

**OBTAINING LOCAL VALUES FOR BIODIVERSITY:
PROTOCOLS USED BY THE ERP MOUNT CAMEROON PROJECT**

R7112

**BIANCA AMBROSE-OJI¹, ANNA LAWRENCE¹, JENNY WONG^{1,2}, RITA LYSINGE¹,
PENNY FRASER¹, JOHN HALL², HELEN O'CONNOR² AND JOHN HEALEY²**

¹ Primary authors of individual chapters

² Editors

January 2002

Summary version prepared for the ETFRN participatory biodiversity workshop
(for more information please contact the authors)

CONTENTS

CONTENTS	2
ACKNOWLEDGEMENTS	3
1 BACKGROUND AND INTRODUCTION TO METHODS	4
1.1 <i>Community biodiversity valuation</i>	4
1.2 <i>Study villages</i>	5
1.3 <i>Components of the Methodology; the Exercises or 'Tools'</i>	7
2 COMMUNITY SENSITISATION AND SELECTION OF PARTICIPANTS	8
2.1 <i>Selection of participants</i>	8
3 PLANT IDENTIFICATION FIELDWALK	9
3.1 <i>Rationale</i>	9
3.2 <i>Approach</i>	9
3.3 <i>Records</i>	9
3.4 <i>Evaluation</i>	9
4 HABITAT EVALUATION FIELDWALK	10
4.1 <i>Rationale</i>	10
4.2 <i>Approach</i>	10
4.3 <i>Records</i>	12
4.4 <i>Evaluation</i>	12
5 PHOTOGRAPH BASED ASSESSMENTS AT LANDSCAPE LEVEL	13
5.1 <i>Rationale</i>	13
5.2 <i>Approach</i>	13
5.3 <i>Records</i>	14
5.4 <i>Evaluation</i>	15
6 PHOTOGRAPH BASED ASSESSMENTS AT HABITAT LEVEL	16
6.1 <i>Rationale</i>	16
6.2 <i>Approach</i>	16
6.3 <i>Records</i>	18
6.4 <i>Evaluation</i>	18
7 PLANT SCORING	18
7.1 <i>Rationale</i>	18
7.2 <i>Approach</i>	18
7.3 <i>Records</i>	19
7.4 <i>Evaluation</i>	19
8 COMMUNITY FEEDBACK AND DISCUSSION	19
8.1 <i>Rationale</i>	19
8.2 <i>Approach</i>	19
REFERENCES.....	20
APPENDICES - SEE SEPARATE DOCUMENT FIELD SHEETS.DOC	

ACKNOWLEDGEMENTS

We are grateful to the many people, especially in Cameroon, who have assisted us in this work. Without the enthusiasm of the MCP Limbé (DFID) and MCP Buea (GTZ) project staff who acted as facilitators the field work would not have taken place. Special thanks are also due to the people of Ekona Lelu, Bakingili and Bova Bomboko who enthused us with their willingness to participate in the exercises and showed a keen and critical interest in the results.

This publication is an output from a research project funded by the United Kingdom Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID. R7112 Environment Research Programme.

1. BACKGROUND AND INTRODUCTION TO METHODS

The overall purpose of this project was to develop tools for the identification, assessment and evaluation of biodiversity across the wide range of ecosystems/land use types in tropical mountain regions worldwide. It was reasoned that the use of such tools could contribute to processes that result in improved participatory planning, conservation and sustainable utilisation of biodiversity.

There were three main anticipated outputs from the project:

- Improved methods in the development and extension of tools for folk-identification of plants, particularly to support participatory approaches;
- Simplified and optimised techniques for biodiversity assessment, based on plant biodiversity inventory, remote sensing and GIS;
- Improved methods for the evaluation of biodiversity by stakeholders through the juxtaposition and combination of socio-economic and ecological indices of biodiversity value.

The methods described in this protocol relate to the first and third of these outputs. They were developed through a cyclical process of community meetings, field-tests, feedback and subsequent revision. This development cycle was iterated several times during the development of the various exercises. The methods build upon on-going socio-economic research in Cameroon and were carried out in collaboration with the Limbé Botanic Garden (LBG) in association with the Mount Cameroon Project (MCP) Limbé and MCP Buea, and IRAD research station in Ekona.

1.1 Community biodiversity valuation

The concept of 'biodiversity' has been developed by natural scientists, and local communities cannot be expected to share this concept as formulated by scientists. One of the most important challenges faced by natural resource managers involved in conservation is to understand what values local people associate with their 'biodiversity', how this motivates their actions and whether their concepts correspond to scientific understandings.

The general terms 'value', 'valuation' and 'evaluation' are social, cultural and political constructs with their own range of definitions, meanings and applications. Various categorisation systems of the values associated with biodiversity have been developed. For the purpose of this project, the following categories were accepted¹:

- Utilitarian or material values - obtained directly for livelihood and economic well being, or realised through the insurance functions of biodiversity;
- Ecological values - maintaining planetary and local life-support systems;
- Evolutionary values - maintaining processes that reduce vulnerability and develop new potential resources;
- Pleasure/aesthetic values - which themselves reflect the diversity of human cultural and social systems;
- Moral/ethical values - or a belief that biodiversity has an intrinsic value;
- Symbolic values - use for metaphysical expression, language, expressive thought;
- Humanistic values - strong affection or emotional attachment.

Understandings of 'value' have been shown to differ amongst individuals and stakeholder groups and the values themselves are dynamic - evolving over time with developmental, technological and fashions. Additionally, values are composed of measurable and non-measurable components which illustrate the differences between the natural scientist, economists and social scientists understanding of biodiversity values.

¹ From Hughes et al (1998) and Kellert (1993)

At present, many biodiversity indices incorporate value judgements about the rarity, uniqueness, or conservation 'value' of particular species or species associations. Socio-economic indices of 'values' refer mainly to utilitarian or service functions of resources which can be assigned a numerical or monetary value. Intangibles such as option or existence values are problematic in their calculation, and are therefore often neglected. The methods developed by the project were intended to explore the nature of community held intangible values and quantify them where possible.

The ultimate aim of developing these methods was to produce a set of action research 'tools' that could provide locally derived biodiversity indices to complement those provided by ecologists and conservation managers. It is hoped that these will facilitate the articulation of local perceptions of biodiversity and thereby provide a means for local communities to have a voice in the negotiation of natural resource management plans and conservation interventions.

1.2 Study villages

Five villages were selected and agreed to collaborate in the development and testing of the methodology - Ekona Lelu, Bakingili, Boa Balundo, Bwassa and Bova Bomboko (see Figure 1 and Table 1). Of these villages, Ekona Lelu, Bakingili, Boa Bolando and Bwassa collaborated in the development of methods for identifying plants. Bakingili, Ekona Lelu and Bova Bomboko helped to develop the remaining four exercises.

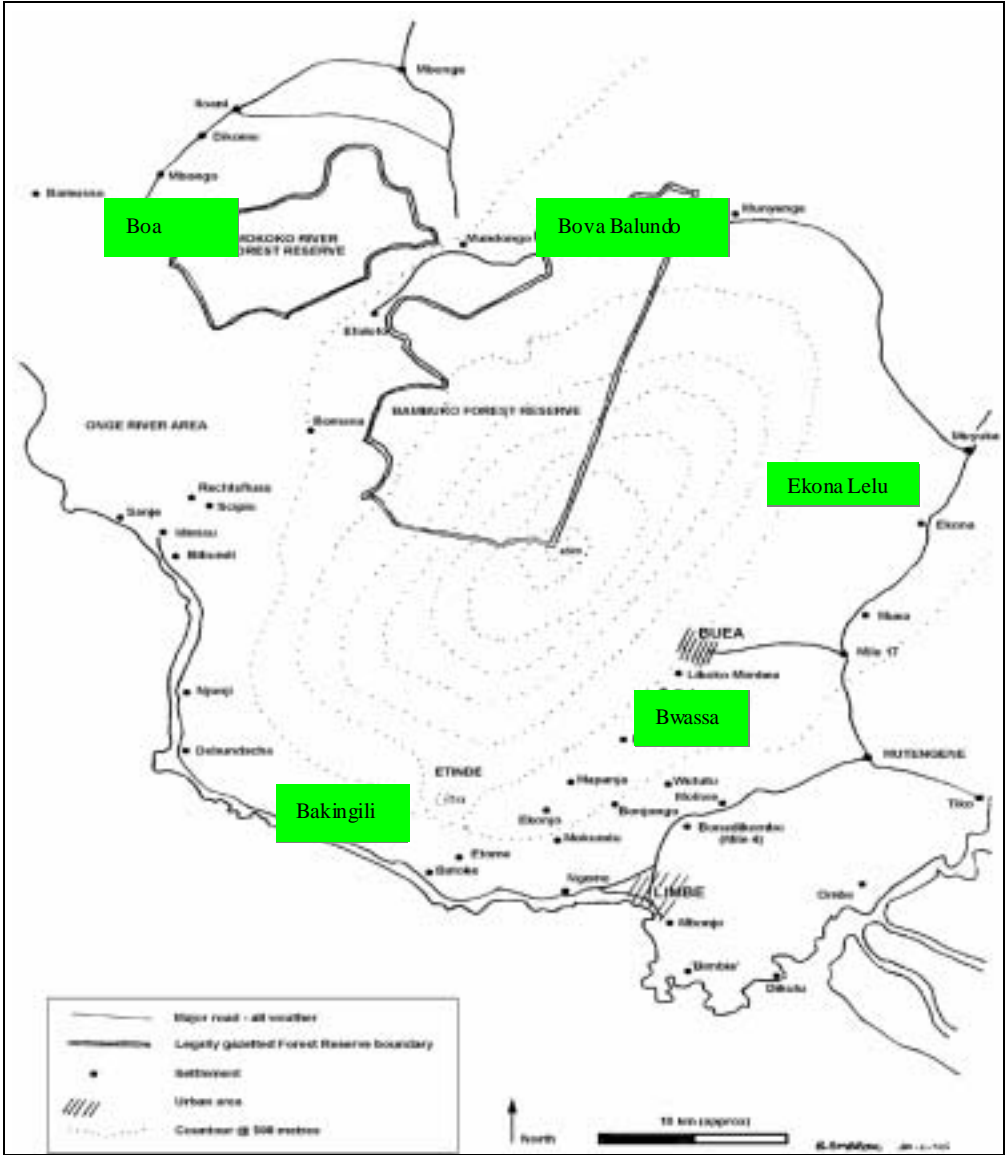
The selection criteria for the villages were:

- Biophysical factors of altitude, rainfall and geographic/ecological location with respect to Mount Cameroon;
- Social factors: including ethnic homogeneity, level of contact with MCP and distance from commercial centres.

Table 1. Characteristics of the village communities included in field research.

Community	Altitude	Average precipitation	Degree of contact with conservation project	Community ethnic composition	Predominant ethnic group	Main economic activities
Bakingili	Low Sea level	Very High	Medium	Heterogeneous	'lower' Bakweri	Farming Fishing Plantation
Boa Balundo	Low Sea level	Medium	High - Medium	Largely Homogenous	Balundo	Farming Plantation Forest exploitation
Bwassa	High 900 m	Low	Very high	Homogenous	'upper' Bakweri	Farming Forest exploitation
Ekona Lelu	High 1000 m	Very Low	Very low	Homogenous	'upper' Bakweri	Farming Forest and grassland exploitation
Bova	Low 200 m	Very low	Medium - Low	Heterogeneous	Bomboko	Farming, NTFP collection

Figure 1. The location of villages on Mt Cameroon.



1.3 Components of the Methodology; the Exercises or 'Tools'

The methodology comprised five exercises which were carried out sequentially. The overall objective and advantages of each exercise are summarised in Table 2.

Table 2. The objectives and advantages of the various exercises.

Exercise	Overall Objective	Advantages of this method
Plant identification fieldwalk	To elicit information on the process and characters used in indigenous plant identification.	<ul style="list-style-type: none"> • Permits recording of characters and terms used to describe plants • Allows observation of all the field-based plant characters people use i.e. stem, crown form, slash characters etc.
Habitat evaluation fieldwalk	To examine how the local communities value actual places in their local environment, and elicit which values they associate with which aspects of these places	<ul style="list-style-type: none"> • Understanding of 'usefulness' of species and places • Permits some quantification of the perception of biodiversity richness of sites • Identification of tangible and intangible values (such as beauty, spiritual values etc) associated with different species and habitats • Provides a list of local names for plants and animals people mentioned as being present in each site.
Landscape photograph assessment	To examine how local communities perceive values associated with the different areas of vegetation within a landscape through the use of photographs.	<ul style="list-style-type: none"> • Identification of intangible values (such as beauty, spiritual values etc.) • Differences between intangible values can be clearly differentiated • Different habitats are clearly differentiated • Use of photographs may overcome some of the logistical problems of participating in a fieldwalk • Permits an evaluation of the differentiation of landscape into habitats and of the landscape being more than the sum of its component habitats
Photograph based assessments at 'habitat' level	To examine what criteria the local communities use to differentiate biodiversity and value associated with various vegetation types and to identify which criteria are more or less important in this process.	<ul style="list-style-type: none"> ▪ Provides a form of triangulation against results from the other exercises ▪ Elicits criteria associated with biodiversity values ▪ Allows participants to discuss habitats that they are unable to reach in a course of a days fieldwork ▪ Can be used to capture values associated with seasonality and other temporal changes ▪ Is a method which can draw stakeholders unwilling to visit the field into discussions about biodiversity values
Plant scoring	To recognise local values for plant species that can be used to generate a semi-quantitative community value index analogous to the GHI used for conservation priority setting.	<ul style="list-style-type: none"> • Provides numeric assessments of plant value • Separation of perceived plant value into component parts • Elicits intangible values attached to particular species • Permits evaluation of the knowledge of plant names among the participants • Provides a list of local names for the scored plants.

The strength of these exercises was their complementarity and synergy. Field based exercises, for example, give a different appreciation compared to desk-based exercises. Additionally, a different set of perspectives and appreciations can be elicited by changing the focus of questioning from habitats to landscapes. However, the exercises could be carried out independently or in relation to each other.

2. COMMUNITY SENSITISATION AND SELECTION OF PARTICIPANTS

Sensitisation should take place prior to any participatory fieldwork and is the process of preparing the community for involvement in the research. It involves explaining the purpose of the fieldwork and explores the applicability and logistics of the exercises envisaged.

The degree of sensitisation required depends on the history and nature of the contact between the villages and research organisations/conservation projects etc. Those villages with a positive history of such contacts or a good working relationship with the project required minimal sensitisation - the leaders of the village were informed a week before the visit was planned and sensitisation materials (mainly leaflets, fliers and posters) whenever possible were distributed (in fact this was only done for the Plant identification i.e. the first exercise, after this most sensitisation was verbal). The verbal communication from the facilitators was considered more important than these materials although the materials provided a tool to initiate further discussion once the facilitators had left.

In each village a community meeting was held prior to the start of the fieldwork. The request for a meeting was made through the village chief, explaining the purpose of the meeting, how long it might take and who, ideally, should be present. The village meeting before the start of the first fieldwork 'event' - the Plant Identification Fieldwalk – introduced not only that particular exercise but also spent some time outlining the research project as a whole and the different periods of fieldwork the villagers might be expected to contribute to. Each subsequent fieldwork 'event' was preceded with a village meeting.

2.1 Selection of participants

Community participants were selected by project staff using stakeholder analyses that had been undertaken by the MCP between 1996 and 1997 where available. The project aimed to select 25 participants from each community drawn from the five most significant stakeholder group within that community with the following choice of stakeholder groups for the three villages used for the photograph, habitat and scoring exercises (Table 3).

Table 3. Stakeholder groups sampled in each of five communities in the Mount Cameroon area.

Community	Stakeholder group
Bakingili	Farmers, Hunters, NTFP collectors, Elites, Officials
Ekona Lelu	Farmers, Hunters, Herbalists, Elites, Officials
Bova Bomoko	Farmers, Hunters, Herbalists, Elites, Officials
Boa Balondo	Farmers, Hunters, NTFP collectors, Timber exploiters
Bwassa	Farmers, Hunters, Herbalists, Timber exploiters

The Farmers, Hunters, NTFP (non-timber forest product) collectors, Herbalists and Timber exploiters are groups who depend on the natural resources of the area for their livelihood and represent 'users'. The Elites represent the opinion leaders and power brokers within the community while the Officials were drawn from the government forestry officers and local government who have statutory responsibility for the area. These groups were identified to give some insight into the perceptions of those who can influence controls in the community as well as those who use the resources.

3. PLANT IDENTIFICATION FIELDWALK

Penny Fraser and Bianca Ambrose-Oji

3.1 Rationale

The criteria used by local people and formal taxonomists to identify and name plants are often quite different. Local people and even field workers are often unaware of formal plant taxonomy (e.g. flora, field manuals etc). This exercise aimed to identify how local people recognised plants with the aim of incorporating these insights into the development of locally relevant field identification tools.

3.2 Approach

This fieldwork was conducted as a 'student-teacher' exercise and required a full half-day in the field and a second full half-day for discussion of the results. It was carried out with five groups of four participants.

It was explained to each participant that they would take the role of 'teacher', select the plants they know well and 'teach' one of the facilitators (students) how to identify that plant and distinguish it from other plants. The role of the facilitator (student) was to ask questions about how to identify that plant until they felt confident they could go alone to the mountain and identify the plant. Having the facilitators act as students gave a degree of consistency throughout the study.

The exercise was conducted as a *fieldwalk* in the forest. The route of the walk was determined by the community and MCP staff to ensure the full range of vegetation types known to the each stakeholder group was covered. The exercise evolved according to the group – in some cases it was a group exercise with the student and teacher in front of the whole group, in other cases it was more of a 'one on one' exercise. To ensure that data were collected from all participants, facilitators made an effort to move amongst participants and encourage those who were shy or less gregarious.

3.3 Records

At least 10 record sheets were completed for each stakeholder group and notes of less tangible characters such as seasonality, associations and whole plant features were recorded.

Botanical vouchers were taken from each plant to act as a teaching aid and to determine the plants scientific identity.

Spreadsheets were used to store the data to facilitate sorting and analysis.

3.4 Evaluation

Each stakeholder group (led by facilitators) produced a ranked list of the characters² they considered were most important for identifying the plants that they worked with.

After the group ranking all the participants working as one large group were asked to suggest which characters were most important, i.e. which ones they would give priority to when teaching a novice how to identify the plants. A character table was produced – this highlighted differences and similarities between stakeholder groups. An example of the results from this exercise is shown in Table 4.

The characters were then classified using a hierarchical system to separate out 'obvious' characters (such as touch, smell etc) and those which were not obvious and resulted from the knowledge of the participant.

² Characters are 'any attribute of form, structure, physiology or behaviour which is considered separate from the whole organism for a particular purpose, such as comparison, identification or interpretation'

Table 4. The ten most important characters used by participants belonging to five different user groups in the teacher - student role-playing exercise in four sample communities on Mount Cameroon.

Character rank*	Stakeholder Group				
	Farmer	Herbalist	Hunter	NTFP collector	Timber exploiter
1	Habit	Habit	Utility	Habit	Habit
2	Leaf shape	Habitat	Fruit colour	Leaf shape	Mature size
3	Fruit colour	Leaf colour	Habit	Leaf colour	Leaf colour
4	Stem colour	Leaf arrangement	Leaf shape	Stem morphology	Bark texture
5	Leaf colour	Hair location	Fruit shape	Leaf size	Latex presence
6	Root/buttruss morphology	Flower colour	Stem texture	Stem texture	Leaf organisation
7	Architecture	Leaf shape	Habitat	Stem colour	Branch arrangement
8	Mature size	Leaf texture	Branch arrangement	Fruit colour	Root/buttruss morphology
9	Utility	Utility	Leaf colour	Flower colour	Slash colour
10	Leaf size	Stem colour	Stem colour	Habitat	Leaf shape

4. HABITAT EVALUATION FIELDWALK

Anna Lawrence

4.1 Rationale

It seems obvious that people should be best able to answer questions about the value of a particular habitat *in situ*, i.e. while surrounded by a representative portion of the habitat. A fieldwalk exercise was therefore devised which would take people into the forest and farmland and ask them to evaluate the value of specific sample sites within the village lands. The aim of doing this was to identify and quantify the values for each sampled site in terms of holistic intangible values (e.g. beauty, spirituality etc.) and to quantify the numbers of taxa local people recognised in each site.

4.2 Approach

The first step in this exercise was to identify the habitats to be sampled. This took place in a community meeting facilitated by the project staff. In the meeting, the group was asked to list and describe the different vegetation types they knew of in the area and to place these on a sketch map (Figure 2). This was used to choose sites typical of 5-6 key habitats and to plan a walk to visit all sites in one day.

The following questions were used to elicit the different habitat (or vegetation types):

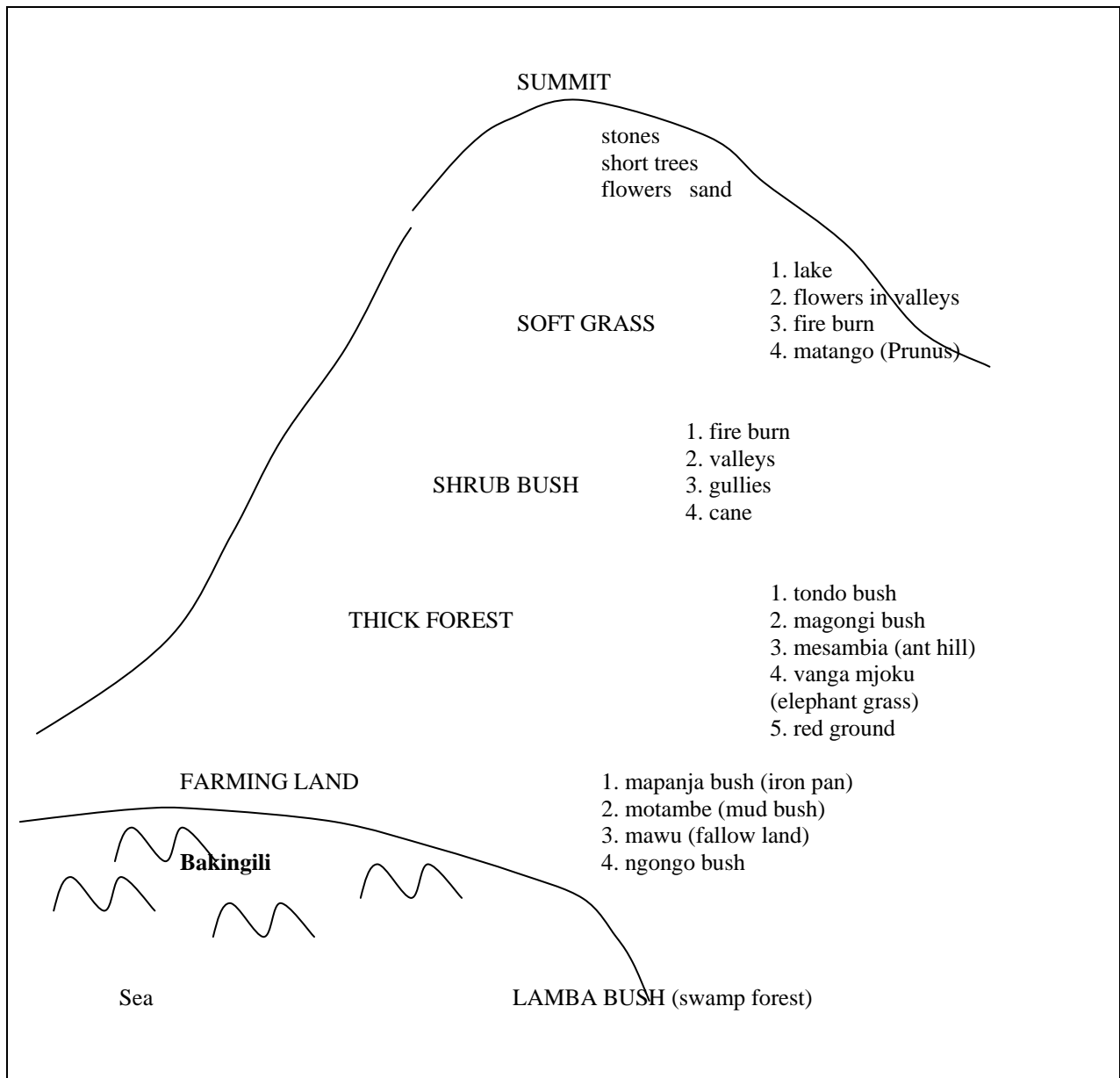
- Is all vegetation the same?
- If not, what different kinds of vegetation can you think of?
- What kinds of vegetation do you 'use'?
- Are these all the different kinds of vegetation that you know of?
- Within these categories is all the vegetation the same or are there different kinds (for example, is all savannah the same)?

It was discovered that it was necessary to:

- ensure that the participants are giving the names of different kinds of vegetation, not of specific places.
- explain that what was required was their own names and categories for the different kinds of vegetation, not official or scientific categories.

The map and the discussions with the community, were used to plan the route of the habitat evaluation fieldwalk. We asked them to plan a route to visit places they thought were representative of a particular habitat, allowing the participants to decide how far they could go in the time available.

Figure 2. An example of a vegetation map from Bakingili showing differences within different vegetation areas.



The **participation** of different community members depended on:

- what was culturally acceptable (for example gender issues - female community members unable to go with male facilitators; access to sacred sites etc)
- what had already been discussed (probably with the village leader).

The fieldwalks were planned to take one day and each stakeholder group (5 people) was taken around the chosen sites by a couple of facilitators. At each site:

- a GPS reading and photograph was taken by one of the facilitators,
- each participant was interviewed by one facilitator using a questionnaire/data recording sheet (see Appendix 1).

4.3 Records

The results were stored and analysed using a combination of EXCEL spreadsheets and ACCESS databases. Much of the data needed to be categorised and coded to facilitate data handling and analysis. This coding included tasks such as categorising the intangible value statements made by the participants and the standardisation of the local names for the plants and animals people were asked to list at each fieldwalk site.

4.4 Evaluation

The data was summarised and tabulated according to the following framework:

- Total number of taxa listed overall
 - In each fieldwalk site
 - By each stakeholder group
 - By gender
- Average number of taxa listed by each respondent
 - In each habitat
 - Within each stakeholder groups
 - By gender
- Ways of looking at variation within these categories
 - In each habitat
 - By each stakeholder group
 - By gender

Figures 3 and 4 illustrate some of the results.

Figure 3. Number of plants and animals listed by stakeholder groups in Bakingili (the total number of times a particular plant or animal 'species' was mentioned by all the respondents)

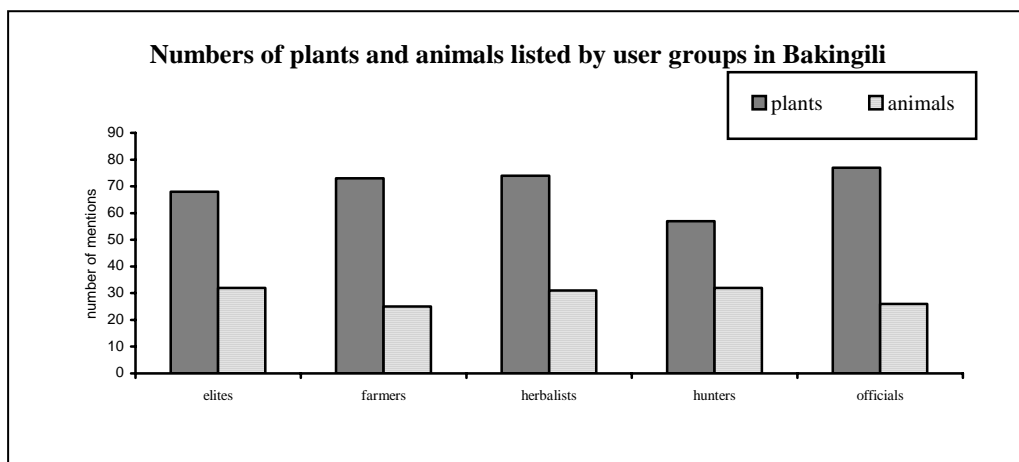
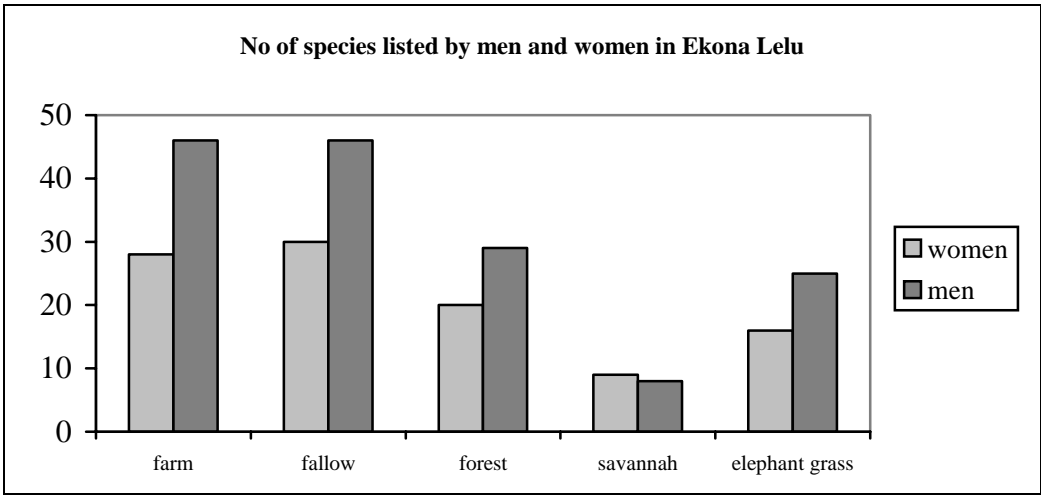


Figure 4. Number of species listed by women and by men in Ekona Lelu (the total number of different species mentioned all together).



5. PHOTOGRAPH BASED ASSESSMENTS AT LANDSCAPE LEVEL

Bianca Ambrose-Oji

5.1 Rationale

There are a number of advantages to using photographs for landscape assessment. They can: more easily be transported than people, they clearly differentiate elements and attributes of landscape, can capture seasonality and may overcome of the cultural constraints on permits visits to certain sites and gender related issues. However the results may be greatly influenced by the composition and quality of the photographs used, and participants who live in mountainous areas (and are therefore used to seeing distant views of their landscape) may find it much easier to interpret landscape-scale photographs than people who live in flat/lowland areas.

This activity seeks to examine how the local communities perceive the values associated with different areas of vegetation and aimed to:

- to elicit a range of indigenous values associated with different vegetation types (positive and negative),
- to investigate perceptions of threat and change to the landscape.

5.2 Approach

Photographs should be selected to be locally appropriate and to represent landscapes composed of several habitats. In this case four photographs showing views of the mountain were used to explore the parameters indicated in Table 5.

Table 5. Researcher parameters/variables for landscape picture choice.

Parameter	Variable	Photo	Notes/assumptions
Maximum range of relief	from sea to summit including Etinde and Mt Cameroon massif from lower slopes to summit with gullies from upper slopes with hills and gullies	1 3, 4 2	Photo 4 showed a whole mountain, but few different habitats. It was included as it may have elicited responses about the significance of the mountain in general.
Maximum habitat diversity	≥ 6 major habitat types discernable ≤ 4 major habitat types discernable ≤ 2 major habitat types discernable	1, 3 2 4	These were <i>our</i> counts of habitat types as perceived in the photos, not MCP staff or respondent counts/perceptions.
cloud cover/light effect	Sunny, with broken cloud Overcast	1, 2, 3, 4	We assumed that using still photography to measure landscape preferences/values, meant light effects and colour qualities would have a significant effect on responses. Lack of a more suitable substitute for photo 1 introduced an important bias with the use of photo 4. There is a good photographic resource at MCP in the form of CDs provided by Kew but we were unable to access these which limited the number and type of images available to us.
presence and prominence of anthropogenic disturbance of vegetation	Little disturbance Disturbance moderately prominent Disturbance prominent	2 1, 4 3	It was important to compare farmers' perceptions of diversity when looking at farm and fallow land, with the actual numbers of species they listed during the forest walk.
inclusion of indications of seasonal variation	Wet season Dry season		We tried to get a sense of this by including images of dry season and wet season grassland. However, as far as the images we finally used are concerned this happened more in the habitat rankings, and there is a risk of over-extrapolation from a few comments here. This is an important topic for further research.
presence and prominence of settlement	No settlement Settlement moderately prominent Settlement prominent	2, 4 1 3	Including this variable was justified <i>post hoc</i> as respondents often related 'beauty' to the presence of houses.

Where available, acetate sheets were placed over the photographs; this meant the participants could draw on the different vegetation areas, and helped initiate discussion about the different vegetation types present (interestingly, where acetates were not used, the number of habitats perceived in each of the landscape photographs was significantly less).

In a central location for the community, such as a village hall, the photographs were displayed and discussed with each stakeholder group in turn in a general way as a preliminary to the main exercises.

Individual exercise

Taking each photograph in turn each participant worked through the questions in the first section of the recording sheet (see Appendix 2). The level of literacy in the villages meant that many participants were able to work through the sheets themselves, however some required assistance from one of the facilitators.

The questions were designed to elicit a list of values the participants associated with the different landscapes and vegetation types that could be seen in each of the photographs. They asked about which vegetation types the participants liked and didn't like, and then prompted the participants to score the different photographs according to their preferences.

Group Exercise

The second half of the recording sheet was designed for a group exercise to help understand perceptions of change in the landscape and opinions of this change (positive, negative etc). A timeframe of change across the last 10/20 years and a checklist of prompts were used to promote the discussion.

5.3 Records

An example of the data-recording sheet used for this exercise can be found in Appendix 2. The data was stored using a number of EXCEL worksheets and ACCESS databases. Before the data could be entered it was categorised and coded. The categorisation is a critical stage in the interpretation of the results and needs to be done with care.

5.4 Evaluation

The results were analysed to look at a number of different issues including:

- Perceived vegetation diversity in each photograph by stakeholder group
- Landscape photograph ranks for preference and biodiversity quality
- Which attributes were seen as changing over time and by whom
- Intangible values associated with different landscapes and vegetation types

An example of the type of summarisation of the information collected is given in Table 6.

Table 6. Summary of which biodiversity attributes are changing over time and to whom this is important in two communities (Bakingili and Ekona Lelu) and amongst Mount Cameroon Project staff.

What is felt to be changing?	By Whom?		
	Bakingili	Ekona Lelu	MCP
POSITIVE			
Economic benefits from exploitation	Officials		√
Livelihood benefits from increase in farming/farm clearance	Officials	Farmers, hunters	
Increasing population	Farmers, hunters, NTFP collectors	Hunters	
Lava increases the amount of land and soil fertility	Farmers, hunters		√
Lava increases benefits derived from tourism	Hunters		√
NEGATIVE			
Loss of species by exploitation which reduces option value and utility value	Officials, elites, NTFP collectors	Hunters, farmers	√
Loss of species by increased farming activity	Officials, elites		√
Destruction of important habitats and species by lava flows	All	All	√
Encroachment of land around the mountain by sea	Hunters, farmers, NTFP collectors		
Destruction of savanna by fires	Hunters	Officials, farmers	
Loss of forest by fire reducing potential fertile farmland	NTFP collectors	Hunters, herbalists, officials	

6. PHOTOGRAPH BASED ASSESSMENTS AT HABITAT LEVEL

Bianca Ambrose-Oji

6.1 Rationale

The main benefit of this exercise was for triangulation with other results. It is a quick and simple exercise to undertake. Photographs of the vegetation within each selected habitat were used to assess habitats that it was not possible to reach during the forest walk with the intention of getting a sense of which habitats were valued more highly than others, in relation to each other, which was not possible from the field walk. Whilst counts of values and counts of species mentioned provide a quantitative assessment of each habitat, they do not equate to “I prefer this habitat because

This activity examined which criteria the local communities use to differentiate various vegetation types and to identify those which are more or less important in this process. This was achieved by investigating the following:

- participant **ranking** of vegetation types according to preference and diversity and identification of the criteria used to do this.
- participant **scoring** vegetation types according to their importance, in terms of overall economic/livelihood value and (separately) biodiversity value, and the identification of the criteria used to do this.

6.2 Approach

This exercise required the use of a set of photographs showing different habitat types found on the mountain (Table 7). Notes were taken of the reasons for choosing the photographs and the parameters we felt the photographs illustrated (Table 8). These parameters acted as a series of prompts to encourage discussion.

Table 7. Descriptions of the A4 photographs used in the habitat ranking exercises

Code	Description	Notes
1	shallow mountain gullies with short herbaceous vegetation	
2	lava with primary succession and scattered shrubs in background	
3	savannah over hills with deep gullies holding montane forest inclusions in foreground	
4	monospecific stand of tree ferns	
5	lowland forest with open canopy (tree boles clearly visible)	if the photograph was studied closely farm crops visible below canopy; participants did not seem to recognise this
6	thick grassland	poor quality, little sense of scale
7	new farm with many large trees within the plot	
8	established farm with fewer smaller trees around the boundary of the plot	
9	montane forest	

Table 8. Researcher parameters/variables for habitat picture choice

Parameter	Variable	Photo		Notes/assumptions
habitat diversity				representation of major habitat types and important sub categories
species diversity	many species visible fewer species visible	3,5,7,8,9 1,2,4,6		
anthropogenic disturbance	none/little moderate heavy farming activity	1,3,6,9 4,2 5 7,8,		
natural disturbance	much lava some disturbance by lava no disturbance by lava	2,3 1,4,6 5,7,8,9		
economic importance of species within habitat	many economic species few economic species	5,7,8 1,2,3,4,6,9		
accessibility	close to village moderately close to village far from village very far from village	5,7 8 4,9 1,2,3,6	7,8 9 1,2,6,5 4	Ekona and Bakingili differ in access to different habitat types. The first column refers to Bakingili the second to Ekona
rarity of species	abundant common rare	7,8, 2,3,5,6,9 1,4		These are researcher classifications not those of respondents

With one facilitator per group, this exercise took approximately 1–1.5 hours per sample group. The sample group was the stakeholder group so consisted of 4-5 people at a time. Preliminary discussions were used to investigate what was shown in the photographs, and more specifically:

- whether the participants felt that the photographs were representative of the different types of vegetation in the area, and

- how often they might visit each type of vegetation.

Ranking the habitats

The vegetation types were ranked according to preference and then diversity. This was achieved by:

- encouraging the participants to move the photographs round as an aid to ranking and noting the criteria used to decide on the ‘rank’ of the photograph. This required discussion to establish why the group ranked the photographs in this way.
- ranking the criteria in order of importance through discussion with the participants.

Scoring the habitats

The different photographs were then scored according to their importance. The criteria used for doing this were discussed and recorded.

6.3 Records

An example of the recording sheet used in this exercise can be found in Appendix 3. The data and information recorded on the sheets were categorised, coded and entered into an ACCESS database for analysis.

6.4 Evaluation

The results were analysed to look at various issues, especially comparison of ranking for preference and diversity.

7. PLANT SCORING

Jenny Wong and Rita Lysinge

7.1 Rationale

This activity was designed to categorise and quantify local values for plant species in such a way that they could be used to generate a semi-quantitative community value index analogous to the Genetic Heat Index (GHI) used for conservation priority setting.

The idea was that people value species according to various attributes which are independent of each other. The intention was to devise a means of eliciting these attributes as criteria against which plants could be valued using a scoring system. This entailed:

- elicitation of intangible values attached to plant species,
- valuation of plants against elicited criteria,
- sharing of knowledge and appreciation of values amongst participants.

7.2 Approach

The plant scoring exercise consisted of five main steps as described below.

Criteria elicitation

This activity was carried out using plant material from around the village (avoiding agricultural crops).

The participants were asked a number of questions about these plants – this helped elicit the criteria to be used in the scoring exercise. The procedure used to guide this exercise was as follows:

- The first plant was shown to participants and they were asked if they liked it or not.
- They gave their reasons why they liked it and why they did not. The reasons given for their likes or dislikes formed the basis for each criterion
- A second plant was then presented and the questions repeated.
- After exhausting their appreciation of the second plant, the group was asked to indicate their preference between the two plants.

- This was repeated with a range of plants and, at the end, the criteria elicited were presented to the participants for comments/confirmation. With more explanations on the reason for the exercise and on the importance of identifying the different criteria, more were mentioned as the participants began to understand the purpose of the exercise.
- For the scoring, a scale ranging from 0-5 was devised with 5 being the most and 1 being the least and 0 representing no knowledge.

Scoring exercise

Forty plant species were selected for the scoring exercise. These were chosen to include plants:

- from all habitats visited during the field walk,
- useful plants and those which were not known to have a use,
- rare and common plants,
- plants with well known local names as well as less well known ones.

Vouchers were collected for each species and divided into two. One voucher was pressed for herbarium determination while the other was used fresh in the scoring exercise (indoor).

Using a recording sheet on which the agreed criteria were written, each participant was led through the scoring exercise by a facilitator (one-on-one) and asked to provide a name for the plant and to score the elicited criteria.

A final, group, exercise was the trade-off analysis of the elicited criteria. This was done by comparing hypothetical plants given a range of scores for the criteria being tested and asking which plant the group would prefer to save from certain destruction.

7.3 Records

The data was entered directly into an ACCESS database and checked.

7.4 Evaluation

The results were analysed to investigate a number of different relationships. Several analyses of these data have been undertaken. The first relate to understanding patterns of knowledge of plants within and between the communities and to understand this fully it is necessary to undertake feedback and checks especially for mis-identifications with the participants. The second relates to developing community values for the plants from the responses of the individual participants. Simple sums of individual scores were found to be effective in ordering the plants in a way that the group were willing to accept as representing a joint perspective on the plants relative value.

An attempt was made to devise a single, combined index of local value from the weighted criteria but this was unsuccessful in that it was not endorsed by the community.

8. COMMUNITY FEEDBACK AND DISCUSSION

8.1 Rationale

In participatory work it is important to share as much as possible of the intentions and results of the fieldwork with the participants. Besides adding to the quality of the interpretation and validity of the results it also facilitates joint learning which would in turn facilitate negotiation and action in the area.

8.2 Approach

Feedback materials for each of the exercises were prepared and presented to the participants on a separate occasion. Results were presented as conventional bar charts or tables and the villagers were asked to confirm findings and give their interpretation of what the results revealed. This material was presented to the participants as a handout at the end of the sessions for their information.

Large versions of bar charts were used as a basis for the group presentations. Three to four specific questions were prepared for each bar chart and time was allowed for discussion based on the charts or questions to develop. The graphs provided a means of breaking up discussions and focussing people's attention on each issue as it was introduced.

Separate group discussion sessions were held with the participants who had been involved for each exercise. I.e. there were three group discussion sessions, one each for the landscape photo, habitat evaluation fieldwalk and plant scoring exercises.

In the villages which requested plant name lists a separate session was held with a small group of interested people to prepare for the villagers descriptions of plants they wished to appear in the lists.

In two villages a further short session was also held to verify animal names.

At the end of each session, standard questions were asked:

- Are these results useful to you?
- Have these results changed you ideas in any way?
- What could we do to make these results more useful to you?

REFERENCES

Hughes, C. E., Hawthorne, W.D. and Bass, S (1998) *Forests, biodiversity and livelihoods: linking policy and practice*. London: Department for International Development

Kellert, R (1993) 'The biological basis for human values of nature'. In Kellert, R and Wilson, E.O. (eds) *The Biophilia Hypothesis*. Washington D.C.: Island Press.