

**Development of a Community Use Zone Planning Framework,
Lac Tumba Landscape, Democratic Republic of Congo
USDA Forest Service Technical Assistance Mission
November 8 - 29, 2005**



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Cover photo: Mission team in pirogue in seasonal high water channel crossing from Lobengo on the Congo River to Bosobele on the Ngiri River. R. Alexander photo

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Development of a Community Use Zone Planning Framework Lac Tumba Landscape, Democratic Republic of Congo November 8-29, 2005

Summary

In November 2005, the US Forest Service (FS) in coordination with the US Agency for International Development sent a technical assistance team to Equateur Province, Democratic Republic of Congo to advise on a planning process for community level management of forest resources. The landscape planning is being developed under the auspices of the Central African Regional Program for the Environment (CARPE) by the Lac Tumba landscape partners: the World Wide Fund for Nature (WWF), Innovative Resources Management (IRM), and Bonobo Conservation Initiative (BCI).

The FS team observed interactions among the landscape partners and community representatives in the areas of Bomongo, Bobangi, Mabali and Botuali. The partners are fully committed and doing very worthwhile work with community leaders. The landscape partners use somewhat different approaches with their community planning efforts. Both approaches we observed seemed effective in the situation they were applied. Improvement is needed in the degree of technical coordination and information sharing among the landscape partners. Coordination is especially necessary to reduce duplication of efforts and to set priorities to accomplish the CARPE goals within program timeframes.

This report includes specific recommendations to assist the landscape partners and communities with community use zone planning; a template for community use zone plans; insight on defining community use areas; and advice on participatory inventory training.

The planning template offered in this report strongly supports the notion that a community's needs and desires drive the development of specific community use area plans. The template when coupled with the work of the CARPE partners at community and landscape scales should provide a meaningful framework for community management of the forest environment.

CARPE and the landscape partners are to be commended for the technical assistance they provide Lac Tumba landscape communities. IRM is particularly effective in building community capacity through participatory workshops and developing networks among communities. BCI's partnership with CREF (Centre de Recherche en Écologie Forestière) is similarly effective at encouraging community self-governance and building cooperation among various interests to serve community needs. WWF's rigorous approach to biological and socio-economic inventories provides an excellent body of essential data to inform decisions about forest management at landscape and community scales.

Development of a Community Use Zone Planning Framework Lac Tumba Landscape, Democratic Republic of Congo November 8-29, 2005

In November 2005, the US Forest Service International Programs sent a technical assistance mission to Equateur Province, Democratic Republic of Congo. The mission of the Forest Service team was to aid the Lac Tumba landscape partners: World Wide Fund for Nature (WWF), Innovative Resources Management (IRM), and Bonobo Conservation Initiative (BCI) in creating a framework for the development of a planning process for community level management of forest resources. The landscape planning is being developed under the auspices of the Central African Regional Program for the Environment (CARPE). The trip to the Lac Tumba landscape was a follow up to an initial assessment mission in 2004.

Objectives

The assistance mission focused on sustainable community use zone planning, Intermediate Result 1 Indicator 2 (IR1.2) in the *CARPE II Revised Performance Management Plan* (CARPE 2005c). The assistance mission had four objectives:

- Developing a potential community use zone planning process in a pilot community;
- Developing a template for community use zone plans;
- Providing insight on defining community use areas; and
- Advising on techniques for participatory inventory training.

Activities

The team, at various times, consisted of the following:

- George Akwah, IRM Community Based NRM Manager;
- Albert Bakanza, WWF socio-economic team;
- Jean-Marie Benishay, BCI National Coordinator;
- Inogwabini Bila-Isia, WWF Lake Tumba Landscape Leader;
- Alejandra Colom, WWF socio-economic consultant;
- Alpha Nzongo, IRM Logistics Officer;
- Alfred Yoko, IRM Bikoro Community Coordinator;
- Rick Alexander, FS silviculture and planning;
- Jan Lerum, FS Land Management Planning Specialist



Figure 1. Mission team leaving Ituta on the Irebu Channel between Lac Tumba and the Congo River. J. Lerum photo

The primary method of travel was by pirogue (dug out canoe) powered by an outboard motor. United States Agency for International Development (USAID) sponsored AirServe flights transported team members between Kinshasa and Mbandaka. The itinerary included Kinshasa, Mbandaka, villages en route to Bomongo (specifically Boa, Lobengo, and Komge), Mobenzeno, Bobangi, Elondi Island, Mabali, Mpili 1, Ituta, and Botuali.



Figure 2. Bomongo association representatives demonstrate a press for extracting oil from palm nuts.
R. Alexander photo

November 8 - 11, Kinshasa and Mbandaka. The team members had initial meetings to review objectives and logistics. In Mbandaka the team met with representatives of a Bomongo village association formed to revitalize palm oil production from old plantations in the area surrounding their village. Bomongo is on the Oubangi River about a day's travel by pirogue north of Bobangi. At the community's request, the team agreed to visit their village to see how they are organizing for sustainable use and development of their palm oil plantations and other agricultural operations and natural resources.

November 12 - 13, Bomongo. The Bomongo association members emphasized their interest in getting help to develop better transportation infrastructure and systems to gain easier access to markets. The team spent two days trying to reach Bomongo by pirogue up the Congo River and across a seasonal channel between Lobengo on the Congo River and Bosobebe on the Ngiri River south of Bomongo. Because the rainy season had been relatively dry, the pirogue could not get through the channel and had to turn back at Komge, underscoring the Bomongo association's concern about transportation problems and ready access to markets.

November 14 - 18, Bobangi. The team traveled from Mbandaka to Bobangi on the Oubangi River. At Bobangi we attended workshops organized by IRM assisted by a technical team of Congolese experts in geographic information systems, wildlife biology, ethno-botany and forestry. Several villages sent representatives to the workshop to learn participatory inventory techniques to gather information for community use zone planning. WWF provided the village representatives with instruction and application forms for applying for USAID small grants to communities administered by WWF. The grants are awarded to community



Figure 3. Participatory inventory and planning workshop in Bobangi.
R. Alexander photo

based initiatives for sustainable development of fishing, agriculture, and commerce in non-timber forest products.

November 19 - 20, Mabali. After leaving Bobangi and spending the night on Elondi Island, we arrived at Mabali where we met with staff of the Center for Research in Forest Ecology (CREF, Centre de Recherche en Écologie Forestière) and with contingents from several nearby villages. The CREF Director of Information Exchange and BCI coordinate on natural resource outreach and education activities. We discussed the villages' interest in participating in community use zone planning and development. Village representatives presented BCI with written expressions of interest in developing community use zone plans. WWF provided information to the village representatives about the small grants program.

November 21 - 24, Botuali. We crossed Lac Tumba and traveled up the Lombambo River to Mpili 1 where we spent the night before trekking about 10 km to Botuali. In Botuali we again met with contingents from nearby villages as well as village elders and right holders from Botuali. BCI has helped Botuali villagers form a Bonobo Committee including the village Chief, elders and right holders. The committee presented a written proposal to BCI for review and assistance with petitioning the government. The proposal calls for a community use zone including the village (houses, school, health clinic, etc.), a conservation area and a community exploitation area. Representatives of a neighboring village expressed interest in establishing a similar community use zone and the need to coordinate with Botuali because their forest adjoins that of Botuali. WWF provided information to the village representatives about the small grants program.



Figure 4. Lumber merchants in Mbandaka marketplace.
R. Alexander photo

November 25 - 28, Mbandaka. We met again with the representative of the Grenfell Foundation and the village of Bomongo and discussed with them the USAID grants WWF is awarding and administering on behalf of USAID. The FS mission accompanied the WWF socio-economic team as they interviewed merchants selling sawn planks in the market. We discussed the process for obtaining planks, transportation costs and selling prices. We also interviewed a team of carpenters who obtain locally sawn planks and make furniture for sale in Mbandaka. The sawyers and carpenters expressed the need for training, affordable high-quality tools and improvements to the transportation system.

November 29, Kinshasa. Team members Colom, Bakanza, Akwah, Benishay, Lerum and Alexander met with CARPE Director John Flynn, CARPE associate Jacqueline Doremus, CARPE Focal Point Veronique Tshimbalanga, WWF National Director Raymond Lumbuenamo, and Wildlife Conservation Society (WCS) representative Jean Remy Makana. Flynn provided an overview of objectives and programs for all CARPE landscapes. The *CARPE II Revised*

Performance Management Plan (CARPE 2005c) calls for identifying three “macro-zones” in the landscapes: Protected Areas, Community Based Natural Resource Management (CBNRM) zones and Extraction Resource Zones.

During the mission there were several discussions about the relationship between the CARPE macro-zones and the DRC Forestry Code and between the CBNRM zones and The World Conservation Union (IUCN) Protected Area Category VI (IUCN 1994). The table on the next page illustrates the general relationship among these approaches to land use zoning. In general, it appears that the macro-zoning called for in *CARPE II Revised Performance Management Plan*, IR1.2 will have relatively less precision in its boundaries and less detail and specificity in its associated norms or guidelines. The community use zone plans or other specific plans such as an operating plan for a specific concession in an extraction resource zone, will have relatively greater precision, detail and specificity.



Figure 5. Fishing village on the Congo River.
R. Alexander photo



Figure 6. Man with eel caught in Congo River northeast of Mbandaka. R. Alexander photo



Figure 7. A variety of small fish caught in the Irebu Channel between Lac Tumba and the Congo River. R. Alexander photo



Figure 8. Dam to capture fish during seasonal inundation of the forest. R. Alexander photo

Table 1: Comparison of scales in various zoning approaches

Source	2002 DRC Forestry Code Does not include real estate, and apparently, does not apply to urban areas, mining or agricultural lands (see p 2-3 of English translation)	CARPE II IR1.2 macro-zones (CARPE 2005c)	IUCN Protected Area Category VI (IUCN 1994) At least 2/3 of the area is in a natural condition.	IRM and BCI approaches to CBNRM sub-categories (IR1.2) Can include savannahs and water bodies in addition to cleared and forested areas.
Scale	Large (macro-zoning) scale Large portions of landscape		Total size of area must be large enough to absorb sustainable resource uses without detriment to overall long-term natural values.	Fine scale Community influence zone(s)
Categories	Listed (classified) land. See code Ch.2, section 1; e.g., wildlife reserves	Protected Areas (PAs). Reserves and parks.		
	Protected land. See code C, h 2, section 2. e.g., 25 yr. timber concessions (article 21), community forests (article 22)	Community based natural resource management (CBNRM) zones	Category VI, Managed Resource Protected Area: Protected areas managed mainly for the sustainable use of natural ecosystems.	Within a specific CBNRM zone Community: houses, other structures, infrastructure, and room for expansion Conservation areas. E.g., sacred sites, cemeteries, water sources, wildlife habitat (e.g., bonobo, elephant, hippo.) Exploitation areas. e.g., cleared areas beyond the immediate community including roads and agriculture plots (subsistence and local market), animal rearing; AND, forested or other mostly natural areas to be used for hunting, fishing, non-timber forest products, artisanal timber (local construction and local markets, value added wood products)
	Permanent production land. See code Ch. 2, section 3; e.g., forest concessions	Extractive resource zones (ERZs). e.g., logging concessions, large scale agriculture, mining, oil.		

Findings and Recommendations

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Finding 1: Pilot approaches for community use zone plans are underway and appear effective.

IRM and BCI are, in effect, already testing processes for developing community use plans. The respective approaches are similar but not identical, and the differences appear to reflect the different philosophies and objectives of the two organizations. While the partners are using different approaches to planning, both approaches appear effective in the situations they are being used. Each approach serves as a useful pilot planning process for developing community use zone plans. In Appendix A to this report, the FS team offers a template for community use plans that is consistent with the general approaches taken by IRM and BCI.

IRM's process for building community capacity for decision making and participatory inventory work, as observed in Bobangi, is an excellent approach toward developing community use zone plans with considerable local stakeholder participation.

The IRM approach focuses on developing a community vision for a sustainable future. IRM has strong planning skills and contacts with a large network of villages. The IRM approach focuses on building capacity in villages to come up with a village's vision for the community forest that addresses sustainable livelihoods and conservation. IRM's process includes extensive training, meetings, participatory mapping, and developing a cadre of village facilitators to lead the planning work.

BCI's work in Mabali and Botuali in coordination with the research center, CREF, is less focused on building community capacity than IRM's approach but otherwise similar in that they engage local village representatives, create networks, and foster considerable local stakeholder participation to develop proposals for individual community use zone plans.



Figure 9. IRM technical team member Pax Mucici Mbuyi works with village representatives on map of local resources at Bobangi workshop. J. Lerum photo

BCI is focused on the conservation of bonobo and their habitat and recognizes that goal cannot be achieved without the support of the local communities. BCI works with targeted audiences in key communities. For example the Bonobo Committee in Botuali is composed of village leaders, landowners, academics, and elders. BCI's interactions with the village are focused on designating conservation and development areas which the village leaders and landowners will support. The BCI approach recognizes that designation of development areas which adequately support the community's economic and social needs are important so that conservation areas can be protected.

Recommendation:

- All landscape partners should periodically compare approaches to developing community use zone plans, sharing lessons learned and identifying common features that can improve the template for developing community use area plans in communities throughout the landscape.

Finding 2: Partners have different and complimentary skills and strengths.

Each of the three Lac Tumba landscape non-governmental organization (NGO) partners has important skills to contribute to community use zone plans and to the integrated landscape plan. There is, however, overlap in their efforts and that is causing confusion among community members and inefficiencies in the overall planning effort. One of the benefits of all three of the partners participating in this assistance trip was the recognition of the overlap in efforts, as well as each other's expertise.



Figure 10. CREF and WWF representatives with forest right holder in savannah near Botuali's proposed conservation area. R. Alexander photo

BCI is effectively using existing resources like CREF to reach target audiences for initial networking and information exchange on interrelated conservation and agriculture issues. The BCI approach is focused on the conservation of bonobo and their habitat and works with communities to help reach that goal. BCI has effectively used fund raising and the media to disseminate their messages.

IRM's approach effectively involves community members in grass root community planning. IRM has a broad network of villages they have worked with on a number of issues, including agriculture, fisheries, and governance issues. The IRM approach is based on building the ability of locals to do much of the planning

work, thereby building capacity for locally developed solutions and community plans. IRM also has expertise in issues of legal procedures and governance, and has been very involved with examining the 2002 Forestry Code.

WWF's socio-economic study is providing an extremely useful picture of the economic realities of life in the landscape's villages. WWF is also leading the landscape-level inventory work, via large scale inventories including validation of satellite imagery mapping. In addition to helping identify potential macro-zones in the integrated landscape plan (*CARPE II Revised Performance Management Plan*, IR 1.1) the imagery and surveys will provide the baseline information for status and change assessments and contribute to *CARPE II Revised Performance Management Plan* IR 3.1

Questions raised by community members at the meetings in Botuali illustrated there is overlap in the activities of the partners: both IRM and BCI are working on community planning in the general area. That overlap has led to confusion and inefficiency in the community use planning process. Some villagers were not clear on which partner was responsible for which activities.

Recommendations:

- With limited time and resources, more effective coordination among the partners would lead to more efficiency in the planning process.
- The partners should capitalize on their respective strengths and expertise and the geographic areas they have already worked in or have contacts in, to schedule the completion of community use zone plans and the work needed to complete the overall landscape plan.

Finding 3: There are many villages in the landscape and a limited timeframe for development of community based natural resource management plans.

Given the scope of work to develop community use plans and the hundreds of villages within the landscape, it may not be feasible within the CARPE timeframe to complete detailed, site-specific community use zone plans for very many villages in the Lac Tumba landscape. There is potential to use completed community use zone plans as the basis for developing preliminary plans for other communities where there may not be the time or resources to do a detailed community use zone plan. Common principles and guidelines (norms) could be derived from the completed community use zone plans, and used to develop interim or preliminary plans for other areas.



Figure 11. IRM map showing hundreds of communities in a portion of the Lac Tumba landscape.
R. Alexander photo

Recommendations:

- With limited time, the landscape partners should focus on completing community use plans in Bobangi, Botuali and any other areas where planning work is currently underway, and jointly prioritize the remaining villages most ready to engage in community use zone planning.
- Interim community use zoning for the remaining communities or *groupements* could be addressed by identifying a standard area around each, which would constitute a community use area until such time as a complete plan could be developed.

Finding 4: Developing community based guidelines (norms) is an important part of community plans.

Guidelines (norms) provide direction for conducting activities and help ensure activities are sustainable. The partners are testing stakeholder based techniques for developing guidelines (norms) for the sustainable use of resources. Both the IRM and the BCI approaches include the use of technical experts to help address issues related to sustainable levels of use.



Figure 12. Fishing in the Irebu Channel between Lac Tumba and the Congo River.
R. Alexander photo

A local example of setting guidelines (norms) for activities is the process IRM used to help fishing communities on Lac Tumba to develop community based fishing guidelines. The process generally is to have communities identify problems and solutions to enhance sustainable resource use; have the suggested norms reviewed by technical and legal experts and then drafted in a form to petition the government to codify the norms for all fishing in the area. Before petitioning, the norms are reviewed and validated once again by the community representatives. BCI is considering this same approach as a next step in handling the Botuali community's petition for establishing a community use area with specific sub-sets for conservation and exploitation.

Recommendations:

- Institutionalize a general process for development of guidelines (norms) for community use areas. Consider incorporating this process in a Forestry Code implementation decree.
- The partners should consider enlisting additional forestry and silviculture technical assistance to aid to developing guidelines for sustainable levels of use.

Finding 5: Increased technical coordination and communication is needed.

The need for improved information sharing and coordination among the landscape partners became evident in discussions regarding inventories, mapping, and GIS. If data collected by the three partners is to be used effectively, some general standards should be agreed to and used.

Identifying common standards does not mean the same level of detail has to be collected in each inventory. If each inventory follows agreed-upon data registration standards, all inventory information can be used to create a more informed landscape plan. For example, Professor Punga of the IRM Technical Team indicated the approaches used in the IRM and WWF wildlife surveys are probably similar, although the focus may differ among the partners. Additionally, the results of data collection efforts should be regularly shared among the partners.

Recommendation:

- To make the best use of all the information being collected in the Lac Tumba landscape, databases, GIS structure, and protocols among the various data collection and inventory and mapping efforts should be discussed and coordinated as soon as possible. The results of the inventory and mapping work should be regularly shared.

Finding 6: Partners are using participatory inventories to different degrees.

IRM has a strong approach to participatory inventories that brings in-country technical specialists together with the people from the local area who will actually do the inventory. The IRM workshop in Bobangi trained community members in protocols for gathering vegetation, wildlife, ethno-botanical and socio-economic information about the forests and other natural resources within a community's zone of influence. The IRM technical team and community members were engaged in an adaptive process to refine the protocols to make them both practical and relevant to the community's interest in sustainable management and development.

BCI (with CREF) and WWF's socioeconomic and biological inventory teams also use a combination of technical experts and trained local people to gather natural resource and socioeconomic data.

Recommendation:

- Continue approaches to involving local community members in the inventory work and link it to efforts such as IRM's community Options, Assessment and Investment Tools (COAIT) that build community capacity for decision making.



Figure 13. George Akwah, IRM, and Jean Marie Benishay, BCI, discuss technical coordination at the Bobangi workshop. R. Alexander photo

Finding 7: Useful definitions of community use zones may vary from community to community.

The 2002 Forestry Code (Article 22) generally allows local communities to seek permission for use of the surrounding forest. Forestry Code Article 1.17 defines local community as “A people traditionally organized based on custom and united by ties of clan solidarity or family which are the basis of its internal cohesion. It is characterized otherwise by its attachment to a specific territory.” Forestry Code Article 25 further allows that management of portions of the forest may be delegated to public associations.

The definition of a community use zone does not have to be the same for every village within the landscape. In many situations identifying a community use zone that includes several villages makes sense.

The IRM planning effort at Bobangi involved a number of villages from the same area, under the authority of the Bobangi chief. The conceptual community use plan was presented by the Bobangi chief to outlying villages within the *groupement* for information and for their reactions to the concept. Members of the technical team endorsed the process of villages deciding together how to manage the areas they all use.



Figure 14. Two men fishing from a pirogue with a large net in a Congo River channel. Fishing by various methods is an integral part of Congo Basin livelihood. R. Alexander photo

Villages doing participatory mapping with the assistance of IRM have identified lakes, rivers and streams as resources equally important as forests. Bobangi is including these in their concept of community use areas, and IRM’s Alfred Yoko reports that Bikoro and other villages near Lac Tumba are also including water resources in their community use areas.

Villages near Botuali were also interested in participating in Botuali’s community planning effort. During our visit to the BCI planning effort in Botuali, a contingency of villagers from Malualumba met with the representatives of the landscape partners and Bonobo Committee. The village representatives

asked if their savanna and inundated forest areas that adjoin the proposed Botuali conservation area (Block B) had value for conservation and could be part of the conservation area. They noted they did not want to adversely affect neighboring Botuali’s plans. While we were in Mabali, a contingent of representatives from three villages jointly approached BCI and CREF about participating in a community use plan.

Recommendations:

- The definition and identification of community use zone boundaries should reflect community desires and the most appropriate level of traditional and administrative governance for the site-specific situation.
- Partners should agree and clarify that non-forest areas may be appropriate to include in community use areas. Examples of such areas include savannahs, lakes, rivers and streams.

Finding 8: Spatial designations of community use areas may vary from community to community.

There are several schools of thought on defining spatial boundaries for a community use zone. One is much like the urban growth boundary idea in the United States, where defining the zone will serve to limit the sprawl of communities into undeveloped areas, preserving nearby forests in a more natural state. Another view is that defining a generously large community use zone protects the forest by reserving it from logging concessions. Another concern favoring the generous boundary is that communities in Democratic Republic of the Congo are likely to double in population over the next few decades and the community use zone boundary should account for population growth.

At the Bobangi workshops, participants proposed community use zone boundaries that included all of the current community buildings and most of the agricultural plots plus an additional area of 3 to 8 km beyond to include the area in which people made frequent use of the forest, and to allow some room to grow. The WWF biological and socio-economic teams report obvious human influence in a zone of 10 to 15 km beyond the village in the areas they have surveyed.



Figure 15. Manioc and maize planted near Botuali. R. Alexander photo

Some of the landscape partners are considering whether the CARPE concept of CBNRM areas is consistent with The World Conservation Union (IUCN) Category VI Protected Areas managed for sustainable use. IUCN suggests that Category VI areas must be large enough to absorb sustainable resource uses without detriment to overall long-term natural values, and that at least 2/3 of a Category VI area be in a natural condition. Applying IUCN Category VI to the CARPE concept of CBNRM areas would also indicate the utility of generous boundaries for the community use areas.

BCI and CREF reported they will be working with Botuali village members in December 2005 to locate the approximate boundaries of the proposed conservation and exploitation areas with global positioning system. Results of this work would provide one example of the size or scale of a community use zone.

Recommendation:

- Until more is learned and quantified about activities and rates of use in community use areas, the boundaries should be generously large to allow for a variety of sustainable uses and for future human population growth.

Finding 9: There are few obvious stakeholders, other than USAID and the landscape partners, to represent community interests in the landscape scale macro-zoning process.

The interests of communities must be represented in the landscape scale macro-zoning.

The challenges of subsistence and elementary development at the community level are so large that few or none of the stakeholders that IRM and BCI engage at the community level appear to have the capacity (time, information, or other resources) to engage at the scale of the entire landscape in a process to identify macro-zones as called for in *CARPE II Revised Performance Management Plan* IR 1.1 (CARPE 2005c).

Previously granted legitimate concessions for logging, mining or large scale agriculture will presumably be considered as the CARPE partners, DRC and Equateur governments propose macro-zones for the Lac Tumba landscape. The government's decree of 24 October 2005 setting in motion a process for resolving claims on existing concessions is an important step in identifying the stakeholders with an interest in extraction resource zones. These stakeholders likely have the resources to engage in the planning process.

WWF's extensive biological surveys will provide essential information for the macro-zoning process. The CARPE partners and other national and international conservation organizations will likely engage as stakeholders with an interest in protected areas in the macro-zoning process.

The mechanisms for equitably bringing the interests of protected areas, community based natural resource management areas, and logging concessions and other extraction resource zone activities into the macro-zoning process will be extremely critical to the success of the land use planning effort.

Developing mechanisms to give all stakeholders a voice in the macro-zoning process is an essential part of the strategy for convening the planning process. Without such a process, villages may end up with "default zoning" in which various interests identify and establish protected areas and concessions first, leaving villages the use of whatever lands are not claimed previously.

In the Mabali and Botuali area, village representatives have requested the assistance of BCI and IRM in forwarding village petitions to have the villages' proposals for community use areas acknowledged and approved by the government.



Figure 16. Carpenters in Mbandaka marketplace showing the tools they use to build furniture. R. Alexander photo

Recommendation:

- Address the lack of landscape scale stakeholders in the strategy document for convening the planning process. Consider potential roles for the provincial Bureau de la Conservation de la Nature and the continued involvement of the IRM technical team in the macro-zoning process. In addition, some NGOs with experience working with communities may be able to represent the interests of many or most communities at the landscape scale.

Finding 10: Continued agricultural and related technical support is essential for maintaining sustainable livelihood in community use areas.

Processing, storing and transporting food crops, livestock and meat, fish and game to market without excessive spoilage is a challenge in the rain forest and with the existing transportation system. There are common techniques in place for smoking fish and bush meat, but getting these to market often results in losses from spoilage.

Communities want training and materials such as improved varieties of manioc, availability of more diverse, nutritious food crops to improve agricultural efficiency and increase yields. IRM's Congo Livelihood Improvement and Food Security (CLIFS) project successfully provided this type of assistance in the Bikoro area. CREF and the South-East Consortium for International Development (SECID), working with BCI, are also effective at providing this kind of assistance.

Alexander noted signs of increasing social stability and organization compared to the September 2004 initial assessment mission (Marcot and Alexander 2004) to the Lac Tumba region. However, infrastructure, particularly for transportation of goods to market, is still lacking or poorly functioning in most of the area we visited. Sawyers and carpenters reported difficulty in getting their products to market and in obtaining quality tools to safely and efficiently make their livelihood.



Figure 17. Transporting a bundle of "flip-flops" (rubber sandals) from Mpili 1 to Botuali. R. Alexander photo

Recommendations:

- Explore ways to improve processing, packaging and transportation such as low cost techniques for waterproof packaging. Explore processing techniques and marketing of domestic livestock that are culturally desirable and economically competitive (e.g., jerky from domestic animals.)
- Explore ways to provide training and suitable tools for value-added transformation of timber and non-timber forest products by village members to diversify and expand their economy beyond subsistence agriculture.

- Support the continuation of agricultural assistance to improve the quality of diet, increase yield of products for market, improve soil productivity and reduce the rate of clearing new fields.
- Continue support for improving transportation and communication from outlying villages to larger markets.



Figure 18. Transporting goods to regional weekly market via Oubangui River. R. Alexander photo

Appendix A

Template for Community Based Natural Resource Management Area Plan

Community based natural resource management use areas are lands in which communities have tenure over natural resources and managed for communal benefit through a variety of traditional and modern systems. This may include local agricultural production. (CARPE 2005c)

One of the primary objectives of this assistance trip was to aid in the development of a template for community based natural resource management area plans. The following template reflects many of the principles and discussions we observed during the trip.

The *CARPE II Revised Performance Management Plan* (page 13) directs that sustainable management plans address specific threats with applicable interventions. In this approach to a community use plan, potential threats to sustainability are addressed through zoning, where activities may be prohibited and through guidelines (norms), which provide direction or restrictions on how activities should be conducted.

An important step before completing any land use plan is verifying the plan is consistent with law. There is an extremely complex governance situation in Democratic Republic of Congo, with multiple levels of traditional and state governance. The new constitution proposes to decentralize and turn over many responsibilities to the territorial level of government. Given the evolving governance situation and the current draft status of the 2002 Forestry Code, a legal consistency check should be included early enough in the planning process so that adjustments may be made to the plan to ensure it can be legally implemented.

Likewise, information from the national government's current effort to verify the status of forestry concessions should be used when developing the plans. Much of the landscape may turn out to be legally zoned for forestry concessions in areas where communities maintain traditional access and use rights to forest resources which forest concessionaires will have to respect. Communities could get a percentage of harvest values (IRM, *Participatory Natural Resources Inventory in Lac Tumba*). Communities could consider including best management practices for timber harvest in the community use plans, in an effort to ensure the sustainability of any harvest that takes place, either by community members or concessionaires.

Template Introduction

As used in this template, there are three basic types of decisions in a land use plan:

- zoning decisions,
- guideline (norm) decisions, and
- monitoring decisions.

Those decisions are supported by information from inventories about community needs and current conditions.

Preliminary Step: Inventories

Inventory data collection is a preliminary step in land use planning that identifies the current species, habitats, products collected, and activities taking place. Inventory data is used to make zoning and guideline decisions in a plan. Types of inventories needed for community use area plans include timber and non-timber forest products, flora, fauna, socio-economic activities, and local religious and cultural variables. In the planning efforts we observed, there appear to be two primary scales of complimentary and equally important inventories:

1. Local Scale

Local scale inventories establish where species and activities occur in context of community use areas. In the IRM participatory approach to local community inventories, a prioritization of species occurs: identifying the most important species to local users and most important species to others. An advantage to using a local, participatory approach in this type of inventory is it capitalizes on local knowledge and can contribute to developing local support for the plan.

2. Large or Macro Scale

The goals of these surveys are to enhance the long-term conservation of biodiversity, through a variety of flora and fauna surveys across the landscape. This scale of inventory contributes to the mapping across the entire landscape. One of the WWF objectives of this level of inventory in the Lac Tumba landscape is to validate existing satellite imagery mapping of vegetation across the landscape.

Plan Decisions

1. Zoning

Within a community use area, zoning (or sub-zoning) defines the overall objectives for an area and identifies which activities should or should not occur to be consistent with those objectives. Zoning decisions are often considered the heart of the plan and can be contentious.

Zoning decisions should be based on information from the inventories. It would not be useful to designate a conservation area if the habitat for the species of interest did not occur there and there was no potential to develop it there.

Based on discussions and our observations at Bobangi and Botuali, there are three zoning categories that could apply in most community use areas. Depending on the site-specific situation in a community use area, more categories may be warranted. We recommend keeping the categories as general as possible, to allow for easy understanding of differences between the categories and for ease of plan implementation.

The three zoning categories used in this example are:

- community and community expansion,
- extraction (exploitation), and
- conservation.

The need for designating an area for community expansion was raised in Bobangi. That interest seemed to focus on expanding the immediate area of a village. In Democratic Republic of Congo, the population is projected to double by 2020 (CARPE 2005a). It makes sense for community use plans to designate areas for future physical growth of the villages, to accommodate population increases.

The three zoning categories reflect general agreement at the Bobangi and Botuali meetings that both extraction and conservation areas should be designated in community use area plans. The need for improved agriculture production and for diversified economic opportunities was a common theme at the meetings. Planning participants in both communities expressed interest in allowing some community scale commercial timber harvest, for a source of income to the community. Participants in Botuali and Bobangi also recognized the desirability of and need for designating conservation areas within their respective community use areas.

2. Guidelines (Norms)

Guidelines or norms provide direction for conducting allowed activities. They are intended to ensure the sustainability of activities and resources. Guidelines reflect traditional or science based knowledge about sustainability, such as how activities should occur, when activities should occur, where activities should occur, or how much should be collected.

For example, a guideline identifying when a plant gathering activity should occur would address plant physiology issues related to sustainability. A potential guideline could be: "Collect the xxx plant after seeds have scattered, so that new plants can grow next year."

3. Monitoring

Monitoring of land use plans helps determine if the plan is working as intended or if changes need to be made in the plan. Many plans define monitoring as the information needed to maintain the plan, as distinguished from collecting information for research or to add to incomplete knowledge.

Monitoring helps identify if resource conditions or demands of the public have changed since a land use plan was developed. The monitoring section of a land use plan typically describes what question is being answered or what will be monitored, general monitoring methods, how often it will be monitored, and by whom. Monitoring results are periodically reviewed to determine if assumptions in the plan were correct, if the plan continues to be effective, or if the plan needs to be changed.

An example describing monitoring in a community use area plan follows:

- **Monitoring Question:** Has land occupied by agricultural fields in the community extraction zone increased more than 10% since the plan was developed?
- **Monitoring method:** Update the map of the community extraction zone to current conditions.
- **Monitor when:** Every 2 years
- **Who responsible:** community members assisted by CREF staff

Monitoring can help determine if the guidelines (norms) are effective in ensuring the sustainability of activities and resources. For example, surveys in areas where plants are gathered is a potential monitoring item to use to determine if plants are regenerating adequately.

Monitoring also includes verifying assumptions made in the plan. If a community use plan assumes community populations will increase by 10% by the year 2020, and therefore the community expansion area will need to accommodate 100 families, a monitoring item related to actual population growth would be useful to determine if more land needs to be designated for community expansion. An influx of immigrants could create an unforeseen need to designate a larger community expansion area.



Figure 19. Community members along the Lombambo River between Mpili 1 and Lac Tumba greeting the mission team passing by in a pirogue. WWF, IRM and BCI have built strong relationships and networks throughout the area and the team received warm welcomes everywhere. R. Alexander photo

Outline for a Community Based Natural Resource Management Area Plan

- 1. Community based natural resource management area map**
- 2. Community based natural resource management area overall objectives**
- 3. Zoning categories and activity guidelines**

A. Community expansion zone*

1. Objectives for the zone

2. Activities allowed, with guidelines (norms)**

- a. Homes, buildings and infrastructure
- b. Agriculture
 - 1.) Subsistence, corn, manioc, etc
 - 2.) Commercial, cocoa, coffee, etc
 - 3.) Livestock
- c. Fishing
 - 1.) Dams
 - 2.) Traps
 - 3.) Nets
- d. Hunting
 - 1.) Traps
 - 2.) Dogs
 - 3.) Poison arrows
- e. Gathering
 - 1.) Raffia
 - 2.) Palm and vines
 - 3.) Chikwangue leaves
- f. Timber harvest
 - 1.) Local use
 - 2.) Commercial

3. Activities Not Allowed

- a.
- b.

B. Community extraction zone*

1. Objectives for the zone

2. Activities allowed, with guidelines (norms)**

- a. Agriculture
- b. Fishing
- c. Hunting
- d. Gathering

e. Timber harvest

3. Activities not allowed

- a.
- b.

C. Community conservation zone

1. Objectives for the zone

2. Activities allowed, with guidelines (norms)**

- a. Agriculture
- b. Fishing
- c. Hunting
- d. Gathering
- e.

3. Activities not allowed

- a.
- b.

4. Monitoring

- Monitoring question
- Monitoring method
- When monitored
- Who monitors

NOTES:

*The three zoning categories used in this example reflect discussions at the workshop and meetings we observed. While the three categories have potential application in all community use area plans, each community should determine appropriate categories for its situation.

**The listed activities are for example only; they are not a complete list of activities to be addressed in each plan. Community members in each community use area should determine which activities to allow in the plan, if those activities are consistent with the objectives of each zoning category, and potential guidelines (norms) to ensure resources and activities are sustainable. Similarly, each community should determine which activities to disallow in a particular zone. The plan should document why activities are disallowed.

Appendix B

Bobangi, Mabali, and Botuali Field Notes

Bobangi: Participatory Natural Resource Inventory Workshops

Innovative Resources Management (IRM) coordinated an extensive workshop on community based participatory inventories for use in community based natural resource management area planning. Participants were organized in two major groups: village representatives and the technical team. The village representatives provided information on local use of the forest and are being trained to conduct inventories. The technical team included the technical experts who developed the protocols and procedures for the inventories, as well as government officials, and local and regional non governmental organizations representatives.

The IRM approach to participatory inventories uses local villagers to conduct the inventories. That approach builds local understanding and acceptance of the planning process, takes advantage of local and traditional knowledge, and contributes economic benefits to villages through wages.

Bobangi: First Day

George Akwah, IRM Community Based NRM Supervisor, noted two points IRM considers critical to address in the landscape plan: recognition of land rights/ownership and ability of villagers to obtain a sustainable livelihood from the forest. Traditional rights to forest resources have been superceded by the national government, as reflected in the 2002 Forestry Code, which proclaims rights to the forest reside with the national government, although the code does recognize traditional/community use rights.

A village representative presented a synopsis of the workshop to date. Participants identified a lengthy list of potential species located around local villages. The group prioritized those species lists, to identify and map the top 20 species considered to be vital or strategic. Vital species are considered critical to villages for their livelihoods. Strategic species are considered of interest for commercial exploitation purposes or because of international interest.

The participatory inventory will rely on a number of effective protocols to ensure the maps are consistent and clearly understood. As described by Professor Mucici Mbuyi of the Geographic Institute of the Congo, maps will use standard legends, derived from community input, so that map symbols are well understood by community members. The community participants and



Figure 20. Landscape partners discussing inventory protocols with the technical team at the Bobangi workshop. R. Alexander photo

cartographers will be identified on the maps. It was acknowledged that the participatory maps are qualitative; their function is to display the location of species that villagers believe are important in their local forest.

IRM Technical Team

The technical team is an impressive and committed group, and appears to be a very effective part of the IRM planning approach. Technical team members possess the range of skills to ensure the development of a sound inventory and plan. Having Congolese technical experts, as well as representatives of government agencies and local nongovernmental organizations working with village representatives on the participatory inventories and maps will contribute to the development of a technically strong product, with local understanding and support for the plan.

IRM Participatory Mapping Technical Team members include:

- Fauna: Professor Julien Punga Kumanenge, Vice Dean, University of Kinshasa
- Botany/Ethnobotany: Guy Ilumbe Bayeli Is'ompongo, Lecturer, University of Kinshasa
- GIS: Pax Mucici Mbuyi, Department Director, Geographic Institute of the Congo
- GIS: Joseph Isolumbo, Consultant
- Vinny Nkoso-Iskule, Forestry Bureau, Mbandaka Provincial Env. Coord. Unit
- François Bokondokondo, Conservation Bureau, Mbandaka Provincial Environmental Coordination Unit
- Etienne Kasereka, GASHE (local NGO) representative
- Rubbens Ekutsu Boetza, Consultant

General Concepts of Land Use Planning, from the US Forest Service

Jan Lerum of the US Forest Service presented an overview of the land use planning process used for US national forests. While the governance of US national forests is much less complex than the governance situation of lands in the Lac Tumba landscape, many planning principles are



Figure 21. Jan Lerum, US Forest Service planner, discussing elements of successful land management plans with the IRM technical team at the Bobangi workshop.

R. Alexander photo

similar to what the village participants and technical team were discussing. As a Forest Service planning practitioner, Lerum shared observations on what was important in planning and what worked or did not work in the Forest Service process. (Refer to Appendix A for an expansion of this general planning process into a potential template for community use area plans.)

Preliminary Step: Inventory and Data Collection

This preliminary step identifies what the land currently provides and what it could potentially provide, in terms of habitat, products, and activities. That information is used in the subsequent decisions for a plan.

Plan Decisions:

- Zoning: Where activities should or should not occur.
- Guidelines (norms): How activities should occur; when, where, how, etc.
- Monitoring: What conditions should be tracked to determine if the plan effective.

Elements of a good plan: A good plan is understandable, useful and practical.

- Understandable: Both maps and documents should be reviewed for clarity. Ask the plan developers: “What do you mean by that?” to ensure maps and text will be easily understood by those using the plan.
- Useful: A plan should meet the objectives set for it. In the case of community use plans, it should assist in guiding activities to be sustainable, for long term use and conservation of community resources.
- Practical: A plan should be able to be implemented with available resources, such as funding and staff.

Bobangi: Second Day

Village participants presented a general conceptual zone map for area being studied around Bobangi. The conceptual plan includes a 1 kilometer corridor around each village designated for community expansion and 3 kilometer corridor around villages designated for community use. The 3 kilometer was identified as a good rule of thumb for use areas because that was the distance that noticeable human use could be evident. The group acknowledged a potential for identifying a larger area (such as 8 kilometer) in certain site-specific circumstances, but as a general rule will use the 3 kilometer.

Wildlife reserve areas and harvest concession areas were identified in the conceptual plan, as well as designation of areas such as the big rivers and swamps to emphasize fish. The process will use data from the participatory inventories to confirm which areas would be best to designate for those zones.

Additional Steps in IRM Participatory Planning Process

The conceptual plan was presented by the Bobangi chief to outlying villages within the *groupement* for information and for their reactions to the concept. Members of the technical team endorsed the process of villages deciding together how to manage the areas they all use. After the inventory is complete, the planning process will include a validation step, using workshops to confirm best location of each zone to reflect on-the-ground situation.



Figure 22. Bobangi village representatives illustrating local ideas for various community use zones at the Bobangi workshop.
R. Alexander photo

Mabali and Botuali: Community Meetings and Field Trips

The Bonobo Conservation Initiative's approach to community use zone planning is to work with key contacts in villages, principally the chiefs, forest land right owners, notables (elders), hunters, and academics to develop agreement that bonobo need some protection. BCI is effectively working with CREF (Centre de Recherche en Écologie Forestiere) staff initial networking and outreach with villages. The CREF Director of Information Exchange contacts villages with information about bonobo and the importance of conservation and natural resources. Following some of those discussions, a Bonobo Committee was created in Botuali.

Mabali Meetings

While we were in Mabali, contingents of from nearby villages met with the CREF Director of Information Exchange and representatives of the landscape partners regarding their interest in participating in a community use zone plan. The village representatives recorded all their names and committed to working further with CREF and BCI. The WWF representative provided the village representatives information on grants to assist sustainable development.



Figure 23. Albert Bakanza, WWF socio-economic team, presenting WWF administered grant program to village chiefs and notables (elders) at CREF in Mabali.
R. Alexander photo

Botuali Meetings

The Botuali leaders and Bonobo Committee have identified general areas to north-west for community use, principally agriculture and forest exploitation (Block A), and to the south-east for conservation (Block B). CREF staff has conducted inventories in both areas. Jean-Marie Benishay, national coordinator of BCI, noted a validation step was planned for December 2005, to delineate the most suitable areas for these uses. As described by the vice president of the Bonobo Committee at an evening meeting with the village and landscape partners, the exploitation area, Block A was identified in part because it is closest to available transportation, that is, close to the trail connecting to Lac Tumba.

At the second evening meeting, attendees discussed the activities they considered appropriate and consistent with the objectives of each block. Activities to emphasize in the exploitation area, Block A, included:

- Fishing, including women's dams, traps, nets, hook and line;
- Agriculture, emphasizing manioc, maize, beans, potatoes;
- Agricultural crops that yield more than once a year: peanuts, rice, and beans;
- Livestock, including chicken, goats, sheep, ducks;
- Woodcutting for local use;
- Logging;

- Hunting: traps, dogs, poison arrows;
- Fish trap manufacture;
- Aquaculture, fish raising; and
- Mat production.

Activities mentioned as consistent with the conservation area, Block B, were:

- Fishing and fish traps;
- Small animal traps;
- Mushroom collection;
- Chikwangue leaf collection; and
- Raffia, palm, and vine collection.



Figure 24. Jean Marie Benishay, BCI national coordinator, discussing the importance of sustainable forest use in Botuali.
R. Alexander photo

The respective strengths of the three partners were illustrated in their answers to tough questions during one of the evening meetings in Botuali. Alfred Yoko, IRM's Bikoro Community Coordinator, gave informed and clear explanations on procedural and governance issues: what a landscape was in the context of this process, what the general land use planning process was, and why now was the time to pursue community use plans in relationship to the 2002 Forestry Code. Alejandra Colom, consulting anthropologist for WWF, shared well-received observations of how lessons learned in other parts of the world could be applied in the Congo forests, how through this planning process, Congo villagers have the opportunity to have a voice in the future of their local forests. Jean-Marie

Benishay, BCI, described why conservation of forests is important to current and future generations of villagers.

In the evening we met with the various right holders and village representatives and about 100 others from the village. We discussed more about what conservation means to them and what activities they expected to do in the conservation area and in the exploitation area. The distinguishing features seemed to be no cutting of large trees, no clearing for agriculture in the conservation area, but most other activities (e.g., collecting non-timber forest products, fishing, hunting and trapping small animals) would go on in both areas. The villagers also offered their ideas on the benefits of conservation. These were as varied as continuing to have animals in the forest for future generations to



Figure 25. Meeting in Botuali to discuss community proposals for conservation and exploitation zones within the community use area. R. Alexander photo

see, tourism, subsistence materials for food and shelter. One person said agreeing to conserve had already brought the village a radio from BCI. Various people said the benefits of exploitation are improvements to roads, schools, health clinics, less isolation, bigger churches and electricity.

Albert Bakanza, of WWF's socio-economic team, explained the grant program WWF is administering to help communities to develop ecologically and economically sustainable livelihood practices in agriculture, fishing, forestry and non-forest products.

While we were in Botuali, a contingency of villagers from Malualumba met with the representatives of landscape partners and Bonobo Committee. The villagers said they came to improve their livelihood; in particular they wanted assistance with agriculture, fishing, and to manage the land correctly. In that visit, those representatives indicated their interest in participating in community use zone forest planning. That village has portions of forest that are savanna and inundated forest that connect to Botuali conservation area. They asked if those savanna and inundated forest areas that adjoin Botuali's proposed conservation area have value for conservation and could be part of Botuali's Block B conservation area. They noted they did not want to affect their neighbor's (Botuali's) plan



Figure 26. BCI recovered this juvenile bonobo from a hunter and transported him from Mbandaka to rehabilitation facility near Kinshasa. R. Alexander photo

We discussed how the conservation and exploitation areas were identified. The exploitation area is north of the village toward the Lobombo River and was chosen for two primary reasons—presence of commercial product and relative convenience to transportation routes. The exploitation area is generally dry ground with tree species they know or believe to be of commercial value and is closer to the trail leading to the Lobombo River and access to Lac Tumba. There is more human activity in the proposed exploitation area than in the proposed conservation area.

The proposed conservation area is in swampy forest to the south and west of the village where elephant, hippo and bonobo are sometimes found. The men noted that many animal species are far less abundant now than when they were children. The men and women noted that certain fish species are less abundant now than a decade or two earlier; and, that individual fish that are caught are smaller sized than previously.

Field Trip to Botuali's Potential Conservation Area, Block B

The team visited the conservation area with the right holder and CREF representatives. The right holder has agreed with the Chief, other right holders and other village elders that the forest for which he holds the rights should be proposed for a community use conservation area. It is relatively more remote, has less human activity and more large animal activity than the area proposed for exploitation.

To reach the conservation area we walked about 7 km south and west of the village through old cocoa plantations and scattered oil palms and across a large savannah. The villagers asked if savannah was appropriate to include in conservation areas, or can only forest be included for conservation. We suggested it was up to the village to decide. If the savannah had characteristics or species they wanted to conserve, they may want to include it in the conservation area. We discussed what animals were observed using the savannah, what plants were gathered there and what agricultural use was made of the savannah (e.g., raising crops or domestic animals). We suggested that these were the kinds of considerations the people would want to take into account as they decided whether to include the savannah, or other areas, in the community use conservation area.

In the forested areas, we observed a palm tree cut down to facilitate collection of larvae for food; several plants used for food and shelter (e.g., palms for roofing, lianas for mud wattle construction), numerous medicinal plants, firewood, and fish traps in small streams and flooded areas. Much of this area is inundated, at least seasonally, and we frequently waded through water 30 to 60+ cm deep. About 1/3 of the total distance we traveled in the forest was inundated. The savannahs were relatively dry. It began raining after about an hour and continued most of the rest of our outing. About the time we entered the area proposed for conservation a heavy squall came through. The right holder said we should leave the forest and go back to his hut in the savannah, or return to the village, as the water was apt to rise quickly and make it more difficult to travel. We retreated quickly to the village as the rain was exceptionally heavy and the gusty winds were blowing limbs and debris out of the canopy.



Figure 27. Team members on the trail between Mpili 1 and Botuali. In the foreground is a newly carved EBOKA used for pounding manioc. R. Alexander photo



Figure 28. On the trail to Boutali proposed conservation area in seasonally inundated forest. R. Alexander photo

In the afternoon we met with a cocoa buyer from Ngolo on the Lac Tumba

shore. He comes to Botuali to buy dried cocoa nuts and transport them back to Kinshasa. He also trades in maize and fish that he buys at fishing villages along the Lobombo River. On his way back to Botuali he sells salt and soap that he obtained in Kinshasa. He has been making this trading trip about twice a year since 1998, except during the dangerous years of civil war, usually buying ten 100 kg sacks of cocoa. For transportation he rents or hires pirogues for travel on the lake. On the Congo River he rents space on larger boats (baleinières). He recounted the various costs for transportation and operating expenses.

Field Trip to Botuali's Potential Exploitation Area, Block A

In the morning we met with representatives from the nearby villages of Bosango and Malualumba who came to Botuali to meet with BCI and others on the team and to learn how the Botuali villagers decided on how to manage their forests. Malualumba immediately west of the conservation area we visited on November 22. Like Botuali, their village needs training in better agricultural practices and advice on transporting agricultural goods to market. They also need agricultural tools. They would like to diversify their crops, improve their fishing and raise livestock to reduce dependence on wild game. They would like training in sustainable forestry practices so they can cut trees for community use. They said that from earlier discussions with BCI they learned the importance of conserving habitat and animals, especially elephant and bonobo; that the forest may have as yet unknown valuable species; and, that conservation complements development which will improve their lives. Because the Malualumba forest abuts the Botuali forest, the Malualumba representatives want to coordinate with the people from Botuali so there will not be conflicts between the villages over use of the forest. Some suggested they should add their inundated forest to the Botuali conservation area to have a large area of habitat for buffalo, bonobo and monkeys. Others expressed concern that most of their forest is inundated and they do not really have enough forest to for all the activities they want to do. Bakanza explained the WWF grants and application process.

After meeting with representatives from the other three villages, we walked about 5 km north of the village, toward Mpili 1 to visit the area proposed for exploitation. This forested area adjoins the long narrow savannah that we walked through on our way to Botuali on November 21. It is notably drier than the conservation area visited on November 22. It also includes areas that have been cleared for agriculture and we discussed agricultural methods with the villagers. As everywhere else in our travels, shifting slash and burn plots are used to raise food crops. The most common crops are manioc and maize.

Initially a farmer clears about 50 x 100 meters by slashing and burning. Very large trees are sometimes left standing in the farm plots, because they are difficult to fall with hand axes. After 2 to 5 years of cropping, the soil is depleted, and then the farmer clears adjacent plots thus creating increasingly large openings in the forest. Depleted land is left fallow and after a few years parasol trees (*Musanga cecropioides*) usually dominate the site. After about 15 to 20 years, the plot may be used cleared and used again for crops.

Alfred Yoko reported that IRM's Congo Livelihood Improvement and Food Security (CLIFS) project has worked in the Bikoro area on agricultural techniques and has provided improved



Figure 29. A CREF inventory specialist explains to Alejandra Colom, WWF, and Alfred Yoko, IRM, how non-timber forest products are used locally.
R. Alexander photo

varieties of manioc and identified some native plants thought to help restore fertility to depleted soils. CLIFS was a US Agency for International Development funded two year project ending in 2005. It focused on improving the functioning of private sector agricultural markets, increasing the level and sustainability of agricultural production and freshwater fisheries, and strengthening rural credit and micro-finance activities to support productive investments in agriculture in the provinces of Bandundu and Equateur.



Figure 30. Woman clearing and burning debris in an old agricultural plot (jachère) to prepare for planting crops near Botuali proposed exploitation area. R. Alexander photo

Forest right holders generally grant permission to a family to farm in a fairly large area so there is space to shift plots as soil is depleted. If the person requesting permission to farm is a Botuali village member, the right holder generally does not charge for the privilege. If a request is made by a person not from Botuali, the right holder generally receives about 1000FC and two baskets of manioc. In either case, the right holder informs the village elders about assigning the land or giving permission. In Botuali, the right holder does not generally receive payment for granting permission to gather non-timber forest products. Rights to fish along streams, or in the forest when inundated, are also held by right holders who give permission in a manner similar to granting permission to farm. Right holders tend to be members of the families who have been in the area for the longest time, usually several generations.



Figure 31. Alexander reviewing field notes in the company of Bobangi children. The average age in the region is about 15 years, average lifespan is about 47 years. J. Lerum photo

Permission to farm is given for as long as the requestor remains in the village. Yoko reported that in the Bikoro area permission to farm is granted to outsiders for only two years at a time. Outsiders are not permitted to plant “permanent” crops such as cocoa, plantain or bananas. These restrictions are not applied if the outsider marries into a village family. IRM’s Alfred Yoko and George Akwah are preparing a report on right holder practices that will be available in spring of 2006.

We also discussed timber harvest practices with the right holders. They say the smallest tree useful for timber is about one *kanda* which is the size tree an adult male can embrace with fingertips touching on the far side of the tree; about 50 cm diameter. They described logging and sawing practices consistent with those observed by Marcot and Alexander (2004.) In brief, felling and cutting logs to 4 meter lengths with axes, rolling the logs onto a scaffold and sawing planks with a two-person long saw. The planks are carried to the Lobombo River and then taken by pirogue or larger *baleinières* to markets in Bikoro, Mbandaka, Gombe and Kinshasa. Depending on width and thickness a plank is carried by one person or two.

They say that farther into the forest there are trees that are 5 *kandas*, but we did not see any that large.

In the evening, we again met with the Bonobo Committee and others from the village. Eventually, 40 to 60 people attended. There was much discussion among the villagers and the NGO representatives about what should be done next. Benishay and Yoko talked about the forestry code decree of 24 October, suggesting that the village should move quickly to make its claim for a community based natural resource management zone. They offered the assistance of BCI and IRM lawyers to help draft a proposal, once the village had decided what it wanted to do. Some people expressed frustration with the process and impatience with getting any direct benefits from the visits from IRM, BCI and the US Forest Service. One person said, you came here last year and you come here this year—it seems like you are making promises, but we receive nothing. Yoko and Benishay then explained that their organizations help communities by offering advice rather than bringing material goods. IRM's focus is on building community capacity in assessing and evaluating its environment and planning for management of the forest.



Figure 32. Lerum and Colom with Botuali community members who are bidding adieu to the mission team. R. Alexander photo

Acronyms and Abbreviations

BCI	Bonobo Conservation Initiative
CARPE	Central Africa Regional Program for the Environment
CBFP	Congo Basin Forest Partnership
CBNRM	Community-Based Natural Resource Management (CARPE 2005c)
CREF	Centre de Recherche en Écologie Forestiere
DRC	Democratic Republic of Congo
ERZ	Extractive Resource Zone (CARPE 2005c)
FS	US Forest Service
IR	Intermediate Result (CARPE 2005c)
IRM	Innovative Resources Management
IUCN	The World Conservation Union
NASA	National Aeronautics and Space Agency
NGO	Non-Governmental Organization
NR	Natural Resources
NRM	Natural Resources Management
NTFP	Non-Timber Forest Product(s)
PA	Protected Area (CARPE 2005c)
PMP	Performance Management Plan (CARPE 2005c)
UMD	University of Maryland
USAID	United States Agency for International Development
WCS	Wildlife Conservation Society
WWF	World Wide Fund for Nature (World Wildlife Fund)

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