



**Assessing the effectiveness of community-based management strategies for
biocultural diversity conservation**

**WP 2 – Biological diversity analysis and its
implementation for community-based
monitoring**

**D 2.3 Field Identification Guide: an aid for
community biodiversity monitoring**



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Table of Contents

<u>WP 2 – BIOLOGICAL DIVERSITY ANALYSIS AND ITS IMPLEMENTATION FOR COMMUNITY-BASED MONITORING.....</u>	<u>1</u>
<u>D 2.3 FIELD IDENTIFICATION GUIDE: AN AID FOR COMMUNITY BIODIVERSITY MONITORING</u>	<u>1</u>
LIST OF TABLES.....	5
INTRODUCTION	6
METHODOLOGY FOR SELECTED THEMES OF STUDY	7
THEMES OF STUDY.....	8
CALAKMUL FIELDSITES: THEMES OF STUDY AND COMMUNITY RESEARCH GROUPS.....	8
PILON LAJAS FIELDSITES: THEMES OF STUDY AND COMMUNITY RESEARCH GROUPS.....	10
BRAZIL FIELDSITES: THEMES OF STUDY AND COMMUNITY RESEARCH GROUPS.....	11
FIELD IDENTIFICATION GUIDES.....	14
ANNEX 1 GUIDES OR BROCHURES: RESULTS OF COMMUNITY RESEARCH GROUPS. CALAKMUL, CAMPECHE, MEXICO	15
ANNEX 2 GUIDES OR BROCHURES: RESULTS OF COMMUNITY RESEARCH GROUPS. PILÓN LAJAS, BENI, BOLIVIA	15
ANNEX 3 GUIDES OR BROCHURES: RESULTS OF COMMUNITY RESEARCH GROUPS. JAQUEIRA RESERVE, SOUTHERN BAHIA, BRAZIL.....	15
LITERATURE CITED	16



List of Tables

Table 1 Name of community research groups in the different communities considered field sites in COMBIOSERVE project



Introduction

This deliverable presents the results of the community-based monitoring carried out during COMBIOSERVE in the form of guides and brochures which document the processes that different community research teams implemented to carry out research on their chosen theme of study.. Since not all themes selected led to conduct species inventories, not all of the guides are actual “field identification guides”. Rather, each document was devised and adapted to the specific results of the community research groups and to the way they wanted to present the information.

The guides represent the outcome of a two-year process during which community research teams carried out first hand inquiry. Using this approach, community researchers were trained, and increased their skills in accessing and generating knowledge regarding biodiversity and natural resources. The objective was to develop and apply methods for conducting participatory research regarding biodiversity in a co-inquiry manner. The methodology for this has been described in detail in D 2.2 Manual for Community Rapid Biodiversity Assessment, and includes results from four field sites. In the present document, we describe the conceptual framework and the steps that are needed for conducting processes of biodiversity monitoring in a co-inquiry approach. Our process involved the creation of community research teams in the different fieldsites that could address issues of interest to the community in the context of biodiversity and conservation. Groups were formed of community researchers that were members of the participating communities, as well as of external researchers, represented by members of the local CSOs and RTDs.

Our first challenge was to adapt a methodology for “monitoring biodiversity” into a participatory approach for addressing themes of study that were of interest to community participants and that we considered of a great value for the success of the research process. For this, we followed a process that seeks to integrate local and scientific understandings for generating information to support local decision-making regarding management and conservation. We began by recognizing the local capabilities of groups and individuals on the topics of their particular interest. Within the conceptual framework, we assumed that local



knowledge and cultural practices are greatly derived through observations of the cyclical activities that relate to production practices, implying observations on biological and ecological phenomena that relate to natural resources management. In that sense, experimentation and empirical knowledge are part of the continuous and common practices of local people. Local abilities can therefore be strengthened through systematization and research, with the aim of consolidating community organization for management and conservation; it also helps to develop a constructive and critical attitude (Berkowitz et al 2005). The formation of community researchers therefore focused on these qualities: considering and valuing local knowledge so that the integration of tools and inputs of external actors would result in new ways of learning and solving problems.

Co-inquiry, therefore, followed the inquiry cycle in all its steps (proposed by Feinsinger et al 2010), integrating local participation from the definition of the themes of study and the questions addressed, to the collection of information and monitoring, and to the analysis and contextualization of results. The steps included in the research framework were: 1) The question: identify the question to be addressed and its relevance in the context of the definition of the problem for management and conservation; 2) The action: selecting the adequate tools and methods in order to gather the needed information for solving the question; 3) Its Application: the analysis of information and reflection on its implications for understanding how results can help change or improve management practice; and 4) The question (again): what other issues or questions emerge from our acquired understanding. This process derives from first hand research that can be useful for problem solving.

Methodology for selected themes of study

The original approach we had intended for conducting participatory monitoring of biodiversity in COMBIOSERVE considered the adaptation of methods for conducting biological inventories (Noss 1990) using Rapid Biodiversity Assessments (IUCN 2008). However, since the selection of the components of biodiversity to be studied and the scales in which they can be addressed is complex (Stork et al. 1997), we decided to define themes and scales together with



community researchers, following a co-inquiry framework. We also decided to modify our approach and consider biological inventories as only one of the many possibilities for addressing biodiversity issues. In fact, through our research process we learned that the concept of biodiversity can be hard to define within a participatory monitoring approach (Boissière et al. 2013) and it is not necessarily an element of the relation of the local population with its environment. In fact Haenn (1999) explains that epistemological differences regarding the concepts that define local ecologies (i.e., the concept of biodiversity) are part of the tensions that exist within conservation contexts (such as state based reserves). The latter must be considered in the construction of a co-inquiry approach since it has to be based on common understandings.

In this way the selection of questions and themes of study that derived in participatory monitoring processes was addressed through the analysis of local territories and their management. We began with participatory mapping, in interaction with WP3. Participatory mapping was conducted through mental maps, in which community researchers defined different elements within their territory and their use. This also allowed the identification of both environmental and agricultural problems, as well as opportunities for the development of local projects and schemes for conservation and management of natural resources. Based on this, the group discussed and identified many possible themes of study relevant for local people and based on concrete questions. After that, the selection of the themes to be addressed by each of the groups was made in order to be able to conduct the process of co-research (see D.3.4. Educational brochure regarding Traditional Ecological Knowledge and cosmovision).

Themes of study

Calakmul fieldsites: themes of study and community research groups

Calakmul's population is mostly made up of migrants that have come from different states of Mexico in the last sixty years; therefore its communities vary in their historical and ethnic background. The community research groups that were formed in Once de Mayo and El Sacrificio reflect the heterogeneity that characterizes the region. Some were formed by groups of only women, or by



grouping members of one family, others by persons of the same ethnic composition. But there were also more heterogeneous groups that included men and women, or that were conformed by people from varying ethnic backgrounds. In order to both establish the groups and identify the themes of study, we carried out a process that included participatory mapping (see D.2.2). The process resulted in a list of themes of study that was later prioritized by each group. Community research groups therefore selected a theme of study according to their interests and their willingness to voluntarily participate in an ongoing process.

During the mapping exercise, the areas identified as priority management units related to the themes of study and included the working areas or “trabajaderos”, which are the areas where people conduct their agricultural activities. These usually have specific soil properties with moderate to good drainage, as opposed to “bajos” or lowlands, which seasonally flood and are therefore not suitable for agriculture. Other areas related to the “themes” of study had secondary and mature vegetation and bordered the Calakmul Biosphere Reserve (CBR) core area, or were under communal or private forests protection. Other areas included were certain types of ecosystems where productive activities cannot be conducted, such as the “bajos” or the area in Once de Mayo locally known as “El Desierto”. This is an ecosystem in which the soil is mostly limestone sand, vegetation growth is limited, and intermittent water sources attract different animals (mammals and birds, principally). The urban area was also pointed out as an important area, particularly homegardens where agroforestry systems are important and domestic animals are kept.

The themes of study identified by community researchers respond to current local needs regarding the relationship between community members and their environment. They reflect some of the local issues that determine the conservation context in the region and that are of ecological importance. These are priority issues that reflect both local conflicts but also local opportunities that should be at the heart of biodiversity conservation and management. The issues relate to: 1) A strong dependency of the local population on agricultural activities and a growing and uninformed use of agrochemicals; 2) Vertebrate and invertebrate populations that cause agricultural damage and are detrimental to



productive activities and therefore a nuisance to people; and 3) An external demand of both timber and non timber forest products that leads to their commercialization, in many cases illicitly (i.e., polewood, orchids, etc.).

The selected themes also reflect the issues that can be considered great potential for increasing the sustainability of local families' activities in the area and for strengthening conservation efforts. These are: 1) an interest of community researchers in rendering their agricultural activities more efficient and less dependent on agrochemicals; 2) an interest in learning how to control damaging animals; and 3) a great potential within natural systems for propagating and favoring useful forest species with commercial value that could be used in agroforestry systems, in secondary vegetation enrichment schemes, and in management plans for specific populations with commercial potential (i.e., orchids or the copal tree – *Protium copal* Schltdl. & Cham. Engl species). Community members also made clear their interest in profiting economically from conservation activities, through ecotourism or through payments of environmental services.

The final selected themes were focused on: agricultural systems (insect pests and soil fertility), use of specific forest species (orchids and propagation of useful species), potential areas for gaining profit through their protection (ecotourism and carbon), and homegarden domestic animal management. Another group, composed of children, selected to learn about the butterflies in their community. This latter group reflects the potential that there is in the area for working with children regarding environmental issues.

Pilon Lajas fieldsites: themes of study and community research groups

Tsimane' communities of San Luis Chico and Alto Colorado belong to the Reserva de la Biosfera y Territorio Comunitario de Origen Pilon Lajas (RBTCO) (Pilon Lajas Biosphere reserve and Communal Territory by Origen). The contexts of both communities are environmentally different. San Luis Chico is within the core of the reserve, isolated from the nearby city of Rurrenabaque and with ample access to forest and river resources. On the contrary, Alto Colorado borders the reserve and it is only thirty minutes away from the main road. Therefore relies



less on forest and river resources and more on outside sources available from the nearby city.

These geographic differences result in different community needs. Alto Colorado, suffering from greater pressure from outsiders, has a greater interest in securing territorial limits. On the contrary, the interests of San Luis Chico related to river and forest resources, and to the economic potential of cacao production.

Community researchers and themes of study were selected in both communities after discussions conducted through workshops. The workshop participants generated a list of possible themes, from which the themes that would be addressed during the project were then chosen. Selected themes responded to local needs and considered the importance of valorizing and including traditional knowledge. The theme of fisheries and community mapping responded to the interest of community researchers in learning about the state of river resources and in demarcating their territorial limits. The theme of reforestation was selected because they had already begun a process of reproduction and planting of *mará* trees (Mahogany; *Swietenia macrophylla*) as part of a prior initiative related to cacao agroforestry systems. Community researchers are also interested in planting *mará* and other timber species in secondary vegetation since wood can later be used for different purposes. The theme of medicinal plants was suggested by a group of women, with a view to demonstrating the value held within their traditional knowledge regarding useful plant species.

Brazil fieldsites: themes of study and community research groups

The majority of the Pataxó people currently reside in the legally recognised territories within the States of Minas Gerais and Bahia. There are ten areas of Indigenous Lands in total, with two in Minas and eight in the extreme south of Bahia, in the municipalities of Porto Seguro, Santa Cruz de Cabrália, and Prado. The communities considered fieldworks for the COMBIOSERVE project where the experience described below were conducted are the Pé do Monte village and the Jaqueira Reserve. The first community is located in the south of the municipality of Porto Seguro on the Barra Velha Indigenous Land, with an area



of 52,748 hectares and 4,649 inhabitants. The second, the Jaqueira Reserve, forms part of the Coroa Vermelha Indigenous Land located in the north of the municipality of Porto Seguro and south of Santa Cruz de Cabrália. Its area is 1,493 hectares large, where approximately 5,000 people reside. The Jaqueira Reserve represents 827 hectares of the total area of Indigenous Land and although it belongs to the Coroa Vermelha Indigenous Land, the Jaqueira Reserve is governed by one group of people who administer the Ecotourism Association (Associação Pataxó de Ecoturismo – ASPECTUR). Approximately 28 families live at the Pé do Monte village and around 40 people work at the Jaqueira Reserve.

The indigenous village of Coroa Vermelha was established in 1972, in a place symbolically marked by a historical monument for the first Catholic mass held in Brazil. Due to its importance to the national history, this location quickly developed its touristic potential and the indigenous presence was an advantage for the government. The Federal Government officially recognised the indigenous territory (1,493 hectares) in 1997. In 1998, a group of families from Coroa Vermelha founded the Jaqueira Reserve, which is a preserved forest area where ethno-tourism is practised (Grünewald, 2001).

Community researchers and themes of study were selected in both communities after discussions conducted through workshops. The workshop participants generated a list of possible themes, from which the themes that would be addressed during the project were then chosen. Selected themes responded to local needs and considered the importance of valorizing and including traditional knowledge. The final selected themes were focused on: fauna and flora, reforestation, soil, territorial mapping and gender role in environmental management. The theme of birds diversity was selected by a group of community researchers of Jaqueira Reserve, and is the information presented in the annexed guide. The other themes selected by another groups of Pataxó will be part of D. 3.4 (Paradidactic Brochure regarding Traditional Ecological Knowledge and cosmovision).

A methodology that links Field Workshops (FW) and Village Times (VT) was developed. During the FWs, community and COMBIOSERVE members met to



discuss themes related to environmental management, biodiversity monitoring, changes in land-use, mapping, the community's capacity to adapt to environmental changes, relationships between internal and external agents in relation to decision-making that involves collective resources, among other themes of interest. The FWs have an investigative approach and are developed with the use of participatory methods. After each Field Workshop, groups of community researchers continue developing their research projects with COMBIOSERVE members as facilitators/interlocutors. This experience is called Village Time.

A calendar was prepared with the community leaders and participants of the training programme and structured according alternating times: FWs and VTs. The Field Workshops aimed to bring together all the community researchers to create and refine their projects, reflecting on issues relevant to them and learning about specific themes. These moments are arenas created to promote explanatory classes (run by indigenous and non-indigenous specialists), debates, questions, knowledge and experience exchange, learning techniques, text production, drawings, maps, diagrams and ideas.

Village Time is aimed at putting into practice the exercises and activities set out in the FWs and then the community researchers work on their research projects mapping, interviewing, photographing, reading and painting, etc. The groups of community researchers develop their research projects with support from four supervisors that accompany the groups, two of them are part of the COMBIOSERVE team and the two others are community members, one from Pé do Monte Village and the other from the Jaqueira Reserve.

The training programme began in August 2012 and was finished by end in August 2014, with a total duration of two years. A total of four FWs were held, with a final seminar to launch the community researchers' publications (paradidactic and guides).



Field Identification Guides

Once they had defined their themes of study, community research groups undertook research activities together with CSO representatives and members of the research institutions. Methodologies were established during workshops and follow-ups, and data collection was carried out for at least a full year and in some cases eighteen months. Over time, some of the groups changed: some members desisted while others joined; in other cases groups dissolved or merged; and in some cases, they changed their theme of study. The final working groups of community researchers in the different fieldsites are indicated in Table 1.

From the beginning, the production of a brochure or guide to document community research was discussed with participants. The objective was to share results not only among community participants and their communities, but also with other communities and interested outsiders. The guides are therefore written in the official language of each country. They were planned to suit the needs of each community research group. Therefore the format was free regarding design and style. However a particular structure was proposed so that all guides had the same elements in common, which include:

1. Introduction, including a justification of the importance of the theme of study in the local context, including a description of the problem it addresses. It also describes the questions that led the particular research.
2. Methodology. An illustrated description of the activities carried out, and where and how this was done.
3. Results. The description of the main findings obtained through co-inquiry, including the illustrated depiction of the process that was followed.
4. Reflections. This part is very important as it helps understand how the main findings help us answer the questions that led the research, what was learned, and how can it help in local practices.
5. General. An analysis of the implications of results in relation to the broader context (for example, for the region, for other communities).
6. Name of participants.



In order to analyse the information that is provided in the guides, a final workshop was held in all fieldsites. Here, all the main results were revised and each community research group decided what information to include in the guides. CSO and RTD research representatives worked on the production of the guides together with community researchers. These guides are presented as Annexes (1, 2, and 3) to this document.

Annex 1 Guides or Brochures: Results of community research groups. Calakmul, Campeche, Mexico

(see document attached)

Annex 2 Guides or Brochures: Results of community research groups. Pilón Lajas, Beni, Bolivia

(see document attached)

Annex 3 Guides or Brochures: Results of community research groups. Jaqueira Reserve, Southern Bahia, Brazil

(see document attached)



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