
63%	20%	18%			

7) Were the Village Surveys a good way to gather information from other villagers?

Very Much	A Little	Not Much	# Responses	Not stated	
279	55	33	367	37	
76%	15%	9%			

8) Do you think the "Bush Trips" were a good way to see and learn about where the village uses the mountains?

Very Much	A Little	Not Much	# Responses	Not stated	
335	29	14	378	26	
89%	8%	4%			

9) Did the CRE help you learn more about the threats to your resources?

Very Much	A Little	Not Much	# Responses	Not stated	
302	46	27	375	29	
81%	12%	7%			

10) Do you think that a Protected Area could help preserve your resources for the future?

Very Much	A Little	No	Don't Know	# Responses	Not stated
289	25	11	58	383	21
75%	7%	3%	15%		

11) Why do you think that the Government of Guyana wants to protect the Kanuku Mountains?

12) Did today's workshop help you understand the results of the CRE?

Very Much	A Little	Not Much	# Responses	Not stated	
304	68	16	388	16	
78%	18%	4%			

13) Did you understand the info presented in today's workshop?

(a) The Bush Reports

Very Much	A Little	Not Much	# Responses	Not stated	
275	81	23	379	25	
73%	21%	6%			

(b) The New Maps

Very Much	A Little	Not Much	# Responses	Not stated	
213	99	36	348	56	
61%	28%	10%			

(c) The Graphs and tables

Very Much	A Little	Not Much	# Responses	Not stated	
221	74	43	338	66	
65%	22%	13%			

14) Did the interpretation into the local language help you understand the CRE

Very Much	A Little	Not Much	# Responses	Not stated	
287	63	34	384	20	
75%	16%	9%			

15) Do you agree that the info reported in today's workshop is what you shared during the CRE?

Yes	Partly	No	# Responses	Not Stated	
362	18	7	387	17	
94%	5%	2%			

16) What do you need to know more about?

Why the Govt. wants to protect the Kanukus.	Protected Areas in general	Conservation International	How protected areas are managed.	Other	
162	119	61	187	2	

17) What is the best way to bring you this information?

Workshops	Radio	Written Materials	Newsletter	Other	
342	61	51	63	3	

18) Is having a community coordinator a good way to help your village understand about Protected Areas?

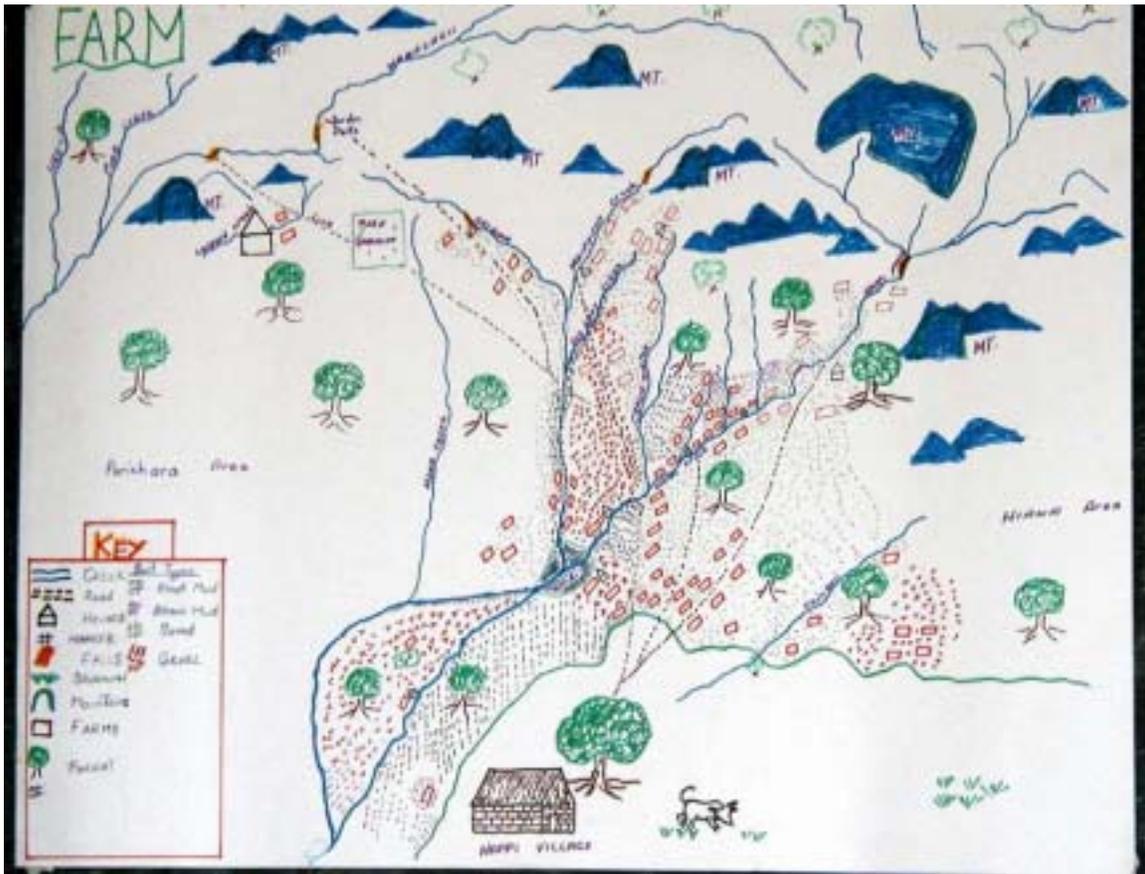
Yes	No	# Responses	Not Stated		
342	43	385	19		



APPENDIX SEVEN

SAMPLE VILLAGE SKETCH MAP

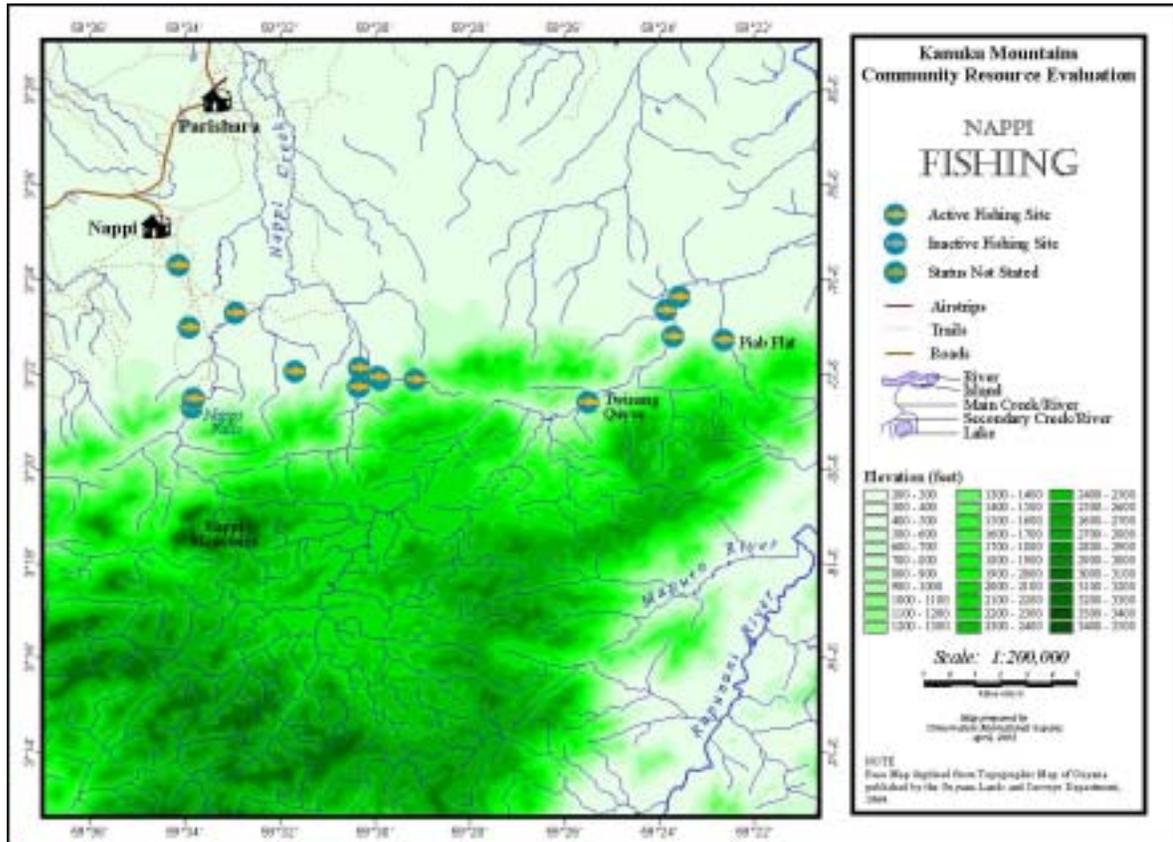
SKETCH MAP OF NAPPI VILLAGE FARMING USE



# APPENDIX EIGHT

## SAMPLE INDIVIDUAL COMMUNITY DIGITISED MAP

Digitised Fishing Point Record Map of Nappi Village



## APPENDIX NINE: TEAM PROFILES

### **Andrew Demetro (Indigenous Knowledge Advisor):**

Andrew Demetro is from the village of Nappi where he served as Touchau for 8 years. He has been working with CI-Guyana for more than ten years. Andrew was part of the original design team, which developed the concept of the Community Resource Evaluation.

During the CREs, Andrew served as co-lead facilitator for CRE activities, as lead for the bush fieldwork, and as an interpreter for the Macushi language. Andrew participated in nine CREs and served as lead implementer for three additional data gathering field exercises. He led nine Bush Team trips over approximately 600 miles and 41 days duration.

As a member of the technical team in the Lethem office, Andrew advises on community relations and methodology design for all community activities. His overall responsibilities include:

- Methodology design
- Facilitation
- Training
- Community Relations

### **Nial Joseph (GIS/IT Technician):**

Nial is originally from St. Ignatius, but lives in Lethem. He has been working with CI-Guyana since June 2001. Nial participated in ten CREs. His role on Team A included:

- Focus group leader
- Bush Team leader.
- Facilitator for Mapping Mini lecture and GPS training
- Technical lead (responsibility for equipment, video shows, photo management, onsite design and presentation of closing photo show)

Nial was responsible for all GIS work related to the CRE fieldwork. He transferred all information from GPS units, maintained files and liaised with the GIS specialist in Georgetown. Nial managed the mapping software and assisted in the production of all digitised maps. Nial's responsibilities also included issuing of all equipment in preparation for each CRE activity. He has acquired skills in MS Word, PowerPoint, ArcView, OziExplorer, and Camedia Photo Management, in addition to technical skills in IT support. Nial trained both in Georgetown and Washington, D.C., in Information Technology support for all computer equipment in the Lethem office.

Nial led nine Bush Team trips with over 45 participants and 35 days duration covering over 600 miles.

**Lloyd Ramdin (Agriculture Advisor):**

Lloyd is originally from the Upper Essequibo and has been working for CI for nearly two years. A graduate of the University of Guyana, he served as lead advisor for agriculture. Lloyd participated in nine CREs. His role on the team included:

- Focus Group leader
- Bush team leader
- Mini-lectures on soils and agriculture for participants and students
- Technical assistant on photography and video

Lloyd was responsible for the production of all printed materials for the CRE activities, having acquired skills in MS Word, Publisher and PowerPoint. He co-designed a three-day training program for community field team leaders in CRE methodology, data gathering and GPS use. He also designed and presented presentations for participants and students in agricultural topics. Lloyd led nine Bush Team trips with 48 participants over 36 days covering more than 600 miles.

**Margaret Gomes (Wapishana Interpreter):**

Margaret is originally from Aishalton and now lives in Sand Creek. Before joining CI she was very involved in the community, in the church, women's group, the PTFA and the South Central Indigenous Peoples' Development Association (SCIPDA). Margaret participated in nine CREs. Her role on the team included:

- Wapishana interpretation
- Facilitator
- Lead Facilitator Village Team Activities
- Focus Group Leader
- Supply Manager (supervising preparation of 300 meals during the activity)

Maggie was responsible for all supplies-food and stationery-for all CRE activities. She inventoried, purchased, and distributed all supplies, managed purchasing funds, and supervised all supplies for both teams for each activity. During the CRE workshop, Maggie filled the role of lead facilitator for the Village Team activities, including:

- The village sketch map
- Village survey
- Preparation of participants for the student and public meeting presentations
- Student interactions

Maggie has acquired skills in purchasing and inventory management, bookkeeping and cash management. She also led a Bush Team during the Katoka Pilot CRE.

**Vitus Antone (Forest Resource Advisor):**

Vitus was born in Shea, and more recently resided in Surama before joining the CIG staff in Lethem. Before joining CI in April of 2002, he worked at Iwokrama as a forest ranger, where he completed their Ranger Training Programme. He attended the Guyana School of Agriculture and received a Diploma in Forestry from the University of Guyana. Vitus participated in eight CREs. His role for Team B included:

- Co-lead facilitator
- Bush Team Leader
- Focus Group Leader
- Lead responsibility for Bush Team activities
- Technical lead for photography, video, GPS work

Vitus co-facilitated the team's activities. He held lead responsibility for all photographic data, including downloading of images, maintenance and identification. Vitus designed and delivered presentations on forestry topics for the student interactions using digital photo presentations and PowerPoint, and has delivered mini-lectures on his experiences while working with Iwokrama. He manages the technical issues for Team B, including GPS training and mapping lectures. Vitus has led six Bush Teams with 33 participants over 24 days and 430 miles. He also co-designed and implemented the community field leader training as well as delivered training in report writing for the CRE team members.

**Natalie Victoriano (Macushi Interpreter):**

Natalie is originally from Kumu Village. She has worked with CI since January of 2001. Before joining the organization she was a Women's Group Leader, Church Assistant and a Village Councillor. Natalie participated in ten CREs. Her role on the team included:

- Interpreter
- Facilitator
- Focus Group Leader
- Lead Facilitator Village Team
- Supply Manager

Natalie assisted Margaret Gomes in supply management, taking responsibility for all medical/first aid supplies. She assisted in supply inventories and maintained supply list and menus on the computer using MS Word. During the workshops, Natalie managed the kitchen and the preparation of over 300 meals and all rations for the bush teams. As Village Team leader, Natalie facilitated all Village Team activities, including:

- The village sketch map
- Village survey
- Preparation of participants for the student and public meeting presentations
- Student interactions

Natalie also led Bush Teams for the Katoka Pilot and the Maruranau CRE.

**Richard Wilson (Indigenous Knowledge Advisor):**

Richard Wilson has worked with CI- Guyana since April 2001. He is originally from Rupunau Village where he was formerly the Touchau. Richard completed ten CREs. His role on the team included:

- Wapishana Interpreter
- Facilitator
- Bush Team Leader
- Focus Group Leader

Richard assisted in logistics for launching the CRE activities. He provided interpretation during CRE workshops in Wapishana communities. As Bush Team leader, he assisted in training participants in GPS use and data collection. He led nine Bush Team trips covering approximately 440 miles over 37 days, training 46 participants. Richard has acquired skills in digital photography, GPS, operation of audio/visual equipment and use of the Internet.

**Sebastian Tancredo (Field Team Leader):**

Sebastian is a resident of Nappi Village, where he worked with CIG doing primate research in 2000-2001, using GPS units to geo-reference habitat sites. He worked with the CRE team as a field team leader for Team B, participating in four CRE workshops. Sebastian led five Bush Team trips, including the additional four-day fieldwork trip in Nappi. His role during the workshops included:

- Interpretation
- GPS Training
- Bush Team Leader
- Focus Group Leader

**Julie Kanhai (Database Coordinator):**

Julie is originally from Georgetown and has been working with CI since February 2002. Julie attended the University of Guyana and also taught at the St. Ignatius Secondary School. She participated in the design of the information databases and served as Data Input Manager and as backup facilitator for the CRE workshops. Julie participated in four CREs. Her role on Team A included:

- Facilitation
- Village team group leader
- Focus group leader
- Supply manager

Julie managed all data gathered during the CRE, including data forms, surveys, lists, calendars, participant information, attendance and field notes-both electronic and hard copy. She tracked and input all data as it arrived from each completed CRE. Julie has added to her computer skills in MS Excel, Access, Publisher and PowerPoint.

**Esther McIntosh (CRE Facilitator):**

Esther is from Georgetown. She has been working with CI-Guyana since February 2002, as the co-facilitator of the overall CRE program. She participated in eight CRE exercises. Her responsibilities during the workshops included:

- Facilitator
- Village Team leader
- Logistics
- Management
- Reporting

Esther was lead facilitator for team “B”, and overall lead for the Village Team and student activities. She was instrumental in the implementation of the entire CRE program, participating in designing methodology, capacity building, training, and reporting.

**Wendy Leandro (Education and Awareness Assistant):**

In addition to her role as part of the Education and Awareness team, Wendy participated in the St. Ignatius and Parishara CREs providing support in facilitation, survey activities, and photography. She also assisted in Wapishana interpretation during these and the Quarrie CRE.

**Patricia Fredericks (Education and Awareness Coordinator):**

Patricia has been working with CI-Guyana for over two years. She is originally from the northwest, but is a longtime resident of the Rupununi and was an educator for more than thirty years. Patricia led the Community Leadership Workshop Programme, the Teacher’s Training Workshops and Environmental Camps. During the CRE exercise in St. Ignatius she facilitated activities and led a village survey team.

**George Franklin (Regional Manager):**

George has been working with CI-Guyana for over ten years. He has overall responsibility for the Lethem field office activities. He served as part of the original design team, which developed the concept for the CRE methodology and provided field management for the entire CRE program. George participated in three CRE workshops where his role included the following:

- Facilitator
- Logistics
- Village Team Leader

**Susan Stone (Program Manager):**

Susan is from California, USA. She has been working with CI-Guyana since 2000. Her first year in the Rupununi was spent living in the village of Nappi where she worked along with the Nappi Balata Artisans and women's sewing groups in Enterprise Development. She led the original design team, which developed the concept of the Community Resource Evaluation methodology.

As the Program Manager, Susan had overall responsibility for the CREs, which included:

- Planning, design and implementation
- Training and capacity building
- Management and budgeting
- Evaluation and reporting

In total she participated in nine CRE exercises. During the workshops she served as the lead facilitator for the team. In addition she oversaw the logistics of the activity, the bush team, and the village teamwork.

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