

People
and
plants

HANDBOOK

SOURCES FOR APPLYING ETHNOBOTANY
TO CONSERVATION AND COMMUNITY DEVELOPMENT

Issue 9

The People and Plants legacy

<http://www.peopleandplants.org>

editorial

The People and Plants Initiative: the idea, the structure of the programme, and the legacy

by Alan Hamilton

The People and Plants Initiative, which began in 1992, draws to a close between December 2004 and June 2005. The purpose of the programme has been to raise capacity for the involvement of communities in conservation through capacity-building in applied ethnobotany. Elsewhere in this newsletter, an account is provided by Professor Sir Ghilleen Prance of the results of his recent evaluation of the WWF side of the work. The present account has benefited from the judgement of Professor Prance about which aspects of the programme have been successful.

The ideas behind the People and Plants Initiative

The People and Plants Initiative has been concerned with building capacity to work with communities on botanical aspects of conservation and sustainable development. The reasons why applied ethnobotany was identified as a subject particularly to promote included:

- A perception that local people should be much more involved in conservation initiatives than has often been the case. In fact, there has been an increasing interest in the involvement of communities in conservation since the mid-1980s, but very little has yet been done, compared to the scale of the challenges, and there is a need to learn how such work can be done most efficiently.
- Local plant resources (wild and cultivated) are of vital importance for the livelihoods of many people in developing countries and are therefore often an excellent area for focus in conservation and rural development projects.
- Ethnobotany is a key science for working with local people on the botanical aspects of conservation and development, because it is concerned specifically with the relationships between people and plants.
- Ethnobotany is a broad discipline; our focus has been on 'applied ethnobotany', which we define as those

aspects of ethnobotany relevant to conservation and sustainable development.

An initial question in developing the programme was about the where of its activities. There have been three criteria. First, because the programme is about conservation, it was thought that its focus should be on those parts of the world where local people depend on local wild plants for their livelihoods, because it is there that the links between biodiversity conservation and local livelihoods are most intense. This means, in particular, much of the developing world. Second, efforts were made to position activities where they might be most useful for plant conservation from the global perspective. The tropics and sub-tropics are areas of biodiversity conservation and, in fact, all the field projects of the programme have been in tropical or sub-tropical countries. Third, the selection of countries and field sites was heavily influenced by the interests of the local offices or existing projects of UNESCO and WWF. In some cases, People and Plants projects have essentially been botanical components of larger integrated conservation and development projects (ICDPs).



Neem Carving. Photo: R Höft

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The People and Plants Handbook is a source of information on applying ethnobotany to conservation and community development. The first seven issues were thematic, and issue 8 focussed mainly on our own work under the programme. Again, we would like to draw attention to the range of materials which we have produced, as part of the legacy of the programme. This issue summarizes some of the achievements of People and Plants as it draws to a close, and presents some of the findings of the recent evaluation process. We also point towards ways in which the results of our work will continue to have an influence in the future, partly through the work of People and Plants International.

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As for the who of capacity-building, the emphasis throughout has been on the building of capacity within the countries where the programme has been operating. The training of young professionals from the countries of its field operations has been seen as a key to many of the other successes that the programme may have enjoyed. Our thinking has been that it is the vision and drive of knowledgeable individuals that is often the power behind the development of institutions and policy.

The structure of the programme

The structure of the programme is illustrated in Figure 1. The programme has been working at three geographical levels. At the local level, it has developed or contributed to many field conservation projects. Some of these projects have had a measure of success, even

though the programme was not actually conceived initially as being a field conservation project. In a few cases, conservation issues have taken on lives of their own, for example in the case of the 'Good Wood Campaign' in Kenya, which has developed into a campaign aimed at switching the wood used by carvers from over-harvested, slow-growing species to more sustainable sources.

It has been our belief that there is little point in building capacity in applied ethnobotany only in terms of theory, and the young professionals whose training has been supported by People and Plants have almost all undertaken research within the context of real-life problems of conservation or sustainable development. The norm has been for the trainees to work on identified issues (expressed as hypotheses), collaborating closely with local people and producing results that are likely to be regarded as useful contributions to local problem solving.

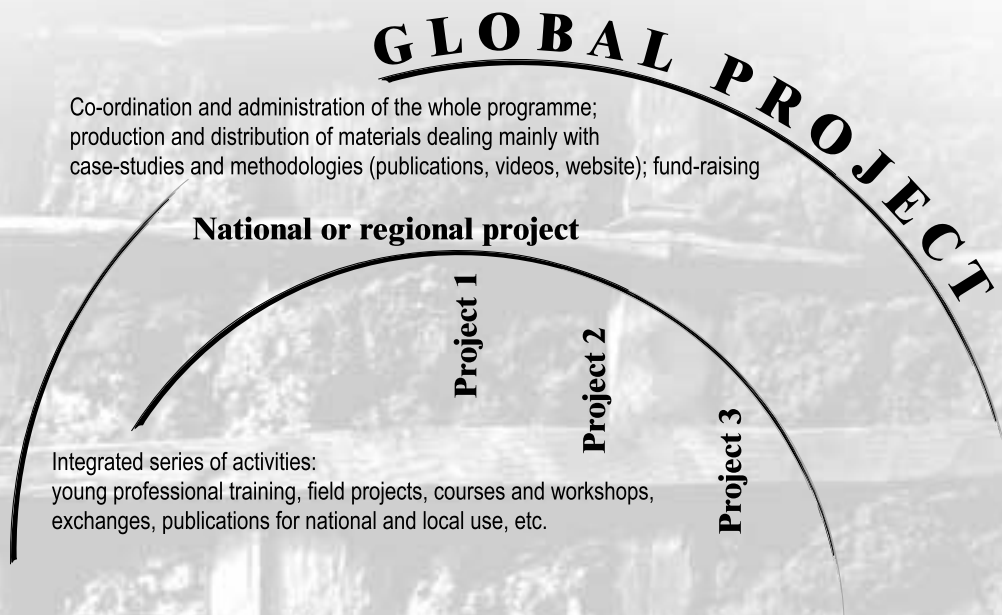


Figure 1. Structure of the People and Plants Initiative

Fieldwork over the range of People and Plants field sites has involved numerous ethnobotanical approaches and methods. Many types of conservation and development issues have been addressed, as suggested by the list below, which – with some measure of over-simplification – includes the names of field sites where certain issues have been particularly prominent.

- Relationships between local people and protected areas (Bwindi Impenetrable National Park and Rwenzori Mountains National Park, Uganda; Ayubia National Park, Pakistan).
- Sustainable harvest of wild plant resources for trade (the Good Wood project, Kenya; *Prunus africana* in Cameroon; medicinal plants in Pakistan).
- Community resource management (forests and bee-keeping, Tanzania; woodland trees, Zimbabwe; also in Fiji, Solomon Islands and Papua New Guinea).
- Strengthening local cultures for conservation (Tibetan medicine at Dolpa, Nepal, and elsewhere in the Himalayas; various sites in Sabah, Malaysia).
- Community inventory of plant diversity (Sierra Norte, Mexico; Beni Biosphere Reserve, Bolivia; Mt Kinabalu, Sabah, Malaysia).

At the national level (occasionally regional, as in southeast Asia and the South Pacific), the programme has mounted a co-ordinated series of activities in several countries, involving individual professional training (as mentioned above), courses, workshops, exchanges, dissemination of information and recommendations at local and national levels, and policy promotion. Individual field training has typically been central, backed up by courses and workshops which many more people have been able to attend. The numerous national-level conservation courses that the initiative has organised have almost all been field-based, dealing with themes that have been studied by trainees, and generally involving 20-30 people. Around 10 international workshops or courses have also been mounted by the programme.

When People and Plants has become engaged in national policy, then this has typically been because of suggestions for policy change

stemming from the work of the programme at field level. Because the programme has often been working at sites of great value for biological conservation, as well as of great cultural or economic interest to local people, there have sometimes been exceptional opportunities to identify cases where existing policies could usefully be developed.

People and Plants has had a linking international component, with has co-ordinated and administered the whole programme, raised funds, and produced and disseminated a wide range of materials. The programme has published 4 series of publications, some in more than one language, and has produced training videos and mounted a website. The various materials have mainly dealt with case-studies and methodologies, or contained advice about useful contacts. The existence of the international link has allowed the ready exchange of experiences between the regions and countries in which the programme has been involved - a mechanism for listening, analysing, disputing and learning. Our concern has been especially to provide information to individuals and institutions interested in applied ethnobotany in developing countries, in some of which literature is as rare as gold dust.

The heart of the People and Plants structure has, of course, been people. Thousands of people around the world have worked in various practical ways with the programme, while, at the co-ordinating centre of the operation, has been a small group of dedicated people, many of whom have made great sacrifices for the programme. This short article provides a small opportunity to thank them for their dedication. The core social structure of the programme is shown on Figure 2. On the international side, the programme has been an exercise in remote management. In so far as the programme has been successful – which can be judged from Professor's Prances article included elsewhere in this newsletter – this has only been possible because of a shared vision and values on the part of a small group of self-motivated and expert individuals scattered around the world. The basic principal has been to select good people for the core team and then try to give them creative space to operate. We have found that annual planning meetings and occasional exchange visits for core team members to other countries where the programme is active have been invaluable for helping to glue the core team together.

The legacy of the programme

Although the programme is ending, some of its legacy will hopefully persist and remain valuable in the future. Some key statistics of the programme are indicated in Table 1. One of the most important legacies is a corpus of young people, many of whom have received training under the programme for periods of around 2 years, involving substantial periods of fieldwork. The records of the programme show that many of these trainees have obtained responsible jobs in their areas of professional competence. People and Plants has greatly expanded recognition of ethnobotany in several countries in which it has been working. For example, according to the recent evaluation of the programme by Professor Prance, ethnobotany hardly existed in Kenya, Nepal and Pakistan prior to the programme. Where some ethnobotanical work had earlier been carried out, as in Uganda, this was mainly directed at the listing of local names and uses of plants, and hardly connected to issues of conservation or development.

The evaluation states that one of the most valuable legacies of the programme is the series of conservation books that has been produced.

These books have been published commercially, because of a belief that this makes them more readily available than if they had only been produced as 'grey literature'. At the same time, People and Plants has entered into 'buy back' agreements with the various publishers, enabling the purchase of multiple copies of the books at discount prices by WWF and UNESCO for them to distribute free-of-charge in developing countries. This approach to publication has meant that the books will stand a good chance of continuing to remain available, while having benefited many people around the world who would not have been reached commercially.

The new international NGO, People and Plants International (PPI), has been assisted in its foundation to take forward work in applied ethnobotany after the People and Plants Initiative. PPI has been registered in New York State as a not-for-profit group, with an office currently at New York Botanical Gardens. An agreement has been reached with the People and Plants Initiative and Earthscan (the publisher of the English-language editions of the book series) for PPI to take over management of the series from January 2005. PPI is already intending to add some new titles to the book series.

Figure 2. Core social structure of the People and Plants Initiative



| Item | Quantity | Notes |
|--|--|---|
| Young professional trainees | 86 | Typically with 2 years of training, based on field problems. Includes 6 PhDs and 28 MScs. |
| Participants in courses or workshops held by the programme | Estimated at more than 1000 | The typical format has been a 3-5 day field-based course or workshop, on a thematic subject, with 20-30 participants, including ca. 5 facilitators and resource people. |
| University or college courses substantially influenced in their creation or development by the programme | 25 courses in 23 colleges or universities in 8 countries | The countries are Austria, China, Kenya, Nepal, Pakistan, South Africa, Uganda, and the USA. |
| New groups assisted in their foundation by the programme | 10 new NGOs or networks supported | One international NGO (People and Plants International), two regional groups (the African Ethnobotany Network, the Himalayan Amchi Association), and national groups in China, Kenya, Nepal, Pakistan, Tanzania, Uganda, and Zimbabwe. |
| Conservation books | In English 7 plus 3 in preparation; Spanish 7; Chinese 3; Bahasa 1. | Commercially published books, with about 600 copies of the English-language editions being distributed free-of-charge to people in developing countries, and ca. 500 copies of the Spanish titles distributed free of charge, mainly in Latin America. |
| Working papers, handbooks and other publications | 13 working papers and 9 handbook issues published, plus many <i>ad hoc</i> publications | The additional publications are on many subjects, including 2 reviews of African ethnobotany, a guide to creating botanical databases, a book on the medicinal plants of Dolpa, books on joint forest management, curriculum development and medicinal plants conservation (Pakistan), and many others, including several in local languages for project use. |
| Videos | 7 | Most are training videos produced by Tony Cunningham |
| Website | Over 3000 hits per month, with an average of over 5 pages consulted per visit to the website | Website on the server of the Royal Botanic Gardens, Kew (UK). |
| Integrated capacity-building projects in countries or regions (relatively large, systematic programmes) | 7 countries or regions | Integrated projects with fieldwork, individual training, courses, awareness-raising and often policy promotion. Countries: Kenya, Nepal, Pakistan, Southeast Asia (mainly Sabah, Malaysia), South Pacific, Uganda, Zimbabwe. |
| Other countries or regions with significant levels of activity | 7 countries or regions | Bolivia (Beni Biosphere Reserve: ethnobotanical inventory), Cameroon (<i>Prunus africana</i> sustainability), Caribbean (medicinal plant conservation), China (curriculum development), Mexico (Sierra Norte, Oaxaca: ethnobotanical inventory), Mozambique (training), Tanzania (training). |

THE 'GOOD WOODS' PROJECT IN KENYA

A report from the field by Ros Coles, People and Plants Programme Support Officer

We travelled by car to the Akamba Handicraft Centre in Mombasa to see for ourselves the progress that had been made on the Kenya 'Good Woods' project. Arriving there, you are immediately struck by the noise and the air of 'busyness' around you. The sound of chisels chipping on wood, the rasping of files, the noise of the chainsaw, the chattering, the laughter. This is a place that is thriving and has a role to fulfil. There is an air of movement and action, of positiveness about it.

We were taken first to the log yard – a loose term for the place where newly delivered logs are to be off-loaded from the lorries that for the moment have been filled with neem wood from the forest. But all this is to change soon when the first timber will be bought and gathered from the many farms (1000+) currently growing neem which are in the scheme to replace forest-sourced wood with farm-grown wood. The temporary log yard is also to be replaced by a shed built specifically for the purpose so that inventorying of wood and establishing a chain of custody can be carried out.

The place is littered with sawdust and chippings in piles that threaten to engulf the water trickling through a small ditch that snakes through the compound. A pungent odour emanates in the heat but no one seems to notice. The newly arrived wood creates some interest as carvers and cutters gather to seek out their next pieces for their carving needs. The eternal chainsaw slices through another log and a satisfied customer is on his way with his 'trophy' in order to carve his next masterpiece.

The carvers sit in sheds: open, barn-like structures made of wood, with wood props inside to hold them up and mostly covered with coconut leaves, although some are covered in corrugated iron sheeting, where huge spiders wait in their newly-spun webs. The carvers sit on mats spread on the floor – a trampled mass of dry sawdust. Their tools are old but well honed, sharpened by a man on-site whose sole task it is to maintain them, and who is paid by the carvers to do so. The carvers use a tool unlike any I have seen before. We are not talking of the western idea of a chisel here, that you can pick up at Homebase, but an instrument shaped a bit like a bent pickaxe – only about a tenth of the size. Although it looks incredibly cumbersome, he carves with the utmost skill, like a seasoned sculptor, and a dry old log rapidly takes the shape of a beautiful giraffe. Each shed houses about 6 carvers and each shed has its own speciality – an elephant and rhino shed or a giraffe shed or a mask shed. The carvers are all friends or clan members or family and help train each other and any new trainees.

This is an exclusive club, and there is quite a status to being a carver. You couldn't just walk in off the street and be accepted as a carver. To be allowed to join, you have to have two members of the Co-operative Society recommend you, or be related to a deceased carver that you are hoping to replace. You also have to pay a membership fee and buy some (returnable) shares in the company. Once in, you pretty much have a place there for life. The carvers can choose their own price for their carvings that are sold in the showroom attached to the Co-operative and on the whole they seem to get a fair price for their work.

As we walked from shed to shed, a colourful scene bombarded the eyes – bright red masks were hung up in the sun to dry, rhinos were painted and polished, a herd of elephants emerged from the sawdust on the floor, the Masai warriors' red and white beadwork flashed in the

sun as the women threaded the tiny beads onto fishing line to be cut down for small bangles and necklaces and hung on the carvings. There was a feeling of pride in their work. You didn't feel that they were on some crazy production line when in fact they probably were, but this is African style – laid back and happy. They know they are skilled at what they do and this exudes an air of confidence and purpose. These are not poor Africans on subsistence wages being exploited, but people with a stake in what they produce and an interest in securing the future of the Co-operative Society to which they belong and which supports their families and their livelihood. Each carver was more than willing to chat and to discuss the techniques they used, the time it takes to complete a carving – an elephant in 4 days etc. – but they were also keen to carry on working and not to waste their productive time. The families that are so reliant on their earnings, I was told, are resident in Mombasa. This was different from what I had imagined – that they would be in the villages far away from the handicraft centre.

Not all the carvers can afford to pay someone to finish their carvings, but there are 2000 finishers on site, working separately from the carvers and occupying their own set of sheds. Inside these are many women as well as men. The men tend to be doing the filing, rasping and sanding, the women painting the beautiful Masai colours and patterns and making the intricate beadwork jewellery with white painted grass seeds that represent the jewellery worn by the Masai. The women are dressed in beautifully bright and colourful clothes and patiently add their skills to complete the carvings.

There are also sheds full of people painting food dyes onto the carvings to stain the wood to give it a beautiful patina and to bring out the grain. I was assured the dyes are made from vegetables, and are harmless. The carvings are then polished using only the best – a Kiwi polish of light or dark tan applied liberally.

The showroom is bulging with carvings and offers not only 'Good Woods' but also teak, mahogany and ebony. I began to see the difference as I browsed around. Neem tends to be supplied in larger logs than the local slow-growing hardwoods and is used for carving the bigger items. Thus all the really tall giraffes and Masai people were carved from neem. The smaller pieces were often made from now rare and traditionally highly prized slow-growing hardwoods. The ebony carvings you can spot because the middle part is really deep black and there is often a light edge. Teakwood has a distinctive light colour and grain. However, we were primarily there to look at the neem carvings and again and again the beauty of the grain in the carvings, the range of colour, the weight of the carvings and the density of the wood was striking. They are certainly worthy opponents of any traditionally sought after hardwood species.

With the building of a kiln drying shed almost complete – miraculously transformed in the 4 days between our visits – and 'guaranteed' to resolve problems of cracking and mould, and with the techniques being taught to the carvers by a brilliantly motivated and committed young team from the Kenya Gatsby Trust, and the committed Board of Members and enthusiasm of the Chairman of the Co-operative, the outlook is completely positive. This is definitely a thriving, forward looking, well-run and well-managed project with a bright future ahead of it.



PEOPLE AND PLANTS PROJECT IN PAKISTAN

Progress report by Alan Hamilton,
Head, International Plants Conservation Unit, WWF-UK

One of the projects of the People and Plants Programme has been active in Pakistan since 1996. Having just visited the country, I would like to share with you some information on its progress – fortunately excellent all round, so far as I can see. The project is currently being externally evaluated, so a more objective analysis will soon become available.

This project is called by WWF-Pakistan “Ethnobotany Project”. It is centrally concerned with forest conservation in the Himalayan region of northern Pakistan and with finding ways to use forest and pasture resources sustainably. ‘Ethnobotany’ in the project title refers to the fact that it is based on the philosophy of being guided by both scientific and local knowledge, with the full engagement of rural people in identifying conservation problems and finding solutions.

The forest situation in northern Pakistan (virtually the only part of the country with any forest) is dire. At present rates of deforestation, all the forest will disappear within 25 years, and this will have severe consequences, not only locally, but for all those tens of millions of people who depend on irrigated agriculture in the lowlands along the Indus River, as well as for the mangroves in the Indus delta. Deforestation is due directly to poorly regulated logging, unsustainable collection of fuelwood, and sometimes the spread of cultivation. Apart from fuelwood, there are many other plant resources collected, often unsustainably, from forested land and accompanying pastures, including fodder for livestock, and medicinal plants. Apart from local use, the sale of wild medicinal plants constitutes a significant source of income for people in some areas, such as Swat, one of the project field sites. It is the poorest people in rural societies who are most involved in wild plant harvest and who have the most to gain if harvesting is sustainable.

The main field project site is Ayubia National Park in the foothills of the Himalayas, a few hours drive from Islamabad. The project started working there in 1996, and the first task was to identify priority issues, which turned out to be the large-scale, unsustainable collection of fuelwood and fodder from the park. The collectors are women and children, with thousands of households involved. All this collection is illegal, and there are numerous conflicts with park staff. There are several deaths every year from women falling off trees while hacking off branches.

The collection is unsustainable, and will eventually cause loss of the forest unless something is done. A project team has worked tirelessly at Ayubia over the years to find how improvements can be made. There are virtually no examples of successful forest conservation projects involving communities in northern Pakistan, so there is much learning to do. Obviously there are serious immediate livelihood concerns, but the question from the WWF perspective (as a conservation organization interested in the longer-term view of maintaining biological wealth and resources), is to select and address those livelihood concerns in the context of the promotion of conservation. The project team was aware of the problems of delinking conservation and livelihood concerns in conservation projects. If communities take the view that it is WWF that wants to save the forest and that this is the reason why they are receiving livelihood assistance from a WWF project, then it is well known from other experiences that the project will eventually fail.

One lesson learned from the experience at Ayubia is that agreements with communities as a whole are of limited value in the local context, because, at this particular site, matters of resource use and economy are basically household affairs. The project therefore works on the basis of Terms of Partnership with individual households, linking benefits received from the project to responsibilities for conservation. There are two project sample villages at Ayubia and, so far, 330 agreements have been reached. Another consideration is the different roles of men and women in this society. Men dominate decision-making in public fora, but women are responsible for virtually all collection of wild plants, as well as much of the work on the small farms. The project team therefore often works separately with men and women. In public meetings general support for forest conservation can be readily expressed, but the women continue to collect firewood and fodder in the forest because they have no other option. It might be noted that the literacy rate for women in these villages is less than 1 percent, though they are of course highly knowledgeable about many aspects of local plants.

The project promotes tree planting on land outside the park, and also fuel-efficient woodstoves as ways of reducing pressure on the forest. All this work is done through careful research involving local people. For example, in the selection of types of woodstove, there was an initial exchange with another project, which had some experience with such stoves, and then 5 types of stoves were provided for household-level trial at Ayubia. The two with the highest approval rating were then selected for local manufacture.

Currently there are 203 nurseries for fuelwood trees established in the two pilot villages (25% of households in the two villages), there are 29 demonstration plots for fodder plants, 18 improved varieties of vegetables have been introduced, 1900 fruit trees have been transplanted from Swat (the other of our field project sites), 31 species of medicinal plants are being tried for cultivation, and 455 households have fuel-efficient stoves (35% of households). Many people have been trained in the context of these activities, for example 400 in tree nursery techniques. The fuel-efficient stoves use about half the wood needed in the stoves previously used. Although some of these activities may not appear to be directly related to forest conservation (e.g. vegetable and fruit tree promotion), they are here because of the terms of the Terms of Partnership between WWF and each household. In addition to these activities, the project is also working with other parties at Ayubia, including government agencies (e.g. the Forest Department), schools (11 Nature Clubs have been formed and there are 5 school plant gardens), tourists (this is a favoured summer visiting spot for wealthier people from Islamabad) and hotel owners (hotels use firewood).

A second field site was opened during 2003. This is in the Swat Valley north of Peshawar, also in the foothills of the Himalayas. In the three areas in which the project is active at Swat, Terms of Partnership have been agreed with communities rather than individual households - which is possible in this case because of the greater cohesion of the communities compared with Ayubia. The project is concentrating on finding ways to harvest medicinal plants from the wild in sustainable ways and promoting medicinal plant cultivation (medicinal plants are not an issue at Ayubia). Forty species of medicinal plants have been tested for cultivation, and 12 species selected for promotion. An agreement has also been made with a large local herbal manufacturer (Qarshi Industries) to purchase sustainably harvested medicinal plants, and to guarantee purchase of cultivated plants at favourable prices.

The project is working with the herbal industry. A Partnership Agreement was signed with Qarshi Industries in 2002. Qarshi has since developed three substantial medicinal plant gardens for testing cultivation (260 species are being grown), built a resource centre (for plant identification and tissue culture) and entered into guaranteed purchase agreements with villagers. The intention of the company is now to select species suitable for small-scale cultivation at particular localities and to promote their cultivation through provision of technical assistance and guaranteed purchase. In 2003, the company purchased material harvested from one species collected in the wild at Swat, with training in sustainable harvesting provided to harvesters by the project. The purchase price was 10-20 % above the norm in view of the excellence of the material supplied and to encourage sustainable harvesting.

The project is helping to build a generation of professional conservationists able to work constructively with communities for the conservation and sustainable use of plant resources. Thirty-five grants at postgraduate level have been awarded for research on various aspects of ethnobotany, with 16 studies completed so far. One research project was on changes in water supplies at Ayubia, to determine local knowledge of the drying up of springs and reduced water quality with forest clearance. This has proved a useful line, which should be developed further to create greater awareness of the importance of forests and to encourage communities and agencies to find ways to maintain their forests.

In addition to training grants, resource centres on ethnobotany have been established in seven universities. Six universities and colleges have changed their methods of teaching botanists, agriculturalists, foresters and doctors to create awareness of the importance of local knowledge and to demonstrate practical measures that can be adopted by these professions. A new society, the Pakistan Ethnobotanical Society, has been established. Several publications have been produced, variously targeted at scientists, communities and other groups.

All of this might seem small-scale, and indeed WWF can only become engaged in direct practical work to a limited degree. However, such practical involvement is essential in a conservation project, because otherwise any wider promotion of ideas about how conservation might be achieved would be just hot air, without a basis in reality. In order to promote conservation on the wider scale, the project is using its ground-level initiatives as demonstration sites and through involvement in policy initiatives. So far, the latter have included:

Promotion of joint forest management. Although widely practiced in India and Nepal, joint forest management (Forest Departments and communities jointly engaged in forest management) is virtually unknown in Pakistan. The project organized the first ever workshop on joint forest management in the country. Partly through 'donor pressure' external to the project, the policy on joint forest management has changed in northern Pakistan, and community involvement is now recognized as essential. However, it is one thing to change policy and another to achieve practical implementation on the ground. The project is trying to demonstrate, through its field sites at Ayubia and Swat, how joint forest management can be achieved under different circumstances. There are virtually no other initiatives of this type in northern Pakistan.

Advocacy of conservation and sustainable use of medicinal plants. This is a hugely important subject in Pakistan, as well as in many other countries, because of the importance of medicinal plants for healthcare (most people in Pakistan use herbal medicine), economic support to poor people from the sale of medi-

nal plants, and the great importance of medicinal plants in some traditional rural societies (forming a strong cultural basis for people's involvement in conservation more widely). The project has just achieved a policy breakthrough, with an announcement by the Minister of Science and Technology at a medicinal plant symposium organized by the project in December 2003 that the Government of Pakistan would found a new institution specifically concerned with medicinal plants. WWF-Pakistan will be the principal advisor. Furthermore, through the efforts of the project, a link is also being formed with COMSTECH, which is the Organization of Islamic Countries Standing Committee on Scientific and Technical Co-operation (55 member countries). COMSTECH has now adopted medicinal plant conservation on its agenda.

Cross-border linkages. Very recently, the project has been responsible for establishing cross-border collaboration between Pakistan and China for biodiversity research and conservation. A visiting team from the Chinese Academy of Sciences has signed memoranda of agreement with WWF-Pakistan and two university departments in Peshawar.

So what happens next? The project receives funding from WWF-UK through the Programme Partnership Agreement with DFID until December 2004. With such a firm project basis for continuing efforts to save the few remaining forests of Pakistan, it would be most unfortunate if momentum were now lost. It is not easy to find ways of conserving these forests. The experience built up by the team in Pakistan is crucial.

The project has had its ups and down. There are many people who have contributed to the many successes it has enjoyed so far. Chief among these are the dedicated staff of WWF-Pakistan, notably Ashiq Ahmad, Habib Ahmad, Abdullah Ayaz, Dr Zabta Shinwari, Rabia Afza, and many others. Two international project advisors have been crucial in bringing experiences from other parts of the world and knowledge of applied ethnobotany – Dr Yildiz Aumeeruddy-Thomas and Professor Pei Shengji.

This has demonstrated how important it is to exchange ideas across the world in the hard struggle to achieve conservation of natural resources for the long-term survival of people and the planet.



Biomass studies in Ayubia National Park, Pakistan. Photo: YAT

PEOPLE AND PLANTS NEPAL 2001-2004

by Yildiz Aumeeruddy-Thomas and Martin Walters

Introduction

Work by People and Plants began in Nepal in 1995 under the aegis of UNESCO and the International Centre for Integrated Mountain Development (ICIMOD), which has its headquarters in Kathmandu. This phase of People and Plants engagement involved arranging a number of training workshops in ethnobotany in various countries of the Himalayas, and administering a programme of small grants. Then, in 1997, the current project was initiated by the WWF Program Office for Nepal. Although national in overall scope, its fieldwork has been concentrated at Shey-Phoksundo National Park (SPNP) and its buffer zone, in the district of Dolpo. The work at Dolpa has concentrated mainly on developing systems of sustainable harvest of wild medicinal plants, linked to a strengthening of traditional healthcare, based on the Tibetan medical tradition as practised by local herbal doctors, known as *amchi*. *Amchi* medicine, also known as *Sowa Rigpa*, utilises a very wide variety of plants, as well as minerals, metals, and animal parts.

The People and Plants Initiative (PPI) has aimed at making synergistic links between indigenous knowledge systems and those of western science. One of the aims of this programme was to build capacity in ethnobotany at the national level, and to achieve practical results at community level, in the context of livelihoods, healthcare, and management of medicinal plant resources. This has involved:

- 1) training of professionals;
- 2) strengthening and stimulating curriculum development in universities and colleges;
- 3) promoting societies and associations of ethnobotany and folk medicine;
- 4) exchanging knowledge and information, through workshops, seminars and conferences;
- 5) on-site research and development activities.

Most of the work has been carried out in and around SPNP in the districts of Dolpa and Mugu. This area has a number of unique features, offering both opportunities and challenges, and is notably:

- one of the most remote and isolated mountainous areas in Nepal
- a major refuge of traditional Tibetan Culture
- an area meriting World Heritage recognition, as proposed by HMG Nepal
- known to be an area rich in biological diversity, with high botanical endemism
- a rare example of Bonpo culture and the *amchi* (traditional doctors trained in the Tibetan medical system) tradition of Tibetan medicine
- an area with some of the lowest literacy rates and per capita incomes in Nepal.

This project site was chosen taking account of the following:

- The WWF-Nepal country representative's view that the People and Plants project should be linked to an on-going integrated conservation and development project (ICDP) run by WWF-Nepal.

- A previous visit of the People and Plants regional coordinator in Mustang for discussing issues of medicinal plants conservation with a group of *amchi* of Mustang.
- Status surveys available at WWF Nepal of vegetation and medicinal plants of SPNP as well as of the *amchi* profession.
- Global and national concern about major problems of overexploitation of Himalayan medicinal plants.

Research

All research and surveys were conducted in a participatory mode in the context of interdisciplinary and multicultural teams. The research teams included local and national experts in Tibetan medicine (*amchi*), park game scouts, and young professionals from academia. Disciplines represented were ecology, sociology, anthropology, and botany.

A series of interrelated applied research activities were planned annually on the basis of both practical and theoretical results of the previous years. The Nepal International Technical Advisor was responsible for technical analysis of the project results and giving orientation. This analysis took place while conducting joint fieldwork at SPNP as well as through an analysis of all project results.

A second generation of surveys consisted mainly in trying to analyse the impact of the project. This was conducted mostly in relation to traditional healthcare centres (THCC) that had been supported in their construction by the project, and involved monitoring the types of diseases treated, and amounts and types of plants collected and used at the clinics.

All research activities were designed to inform practical activities aimed at strengthening the capacity for management of medicinal plants.

Achievements

Under the circumstances, the achievements of the Nepal project have been impressive, in terms of building capacity, both at individual and institutional levels, of developing sustainable systems for managing medicinal plants, and of developing traditional healthcare centres (THCC).

Building individual capacity. Several young professionals have received grants to advance their careers in ethnobotany. Major study and research grants were awarded to two long-term project staff: Ms. Yeshe Lama (MSc), and Mr. Suresh Kumar Ghimire (PhD), and small

grants were awarded to students of Tribhuvan University (TU) for partial fulfilment of their MSc degrees. One grant was awarded for research conducted in a region in which WWF-Nepal is interested in developing conservation activities based on medicinal plants: the Kanchenjunga Conservation Area (KCA). These studies have helped to strengthen baseline data, to assess the status of medicinal plants, and to examine the socio-economic implications of use and management of such plants. Local game-scouts have been trained in sustainable harvest studies, in the field ecology of high-value medicinal herbs, and in raising local awareness about questions of sustainable harvesting. Amongst those benefiting under the programme in SPNP are the *amchi*, women, and school-age children.

Building institutional capacity. Project activities (workshops, seminars, conferences, and exchange visits) have helped in the development of courses in ethnobotany at several institutions. For example, the Central Department of Botany, Tribhuvan University, and the Institute of Forestry, Pokhara, have developed curricula for bachelor and masters' degrees (elective courses). In addition to this, the Departments of Environment and Anthropology at Tribhuvan University have now started to encourage students to take up ethnobotany in their field assignments, and the Natural History Museum at the same university has started a unit for ethnobotany. With more significant immediate impact, the Federation of Community Forest User Groups of Nepal (FECOFUN), with over 13,000 forest user groups, has adopted ethnobotanical approaches in their operational plans for the management of non-timber forest products.

People and Plants has played an instrumental role in strengthening the Himalayan Amchi Association (HAA), which is now a more cohesive national group, though lacking an on-going source of support to maintain its activities, both nationally and regionally. The HAA organised an international meeting in January 2004, which was the first time *amchi* had come together from different countries of the Himalayan region to discuss the state of their healthcare traditions, and also to discuss problems about the conservation of medicinal plants. The HAA has identified the most threatened medicinal plants and also recognised how they can be conserved. The *amchi* have much expertise to offer to conservation and development in those parts of the Himalayas where they live, being the most knowledgeable people about plants in their communities, and with an intrinsic interest in conservation.

A number of national workshops have been arranged under the project, all concerned with management of medicinal plants. Although the project has not worked very directly on the development of policies, it has served as a platform for discussions of policy issues, in the context of national workshops.

The Ethnobotanical Society of Nepal (ESON), started during the course of People and Plants work in the country, has received support from People and Plants for development of its resource centre through the supply of a number of books, journals, and other materials.

Five other resource centres in Nepal have received complete sets of People and Plants publications, as well as other key books and publications in the field of ethnobotany.

Curriculum development has been an indirect effect of the Nepal Project, especially because of the involvement of key people in the SPNP Project, who are also involved in teaching ethnobotany, notably Krishna Shrestha and Suresh Kumar Ghimire. It is important to note however that the WWF Nepal Program has put much more emphasis on the field component of the project than on national capacity build-

ing. This contrasts with the People and Plants project in Pakistan, where national capacity has received much more attention.

Capacity building at Dolpo. The project sought to bring local medicinal plants under management through strengthening relevant community organizations linked to the park management system. Medicinal Plant Management Committees (MPMCs) have been established in pilot areas. Emphasis was on revitalization of the *amchi* tradition of healthcare, and on linking conservation with livelihoods. The communities have received support for the construction of Traditional Healthcare Centres (THCC), where medical services are available, training is provided for apprentice *amchi*, and overviews made of the activities and effectiveness of the Medicinal Plant Management Committees. The concept of the THCCs has been widely acknowledged by the community at Dolpo to be appropriate for their locality with its strong *amchi* tradition. There are traditional social and cultural links between environmental and health care, both because of the respected authority of the *amchi* in both spheres, and the teachings of their religions of Buddhism and Bonpo.

The project has tried to strengthen local healthcare provision through educational campaigns, with a special focus on reproductive health and family planning, immunization, personal hygiene and sanitation, and improvement of cooking stoves to reduce the release of smoke (and also cut-down on fuelwood use). The various activities, responding to local concerns, have helped to strengthen local support and participation in the project. Training has also been provided on a wide range of issues for park staff, young local *amchi* and sister/mother groups. Special efforts have been made to provide training for members of Medicinal Plant Management Committees (MPMCs) and committees involved in management of the Traditional Healthcare Centres. It is hoped that these various efforts to strengthen community organisation will continue to reap benefits after external support from People and Plants ceases.

Research on subjects critical or useful for development of improved medicinal plant management, with its healthcare links, has been undertaken. Topics have included research on the sustainable harvest of threatened medicinal plants, cultivation of commercially important species, and socio-economic studies on livelihoods.

Environmental harshness at high-altitude (> 3000m) pastures poses serious problems for regular monitoring at this field site, and even simple research can be very demanding. For this reason detailed research on the ecology and conservation biology of medicinal plants was confined to two key species, *Nardostachys grandiflora* and *Neopicrorhiza scrophulariifolia*.

The project site has lain within an area of active Maoist insurgency during the years of the project. This has imposed some limitations on being able to develop management systems for medicinal plants. One of the problems has been that medicinal plants have been seen by insurgents as a source of revenue for their activities, especially in relation to yarsagumba, *Cordyceps sinensis*, a 'medicinal plant' (actually a fungus and its parasitized caterpillar) that fetches very high prices in China.

Policy development. The management plan for SPNP, which is currently in the process of endorsement by the government, addresses all the issues identified and implemented by the People and Plants project, and this will form a mechanism for the sustainability of activities that have been initiated. The government has formed a high-level ministerial committee to deal with policy issues on NTFPs, able to co-

ordinate across the various sectors that need to be involved, including commerce, agriculture, and forestry.

Future prospects

While only a beginning, the People and Plants project in Nepal has been instrumental in drawing attention to links between conservation, healthcare and community development. The specific model developed at Dolpa is particularly concerned with *amchi* medicine, and would not work without modification in areas of other medical traditions. There are however other areas of Nepal in which *amchi* medicine is practiced, such as Mugu, Jumla, Humla, Mustang, and Gorkha, and it would be useful to see if it could be extended to these areas. Great encouragement for further development of the 'Dolpa model' was given by those attending the international *amchi* workshop organised by People and Plants in January 2004, drawing together *amchi* from Nepal, India, China and Bhutan, as well as a practitioner of Mongolian medicine - which is related to Tibetan medicine.

WWF-Nepal is currently developing a conservation project in association with the Kanchenjunga Conservation Area. This is not an area of *amchi* medicine and therefore cannot be used to test the Dolpa 'amchi model' or provide another case study for its further development. However, other aspects of People and Plants work at Dolpa are relevant to Kanchenjunga, notably community involvement in medicinal plant management, and the development of cultivation to take pressure off medicinal plants and provide local people with a sustainable income (an activity that is being promoted on the periphery of Shey Phoksundo National Park by the People and Plants project).

An enduring achievement of People and Plants will be the continuing work of the young professionals who received support for their training through the project.



Carver at work, Malindi Co-op, Kenya. Photo: R Höft

WOODCARVING AND CONSERVATION

by Tony Cunningham

Over the past decade, the People and Plants Initiative has funded studies on woodcarving across the tropics – for example in Fiji, India, Kenya, Uganda, and Zimbabwe, and together with the Centre for International Forestry Research (CIFOR), in Bali, Indonesia. Together with CIFOR we have recently completed the manuscript for a book which will be published by Earthscan (now part of James & James). This book illustrates the lessons learned from studies of woodcarving, and includes independent research studies carried out by Silvia Purata, Chuck Peters and others in Mexico, and Zac Kingdon in Tanzania.

Worldwide, woodcarving has the potential to improve livelihoods for millions of households. In many cases, it already does so: yet in policy and practice woodcarving has been neglected by most Forest Departments.

What is required is for local livelihoods to be secured by providing supportive policy frameworks and targeted assistance, and by ensuring a sustainable supply of raw material. Declining resource trends need to be reversed. There are three keys to a positive future path for carvers:

- Quality: making best use of sustainable harvested wood.
- Diversity: ensuring that the market is not saturated with sameness, and maintaining cultural diversity to give depth to carving design, offering creative ideas for the future.
- Sustainability: fostering sustainable use of wood resources.

Resource scarcity is a major constraint to most large-scale carving enterprises: yet quite literally, no wood means no work. You may think there is little that you can do as an individual reading this article.....but the history of the woodcarving industry tells otherwise.

Each individual can make a huge positive change, particularly if individuals from the same community or with the same set of values work together. This is best demonstrated by the remarkable history of the Indian carving industry. It was Mahatma Gandhi's locally spun textile campaign and focus on village level crafts that led to India establishing a Ministry of Textiles, which provides support for craftworkers to this day.

Several of the world's most successful commercial carving enterprises have been started on individual initiatives. In 1919, the Kenyan carving industry was started by a Kamba man, Mutisya Munge when he returned from the First World War. Carving of alebrijes in Oaxaca, Mexico was also started by one person, as was the trade in Gyanyar district of Bali, Indonesia, resulting in the establishment of a training school for carvers there today. In each case, whether in Kenya, Mexico or Bali, community cohesion contributed to carving success. The same can apply to resource management, quality carving production, reducing wastage and creative development of carving enterprises.



Ficus religiosa. Photo: YAT

CURRICULUM DEVELOPMENT IN APPLIED ETHNOBOTANY

Alan Hamilton

The future is in the hands of the young! In the last handbook issue (no. 8), we reported on steps that *People and Plants* was then taking to develop teaching in applied ethnobotany. If successful, the promotion of applied ethnobotany, as a taught subject, has the potential to influence large numbers of people, as they take undergraduate, postgraduate or in-service courses. The development of curricula makes capacity-building in applied ethnobotany institutionalised in universities and colleges. Whole new generations will be educated in how to work with communities for the conservation and sustainable use of plant resources.

The various consultations described in Handbook 8 were all successfully completed, with workshops held in China, the Dominican Republic, Pakistan and Ethiopia, and with research in East Africa. *People and Plants* then proceeded with an analysis of the various recommendations that had been made, and then to the writing, publication and distribution of a Working Paper "The purposes and teaching of applied ethnobotany". The Working Paper will remain as a permanent resource on the website of *People and Plants International*: <http://www.peopleandplants.org>.

The Working Paper includes an account of the history of ethnobotany. Ethnobotany, as a research discipline, has been changing in its emphases over the years, with more weight being given today to practical questions of conservation and development – a welcome move from the *People and Plants* perspective. It is a subject that is becoming increasingly popular in educational establishments, with a mushrooming in the number of courses in recent years. The increasing popularity of ethnobotany is evident in the emergence of several new, mainly nationally-based, ethnobotanical societies, especially since 1994. However, interest in ethnobotany is uneven. Some countries, such as Mexico, are rapidly pushing ahead, while others show hardly any activity. Some of those consulted during this study thought that there is a general need to strengthen ethnobotany as a rigorous discipline. This would enhance its respect in some academic circles, and should also make it more useful for practical purposes.

Professions to which applied ethnobotany can contribute

An historical context is invaluable when dealing with conservation issues on the ground, and also in understanding why professions (and related education provisions) have evolved in the ways that they have. The Working Paper looks at 4 plant-related professions – Botany, Forestry, Agriculture, and Medicine, and contains succinct accounts of how they have changed over the years. The ever-increasing specialisation of professions does represent some challenges in educating ethnobotanists. The relationships between plants and communities can form a seamless whole from community perspectives, and there is little to be gained from training ethnobotanists who are able to deal, say, only with forests and not with agriculture.

From the conservation viewpoint, the way that Botany has been changing as a taught subject in schools and universities in many countries is a matter of considerable concern. What has been happening is an increasing concentration on molecular biology, with little attention being given to 'whole plant botany' – taxonomy, field identification, ecology and so on. We are entering an era critical for plant conserva-

tion, but with fewer and fewer people actually able to identify plants scientifically. Forestry too has been changing, but in this case for the better. The traditional foci of forest management are forest protection and timber production, but these are now giving way to multiple-purpose objectives, including greater involvement of local communities. Agriculture, as a profession, is still largely geared towards intensive systems of production, while conservationists are more concerned with how to develop and promote 'sustainable agriculture', i.e. more organic and diverse agricultural systems, with less use of energy, pesticides and herbicides. The agricultural problems of low-input agriculture, as widely practiced in Africa, for example, are still largely neglected by agricultural professionals. In the case of medicine, there is a growing interest in herbal medicine in many countries, and there are numerous associated conservation and development issues arising from this.

Matters to consider, and some suggestions

A major challenge in developing courses is how to deal with interdisciplinarity. Applied ethnobotanists need some knowledge of many subjects. Botany, ecology, anthropology, and sociology are clearly important, and then we can add many others: conservation biology, the health sciences (nutrition and medicine), economics, politics, social and personal skills, and, indeed potentially, many others. But how should these various subjects be taught? If they are taught largely separately, by specialists in the various specialities sticking to their subjects, then the evidence is that the students will find it hard to relate the subjects one to one another. They will have problems in knowing how to tackle practical problems in the field, since all such real-life problems require interdisciplinary thinking. It is up to teachers to hone their interdisciplinary knowledge and teaching skills, to help students acquire the ability to think across disciplines.

Ethnobotany can be taught at various levels in educational systems. Introductory courses are useful in a wide range of undergraduate contexts, but substantial programmes in ethnobotany should usually be taught at postgraduate level. One arrangement that is currently popular is to offer 2-year masters programmes, with one year of taught classes and a second year of individual research. We recommend this generally as a model for new programmes. Short, 1 to 4 week, in-service courses are useful for many professionals already in employment, who need to know more about particular aspects of ethnobotany. A course on integrated medicine might, for example, be offered to doctors who work closely with traditional medical practitioners. Another illustration could be a course on how to assess the impact of harvesting of non-timber forest products, mounted for foresters.

A number of other suggestions relating to practical matters are given in the Working Paper, which can be accessed on the website, indicated above. Matters addressed include: definition of the purposes of courses; institutional contexts; enrolment requirements; student assessment; course evaluation; staffing; and material resources.

There are three areas of core competence required of applied ethnobotanists – knowledge, practical skills, and appropriate attitudes and behaviour. The Working Paper contains recommendations for topics to include in undergraduate and postgraduate programmes and courses, including specialist courses aimed at foresters, agriculturalists



and doctors (see Box 1). Quite detailed information is given about the possible contents of particular modules, with a guide to relevant pages in publications produced by the People and Plants Initiative. However, it is stressed throughout that organisers of courses should develop their own curricula, according to their unique circumstances. The suggestions made in the Working Paper are just that – suggestions. It would be rash for anyone to claim that they have final answers to teaching in this field, which is so rapidly evolving and in which there is still so much uncertainty about how to make it more effective. The new non-profit group, People and Plants International, is intending to take the matter of making recommendations for the development of teaching in ethnobotany further as one of its chosen thematic areas of work.

Impact of the People and Plants Initiative

It is early days to gauge the success of our curriculum initiative. We have evidence that we have influenced teaching in 25 departments, in 23 universities or colleges, in 8 countries. The countries concerned are Austria, China, Kenya, Nepal, Pakistan, South Africa, Uganda, and the USA. China is developing a common national curriculum in ethnobotany, stimulated by People and Plants, and this is expected to become widely used throughout the country. People and Plants International will take up the challenge of promoting education in applied ethnobotany from the People and Plants Initiative. It would be useful if anyone with further evidence of the influence of work undertaken by the People and Plants Initiative could make contact with People and Plants International, so that records of impact can be kept up-to-date.

Acknowledgements

The Working Paper was written by six authors, Professor Pei Shengji of the Chinese Academy of Sciences; Dr John Kessy of the Sokoine University of Agriculture, Tanzania; Dr Sonia Lagos Witte, co-ordinator of the Latin-American Ethnobotanical Group GELA; Ashiq Ahmad Khan and Zabta Khan Shinwari of WWF-Pakistan; and myself. The Working Paper has benefited from experiences and suggestions offered by more than 100 people, from many countries.



Box 1. Suggested topics of undergraduate and postgraduate courses and programmes in Applied Ethnobotany

These are suggestions: course developers should build their own curricula. Refer to the footnotes, which contain suggestions about variations for different types of courses and programmes.

Introduction to Applied Ethnobotany
Overview of Applied Ethnobotany
National/regional Ethnobotany
Introduction to field approaches and methods

Basic background knowledge
Botany
Ecology
Social Science

Plant resources and cognition
Perceptions, knowledge and values of plants
Plant resources and plant products

Contributions to conservation and sustainable livelihoods
Conservation and sustainable development
Contributions of Ethnobotany to sustainable forest management¹

Contributions of Ethnobotany to sustainable agriculture¹
Contributions of Ethnobotany to food and nutrition
Contributions of Ethnobotany to healthcare

Policy and ethics
Policy and Applied Ethnobotany
Ethics in Applied Ethnobotany

Information handling and scientific methodology
Access to sources of information and preparation of written materials
Scientific methodology and quantitative techniques in Applied Ethnobotany²

Plant-based products: composition, validation, and innovation³
Validation and discovery of plant-based medicines⁴
Composition of human and livestock food⁵
Properties of wood, fibres and other plant materials⁶

1. Topics similar to these two can be included as relevant to particular cases. They could cover, as examples, the contributions of Ethnobotany to the sustainable management of pastures, wetlands, coastal zones or urban environments.

2. Especially for more advanced students, e.g. those taking postgraduate programmes.

3. Topics in this category could be optional for general students of Applied Ethnobotany, but could be compulsory for particular categories of student, as suggested below (4-6). Other topics could be added for other categories of student, such as those studying Horticulture, Urban Planning or Veterinary Medicine.

4. Possibly compulsory in courses for students of Medicine.

5. Possibly compulsory in courses for students of Agriculture and Medicine.

6. Possibly compulsory in courses for students of Forestry.



PEOPLE & PLANTS INTERNATIONAL "CREATIVE SOLUTIONS FOR SUSTAINABLE PLANT USE & CONSERVATION"

Tony Cunningham

As many of you will know, we now live in a "knowledge economy". In this complex world of balancing conservation and development what often counts is not large amounts of money spent over a short time in an effort to solve complex problems, but wise use of funds and mentoring of human resources. Collective knowledge and experience, plus the an opportunity to build on the 12-year legacy of the WWF/UNESCO/Kew "People and Plants Initiative" is People and Plants International's (PPI) greatest resource.

PPI is a network of practitioners of applied ethnobotany and sustainable resource management dedicated to the managed use and plant conservation in landscapes of high biological diversity. Incorporated as a non-profit organization in New York in 2004, PPI builds on the best of the WWF/UNESCO/Kew "People and Plants Initiative", which developed a unique foundation of expertise, cutting-edge methodologies, and a global action network. This partnership, also entitled "People and Plants" will officially come to an end in December 2004, with the intention that the work will be scaled up and carried forward

Indonesia, are active members of the PPI steering committee. **Louis Putzel**, who has over ten years management experience in the private and non-profit sectors in Asia and Africa, coordinates program development.

Our real strength is in the sum total of experience of our invited members. In essence, PPI is a project-driven network of over 40 highly qualified practitioners operating in Latin America, Africa, and Australasia with a minimal operational structure. Our strategy is to maintain a lean and efficient coordinating structure that facilitates the endeavors of partner institutions (non-governmental organizations, community-based organizations, and academic institutions) to obtain the resources they need to conduct sustainable resource management, training, and local conservation work. We then maximize the effectiveness of partners' work by mobilizing the unsurpassed technical expertise of our network. PPI's goal is to remain dynamic and flexible in order to respond effectively to local problems without developing a large and costly bureaucracy.



Our ultimate clients: resource users in southern Africa – primarily women.
Photo: A B Cunningham

by the new independent non-profit, PPI. With formal links to facilitate implementation of Target 13 of the Global Strategy for Plants Conservation (GSPC) of the Convention on Biological Diversity (CBD) we will be able to bring our experience to bear through a new and innovative way of working.

The model "knowledge network" that was the inspiration for our development was the Tropical Soil Biology and Fertility (TSBF) programme: a potential "PPI" model suggested by Dr Malcolm Hadley, the dedicated visionary who, as the UNESCO representative, was a mainstay of the "People and Plants Initiative" for many years. TSBF was able to get established due to support from the Rockefeller Foundation. While the TSBF model is similar, our focus (on plant use by people) is very different; yet we too, are looking for modest Core funding.

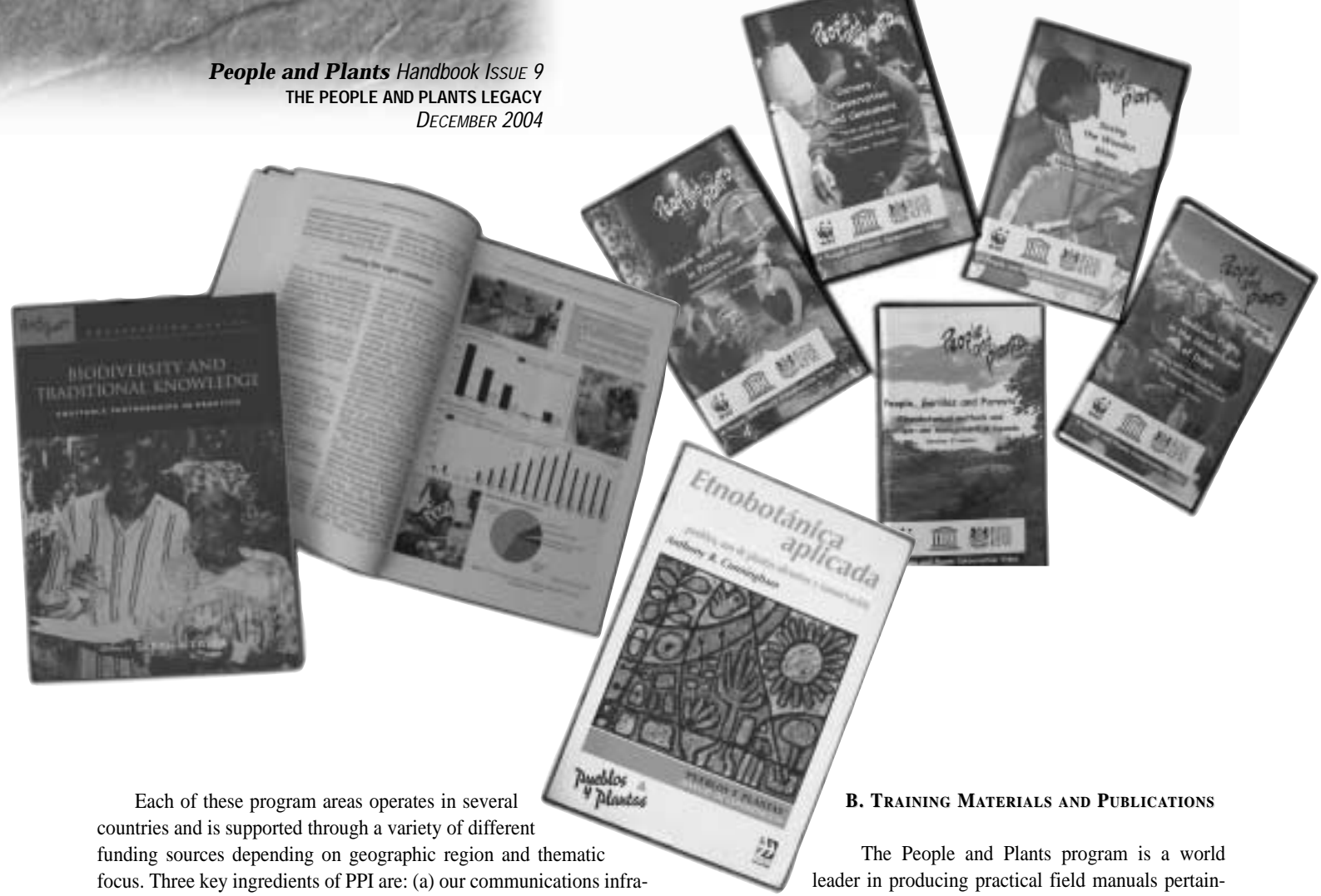
PPI is led by a committee of five people, plus a coordinator:

Dr. Tony Cunningham, an ethnobotanist with extensive experience in Africa and South East Asia, is the Program Director of PPI. Sarah Laird, an ecological anthropologist and specialist in non-timber forest products; **Dr. Charles Peters**, a forester/ecologist at the New York Botanical Garden; Dr. Miguel Alexiades, an ethnobotanist at the University of Kent, UK; **Dr. Silvia Purata**, a plant ecologist at the Instituto de Ecologia in Mexico; and **Dr. Patricia Shanley**, an ethnobiologist at the Center for International Forestry Research in Bogor,

A good example of the type of partnership we are developing is our link with Phytotrade Africa, recently formalised in an MOU with PPI. Phytotrade Africa is a network across seven southern African countries which is focussed on improving local livelihoods through trade in indigenous plant resources. Representing 20000 rural resource users, Phytotrade Africa is committed to sustainable resource use - but needs advisory support and training. They have excellent business skills related to the natural products trade, but need advisory support on sustainable harvest and monitoring of plant resources. We are also able to mentor hand-picked young professionals doing in-depth research in response to applied priority questions on plant use. The 2-year coursework MSc in Applied Ethnobotany we have helped develop in Mexico is one such example.

It is through such complementary partnerships that we are simultaneously able to build local capacity and help implement part of the GSPC. The working groups that constitute our core structure are currently organized around the following six programmatic areas:

1. Sustainable Resource Management
2. Ethnobotany Master's Curriculum Development
3. Returning Research Results
4. Policy Development
5. Cultural Landscapes
6. Health and Habitat



Each of these program areas operates in several countries and is supported through a variety of different funding sources depending on geographic region and thematic focus. Three key ingredients of PPI are: (a) our communications infrastructure; (b) training materials and publications and (c) the way we coordinate a decentralised, cost effective network.

A. COMMUNICATIONS INFRASTRUCTURE

PPI is a decentralized network in which members work together regularly on numerous projects. In order to facilitate distance communications, we will develop a new website that acts as a repository for People and Plants working papers, newsletters, and work manuals and also serves as a communications hub with subject-specific forums and video-conferencing technology. This website will be hosted on the server of the Xishuangbanna Tropical Botanical Garden in Yunnan, China, a PPI partner institution.

B. TRAINING MATERIALS AND PUBLICATIONS

The People and Plants program is a world leader in producing practical field manuals pertaining to sustainable resource management and conservation, community-based conservation, ethnoecology, and intellectual property rights and traditional knowledge. Translations for several titles exist in Spanish and Chinese, and UNESCO has agreed in principle to facilitate translations into Bahasa, Portuguese, and French. PPI will carry on the publications series in multiple languages, which is invaluable to local practitioners of sustainable resource management and conservation in the countries where we work. PPI has an agreement with the publisher Earthscan, who has published and markets seven volumes in the People and Plants series. In order to continue this arrangement, a certain number of copies of new publications must be purchased from the publisher for distribution to program beneficiaries.

C. STEERING COMMITTEE MEETINGS

Because of its decentralized nature, PPI needs to bring together its core members on an annual basis to review program status and priorities and to conduct strategic planning. The first PPI Steering Committee Meeting took place at the University of Kent in Canterbury, UK in June 2004, and was timed to coincide with the International Congress of Ethnobiology and the Society for Economic Botany annual meeting. Future Steering Committee meetings will be held in locations relevant to the work of the organization.



Participants at a training course supported by PPI in Mexico led by Dr Chuck Peters and Dr Silvia Purata focussed on sustainable management of Bursera wood resources in dry forest, Oaxaca. Photo: C Peters

YUNNAN – CRADLE OF CHINESE ETHNOBOTANY

Martin Walters and Pei Shengji

In the extreme south-west of China lies the Province of Yunnan. This is biologically the most diverse region in the whole of China, partly because it encompasses such a wide range of habitats, from the tropical southern lowlands, through to the edges of the Tibetan plateau in the north, with many mid-altitude ranges in between. The capital, Kunming, is a bustling modern city of some 3.6 million inhabitants, located centrally at an altitude of about 1840 m. It is famous for its equable climate, and is known in Chinese as the "Spring City", having a year-round climate not unlike that of a good British summer.

In Yunnan, traditional people have long lived in close harmony with the natural world, using the forests and other natural sites as a source of food, firewood, building materials, and medicines. This makes it an ideal area in which to study the intricate interactions between people and plants, and, largely as we shall see through the pioneering work of one group of scientists, Yunnan became the birthplace of Chinese ethnobotany.

Nowhere is the traditional lifestyle more evident than in the Dai Autonomous Prefecture of Xishuangbanna in the deep south of Yunnan, where the main ethnic groups are the Dai and Hani. The Dai people make up some 30% of the population of about 700,000, with the Hani (Aini) people the next largest group with about 12%. The Dai live mainly in lowland areas and river valleys, where they cultivate rice paddies. Xishuangbanna lies sandwiched between Myanmar and Laos, well to the south of the Tropic of Cancer. It is an exotic landscape, dominated by tropical vegetation, and drained by the mighty Mekong River (Lancang Jiang) and its tributaries.

Although large tracts of tropical forest remain, many of the hills here are covered with rubber plantations, and rubber is still a valuable cash crop for many local people. The Chinese Government supports the traditional lifestyles of the Dai people, very much to the benefit of conservation, and the rapid replacement of forest by rubber plantation, which characterized some earlier years, no longer takes place to the same extent.

In the lowlands the natural vegetation is tropical monsoon forest, replaced by subtropical evergreen forest at higher altitudes. Xishuangbanna is the only area in China with a large amount of relatively undisturbed tropical forest, and it consequently has a high bio-

diversity. Nevertheless, most of the virgin forests have been altered to secondary forests, or replaced by bamboo, rubber plantations, or grassland.

The rivers here are fast-flowing and tend to be an opaque red-brown colour, especially after heavy rains, due to the effects of soil erosion. The latter has become worse with the replacement of much natural forest with extensive rubber plantations, and removal of most of the natural ground cover. Research by ethnobotanists here has helped influence government thinking and encourage traditional land and forest uses. However, rubber is still a major crop, sometimes undercropped with coffee, and there are also pineapple and lychee plantations.

Wood from rubber trees is also used as fuel, but much of the firewood comes from special fuelwood groves of *Cassia siamea* trees, which are planted by the villagers, and coppiced regularly for a supply of logs and poles. The *Cassia* trees quickly produce fresh growth from the stumps. This tree was introduced from Thailand, where interestingly it is not used in this way as a fuel source.

Dai houses are constructed mainly of bamboo, with two stories, and are roughly square in shape. The upper storey forms the living quarters, with a surrounding balcony, and is divided into an outer kitchen and living space, and an inner bedroom area. The upper house is supported by poles, and is more than two meters above the ground, while the lower storey is used mainly for storage and for domestic animals. Most of the furniture, such as tables, chairs, and beds, is made of bamboo. Efficient ventilation through slotted bamboo keeps the upper house dry and relatively cool, even on hot summer days. Planted around most of the houses are many kinds of subtropical fruits such as banana, custard apples (*Anona reticulata* and *A. squamosa*), mango, papaya, passion fruit, pineapple and tamarind, and often the edible flower *Gmelina arborea*. As in many other parts of China, a large number of wild or cultivated species are eaten, including for example the flowers of several plants, such as *Gmelina arborea*, frangipani and banana – the latter a particularly delicious delicacy.

The Dai believe in Hinayana Buddhism, and the temple is the main focus of village life. Each temple is surrounded by a lush garden, with ancient, vine-clad trees, and a rich undergrowth of useful plants, mainly of reli-

gious significance. The local philosophy reveres nature, certain areas being designated as sacred, and these are traditionally conserved. There are four main types of sacred natural site.

The first of these are the holy-hill forests, which consist of pieces of natural forest, protected to sustain local livelihoods, and usually located near to a village. The origin of holy-hill forests lies in animistic, pre-Buddhist beliefs, and can be traced to the ancient polytheistic religion of the Dai people before the arrival of Buddhism in the middle of the Tang Dynasty (618-907). In fact both religions are nature-friendly, and sympathetic to conservation. Traditionally, the holy-hill is strictly protected, and its resources, including all animals, plants, and their habitats, considered sacred. Activities such as plant collection, hunting, and land reclamation are prohibited. Neighbouring non-Dai people have also tended to respect the sanctity of the holy-hills. Thus what may be perceived on the one hand as an aspect of spirituality is also a very effective traditional approach to environmental conservation, and these holy-hills appear as oases of undisturbed biodiversity amongst the cultivated fields and rubber plantations of the region. An investigation carried out in 1984 identified approximately 400 existing holy-hills in Xishuangbanna, accounting for a total area close to 50,000 ha. Although almost every Dai village still has its own holy-hill forest today, many are degraded, and some are even reduced just to groups of trees. This degradation was caused mainly by changes in land management between 1960 and 1980, combined with political reforms, while some low-altitude holy hill forests were developed into rubber plantations.

Population increases following the development of the rubber industry have increased pressure on the forests, and this has made the traditionally protected sites even more valuable. Most of the holy-hills are in the zone of evergreen or semi-evergreen seasonal rainforest, habitats which have largely disappeared elsewhere through centuries of use and plantation, and which are poorly represented even in strict national nature reserves. Their diversity is almost as high as in the strict reserves, with rare Chinese Red Data listed species such as upas-tree *Antiaris toxicaria*, *Homalium laoticum*, and *Magnolia henryi*. Other species of particular interest include *Beilschmiedia brachythyrssa*, endemic

to Xishuangbanna, as well as the near-endemics *Goniothalamus griffithii*, and *Paramichelia baillonii*, found only here and in neighbouring regions.

Evidence for the conservation value of such traditionally protected sites is provided by a survey of one of Xishuangbanna's holy hills, which found over 122 plant species in 0.15ha survey plots. Such sites are important as stepping-stones for genetic exchange, and they also play a vital role in water catchment to sustain reliable water supplies, not least for the adjacent rice-paddies.



House in Dai village, Xishuangbanna.

Next are the sacred groves, sometimes referred to as temple gardens, which are usually remnants of forest close to temples. These tend to have been planted with many non-native species such as pipal or bo-tree *Ficus religiosa*, *Dipterocarpus turbinatus*, and *Dialium ovoides*. Many of the sacred groves provide water for irrigation, bathing and drinking. Sacred groves have been compared with botanical gardens, in which rare species of plants are protected *ex situ*, and they serve economic, ecological, social, and religious functions.

A third type is the cemetery forest, a separate piece of forest used for burial, in which every other use and activity is forbidden. The cemetery forest is always separated from the holy-hill forest, and is usually at lower altitude than the village settlement.

The fourth element is provided by the protection of sacred trees. In some Dai communities, certain individual trees, usually *Ficus religiosa* and *F. altissima*, are revered. Almost every village in Xishuangbanna has its sacred trees, which are the site of performance of rituals and traditional ceremonies. A distinction can be made between sacred trees dating back to pre-Buddhist, animistic beliefs, and those attributable to Buddhism. The former grow wild, and are worshipped through collective rituals, whereas the latter are planted, and are often worshipped in individual acts. *Ficus religiosa* is usually planted

as a sacred tree for family cult activities, and can often be found near the village.

The Xishuangbanna Tropical Botanical Garden (XTBG), of the Chinese Academy of Sciences (CAS), lies at 21° 41' N and 101°



Temple garden in Xishuangbanna.



Tropical Rainforest Ethnic Culture Museum.

All photos: M G Walters

25' E, at an altitude of 570 m. It was established in 1959 under the leadership of the famous botanist Prof. Cai Xitao. It now covers an area of 900 ha, and has about 8000 species of tropical plants in some 30 living collections – these include a palm garden, a *Ficus* garden, and collections of bamboos, orchids, gingers, and other medicinal plants. It also has an area devoted to the *ex-situ* cultivation of rare and endangered species.

In addition to the impressive plant collections, XTBG also has a modern herbarium, laboratories, and a germplasm collection, and it also plays an important role in public education and eco-tourism, receiving over 400,000 visitors from home and abroad every year, and enjoying national recognition as a prime scenic site. The staff number around 300, and include researchers and technicians, as well as a steady stream of visiting scholars from China and abroad. It offers PhD degrees in ecology, and MSc degrees in Botany. The Tropical Forest Ecosystem Station here has established a permanent study site covering 30ha of tropical forest, and an area of field plots for hydrological and microclimate recording. One of the main aims is to study the effects of human activities and environmental change on the structure and function of ecosystems, and also the factors affecting

species endangerment. It is now regarded as an internationally respected research base for conservation and ecology, as well as one of the world's major botanical gardens.

The garden occupies a peninsula on a loop of the Luosuo River (a tributary of the Mekong), taking advantage of a drop in height between the two sides with its own hydroelectric power station, and thus achieving independence from the (formerly) unreliable grid. In addition to the many fascinating living collections, such as the palms and bamboos, it boasts adjacent patches of tropical forest and tropical tree plantations. These function both as splendid research sites and as an introduction to the structure and complexity of tropical forest ecosystems. Many of the

trees here are huge, some with widely flanged 'buttresses' at the base (notably *Tetrameles nudiflora*; Datisceae = Tetramelaceae). This patch of forest is also a haven for animals, such as tropical butterflies and other insects, and forest birds including such jewels as the blue-eared kingfisher (*Alcedo meninting*). Another area of the garden has experimental plots of rubber plantations with coffee grown in their shade. Other species planted here include *Anthocephalus chinensis*, *Camellia assamica*, and *Citrus grandis*. A group of *Cycas pectinata* in the garden is said to be 1,000 years old.

A Museum of Ethnobotany has recently been created in the XTBG, and this houses permanent displays of ethnobotanical topics, based upon the many years of research carried out here. A display devoted to the work of People and Plants is also being incorporated, with details of relevant field projects from China and other regions, as well as examples of People and Plants publications.

Surrounded as it is by traditional societies, such as the Dai people, which have depended upon using natural products for centuries, it was a natural development that XTBG should also focus upon ethnobotany. Prof Pei Shengji began his botanical studies in Xishuangbanna, and has collected and

investigated plants there since the end of the 1950s. This was in three main phases: 1959-1963; 1970-1975; and from 1976 until the present. He worked on the documentation of the botanical cultures of the Dai, Ginuo, Hani, Lahu, and other minorities in Xishuangbanna, and his ethnobotanical studies included more than 100 villages. About 220 species of plants were identified as useful to the local people, of which about 85 species are used for food, some 70 for medicine, and about 30 as a source of wood.

Prof. Pei became Director of XTBG in 1978, and is now Director of the Department of Ethnobotany in the Kunming Institute of Botany (KIB), also of the Chinese Academy of Sciences, where he continues to inspire a new generation of ethnobotanists – his ‘family’ as he refers to them – now spread across China, from Yunnan in the south, to Sichuan in central China, and to Inner Mongolia and Xinjiang in the north. All are doing interesting and important work with local people and traditional plant use.

Prof. Pei is recognised internationally as the founding father of ethnobotany in China, and the modern development of this science sprang from pioneering work by him and others, in Yunnan. Other key figures are: Prof. Zeng Yulin (Professor at Yunnan University of Traditional Chinese Medicine), one of the pioneering experts on ethno-medicine; Prof. Yang Jingseng (formally Professor of Pharmacy at Yunnan Provincial Institute of Medicine Inspection) and a leading expert on Tibetan Medicinal Plants; Prof. Chen Shan, a Professor of Botany and formally President of Inner Normal University in North China and a leading scientist in the ethnobotany of the Mongolian Plateau; and Prof. Xu Zaifu, who shares many research interests and ideas about ethnobotany with Prof. Pei, and who has made important contributions on the folk taxonomy of plants of the Dai people, and on the cultural and religious value in Xishuangbanna of plants such as *Ficus*. The Kunming Botanic Garden, close to the Institute, was founded in 1938, and now covers some 45 ha, including a medicinal section with 1000 taxa. The following genera are especially well represented in the garden: *Begonia*, *Camellia*, *Lilium*, and *Rhododendron*.

Modern Ethnobotany in China then is rooted in research beginning in the early 1960s on the utilisation of wild plants and on traditional medicine. In the late 1960s, the Barefoot Doctor programme aimed to bring more effective medical services to the masses, and was accompanied by a national inventory of Traditional Chinese Medicine (TCM).

Numerous handbooks on many matters relating to TCM were produced, such as on the cultivation, harvesting, processing and uses of medicinal plants.

It was not until 1978, following the opening up of China to the outside world, that Chinese scientists became aware of the subject of Ethnobotany, as it had developed elsewhere, and were able to read international publications such as the *Journal of Economic Botany*. A Chinese term for the word ‘Ethnobotany’ was first published, by Prof Pei, in the book entitled ‘Collected Papers on Tropical Botany’ (Yunnan Science Press, 1982). However, the roots of ethnobotany lie much further back in Chinese history, and this discipline is a natural development of 5000 years of Chinese culture. There are also early written records of Chinese plants; indeed the first flora of China dates back to the 4th century (AD 306).

Plants provide the predominant ingredients of medicines in most medical traditions. The total number of species used worldwide may be 35,000-70,000 out of a total of more than 250,000. It has been estimated that 10,000-11,250 types of plants are used in China (over 95% of which are wild), 7500 in India, 2237 in Mexico and 2500 traditionally by North American Indians. The great majority of species of medicinal plants are used only in folk (orally-transmitted) medicine, the more formal medical systems mostly utilising rather fewer: 2000-3000 commonly in Traditional Chinese Medicine, 1106 in Tibetan Medicine, 1250-1400 in Ayurveda, 342 in Unani and 328 in Siddha. There are considerable overlaps in the plants used by some of the formal systems, as would be expected from their histories and geography. Thus, there is sharing between Western Herbal Medicine and Unani, and between Unani, Ayurveda and Tibetan Medicine. In the 8th century AD, Trisong Detsen, King of Tibet, called a conference of medical experts from China, Dolpa, India, Nepal, Persia, Tibet and other parts to discuss the evolution of improved medicine, drawing on various traditions. This resulted in the development of Tibetan Medicine, based on the pre-Buddhist Bon tradition of Tibet and incorporating elements from elsewhere, including from the medicine of Ancient Greece.

A key event in the development and recognition of Ethnobotany as an applied science in China was the Second National Symposium on Rubber and Tropical Economic Crops, at which Prof Pei managed to argue successfully against the wholesale replacement of tropical forest in

Xishuangbanna with rubber plantations. He could do so because he came well armed with evidence from research of the value of produce from the rainforest to the people, both locally, and potentially to the nation, and also concerning the beneficial influence of the forest on surrounding hills for maintaining irrigation systems in the plains. A further controversy, in the mid-1980s, this time over a government proposal to ban shifting agriculture, helped create greater national awareness of the values of traditional ecological knowledge and practices.

Ethnobotany, as a taught subject for graduates, was first established in China in 1987, in the Department of Ethnobotany of the Kunming Institute of Botany, and this is perhaps the first such ethnobotanical institution world-wide outside the USA. The first training course in ethnobotany here was run by Prof. Pei Shengji and the American Richard Ford, currently a Professor of Anthropology and a Professor of Botany, at the University of Michigan, USA, and also involved Prof. Chen Zhongming of the Nanjing Institute of Botany. About 25 students have studied or are currently studying for MSc or PhD degrees here.

More recently, a number of other institutions have started to teach the subject, including the Southwest Forestry College (where a course in Ethnobotany became incorporated into the Social Forestry Programme in 1992), the National University of Pharmacy, Inner Mongolia Normal University (where the teaching of Ethnobotany to graduates in the Mongolian language commenced in 1998), and many medical colleges and universities. Each university or college initially designed its own course, but there is now movement towards the adoption of a common curriculum following a workshop held in August 2001.

In October 2002, another milestone was reached with the First National Symposium on Ethnobotany and Enterprise Development of China, organized jointly by: Nanjing Academy for Comprehensive Utilization of Wild Plants; Kunming Institute of Botany, Chinese Academy of Sciences; and the Chinese Journal of Biomedical Scientific Application. This meeting, held in the famous city of Hangzhou, involved participants from all over China, and also representatives of People and Plants. Politically this was very important, helping to put the People and Plants approach, fostered by Prof Pei and his former students, on the map both nationally and internationally. The main topics covered were ethnobotany, botanical enterprise devel-

opment, conservation, and education. Alan Hamilton and Martin Walters gave talks in the Plenary Session, respectively on People & Plants and conservation-related issues; and on publications, the website and 'spreading the word' about the People & Plants approach. This key meeting also saw the creation of the Chinese Ethnobotany Association.

Through the efforts of Prof Pei and other Chinese ethnobotanists, traditional approaches to conservation have been recognised by the government and by the international community. Thus, in February 2002, UNESCO-MAB organised an international workshop on the Importance of Sacred Natural Sites for Biodiversity Conservation in Kunming and Xishuangbanna, in which Prof Pei played a leading role, and IUCN has now set up a task force on the Cultural and Spiritual Value of Protected Areas. The Second National Symposium on Ethnobotany was held in August 2004 at XTBG, with the theme: ethnobotany and the sustainable utilization of plant resources.

A new phase has begun for Chinese ethnobotany, and the subject is now widely accepted by people generally, and studied by university students. It has developed from a basic to a more applied phase involving community development, eco-restoration of degraded ecosystems, and best-practice commercial enterprises, for example of medicines, green food and other natural products.

The rush to replace the 'primitive' lifestyles of ethnic minorities which characterised earlier periods of Chinese society shows encouraging signs, at least in some areas, of being replaced by a renewed respect for traditional agricultural systems, many of which are more sympathetic to the environment and wildlife. The example of the Dai and Hani of Xishuangbanna is one such example. Another may be seen in the centuries-old sustainable cultivation of bamboo.

One of the major bamboo-growing regions is in Anji County, in Zhejiang Province, only some 175 km southwest of the modern metropolis of Shanghai. Over many centuries, the local people here have extended the natural pockets of bamboo into vast swathes of secondary bamboo forests, which clothe the mountain slopes of the Tianmu Shan range, which includes the Longwangshan (Dragon King Mountain) Nature Reserve. The dominant bamboo here is *Phyllostachys pubescens* (= *P. heterocycla* var. *pubescens*), which is cropped and used for poles and a wide range of other products, including edible shoots. Much of the original mixed forest has been converted to these 'for-

est-gardens', involving several thousand years of production. The reserve itself protects a more natural mixed forest with a diverse flora, in which bamboo is also found, but only in relatively small patches, or in the undergrowth. This protected area covers some 12 sq km, and lies at 30° 23' N and 119° 23' E, peaking at 1587.4 m, and contains the source of the Huangpu River which flows through Shanghai before joining the mouth of the mighty Yangtze. The vegetation in the reserve ranges from subtropical to temperate, with mainly deciduous broadleaf and mixed evergreen broadleaf forest.

The cultivated bamboo forest is carefully tended and guarded. In Anji, and in some other sites in China, it is managed by individual contracted farmers, and even the state forest farms are now involved with this contract system. The vegetation below the bamboo is sparse, and the forest floor is maintained to promote the unhindered growth of shoots, which are harvested as they begin to break through the surface soil. Many traditional herbal medicines are also gathered from the forests, the local people using over 160 species. The bamboos grow tall and straight. Amazingly, the crown of each culm is removed to prevent the build up of heavy ice and snow during the winter, which would risk bending the main stem and thus reduce the value of the crop of poles. This involves the use of a long bamboo pole, with a sharp, curved blade attached at the tip. This is manoeuvred over the crown of each culm and the tip then sliced off with a swift downward jerk. The bamboo culms are harvested when they are between 5 and 7 years old, in the period from May to October. They grow rapidly in the moist summer season, reaching 5 metres in the first year, 7 to 10 metres in the second year, and about 15 metres (the average maximum) in the third year. At harvest, the culms are cut down, starting at the top of the hillside and working downwards. This ensures that the cut stumps do not interfere with the operation as the poles are slid downhill. The poles are stacked ready for collection and transport by truck to be processed.

Many household items, such as stacked baskets for steaming bread and rice, are still made locally from bamboo. In addition, bamboo is used for scaffolding, building, for musical instruments, and to produce food (mainly shoots), and medicines. Some village factories produce bamboo 'Venetian' blinds, using thin strips shaved from the culms. Even the cut ends of these strips are not wasted, being used to make toothpicks, or used as kindling. Exploitation of the bamboo forests is sustain-

able, and efforts are being made to promote Anji County by emphasising its 'green' image, with natural products such as bamboo, silk, and tea, and even bamboo juice and bamboo beer, alongside a growing tourism element.

The Anji case may be seen as a model of the successful use of plant resources. Here there has been steady economic development while retaining a forest cover of over 50%. In 2002, the total GDP of the Anji district was 1 billion US\$, of which bamboo contributed 80%.

An institutional voice for ethnobotany now needs to develop in research centres, and the newly created Chinese Ethnobotany Association should help achieve this. Today, Applied Ethnobotany is becoming widely recognised throughout China as an extremely useful subject for conservation and development. It is clear that the work and ideas of Prof. Pei and his colleagues have been instrumental in guiding government policy towards the environment, especially with respect to the traditions of local people, and their balance with natural resources. The People and Plants Initiative works to enhance the role of communities in efforts to conserve biodiversity and to use plant resources in sustainable ways. In this respect it chimes in beautifully with the traditional practices of some of the ethnic minority communities in SW China, and the Initiative works closely with Prof Pei and other Chinese ethnobotanists, not least in developing curricula for training the ethnobotanists of the future.

Although China, with its huge population, experiences serious environmental problems, including widespread deforestation and bad air and water pollution caused by industry, the country is learning how to foster a greener agriculture, partly from its minorities and history, and is finding that the benefits are not just to the local people themselves, but also to the growing business of eco-tourism, which is fast developing throughout the country. In many ways China is now 'ahead of the game' in developing the sustainable use of plants, although there are clearly many conservation problems to be overcome. But the new generation of Chinese ethnobotanists, inspired by the impact of research in Yunnan and elsewhere, will help to increase awareness of the importance of promoting harmony with nature, and sustainability in agricultural systems.

[A version of this article is also published in Plant Talk Number 34, October 2003]

EVALUATION OF PEOPLE AND PLANTS

Prof Sir Ghilleen T. Prance
Scientific Advisor to the Eden Project

During the past 18 months I have had the fascinating task of evaluating for WWF/UK the work of the People and Plants Initiative (PPI) over its 12 years of existence. I was asked both to determine whether PPI has achieved its initial objectives and to extract lessons for the future use of WWF and other conservation organizations. The evaluation was carried out through 6 principal methods:

1. Through a questionnaire that was sent out to many of you, 800 in all. I thank the 116 people who took time to respond, some of you in great and useful detail.
2. Interviews with 39 people involved with or users of PPI.
3. The use of two specialists on livelihood issues who made field visits to Kenya, Nepal and Pakistan, Kathy Butcher and Mary Ann Brocklesby.
4. Through the help of local teams of independent evaluators in Kenya, Nepal and Pakistan.
5. Through attending the 2004 annual meeting of PPI held in Godalming and the 2004 Ethnobiology meetings held in Canterbury in July.
6. Through reviewing the PPI publications, videos and website and many reviews of these items.

My overall conclusion is that PPI has been a highly successful project. When it began there was relatively little local community involvement in conservation in the developing world. In addition there was inadequate material available for teaching and capacity building in this area. The success of PPI is that it has both been involved in the field in practical projects with local people and in training and the production of material for use in training. To have achieved all this with a small team in just twelve years is impressive. In addition to the local communities that PPI has encouraged into a more sustainable use of their resources, the initiative has left a tremendous legacy of trained people, new organisations and books, manuals, handbooks, videos and a website. The idea of achieving its objectives through a focus on applied ethnobotany has been beneficial both to the science of ethnobotany and to conservation. This approach must not be lost when PPI ceases to function. PPI has provided examples and materials that will allow the use of this approach to continue in many places for the benefit of conservation. Each aspect of the work of PPI is discussed individually in what follows.

Publications

All methods used for the review showed that the publications of books, handbooks and manuals are one of the most important results of PPI. The books were particularly well reviewed both by respondents and in scientific journals and most are now used in many university courses in both the developing and the developed world. The books have been useful in many other ways. For example, Professor Wil McClatchey said "The Laird book has been a godsend to pass out to legislators and activists. It has had a major influence on intellectual property issues in Hawaii." The Spanish and Chinese translations of the books were also welcomed and increase the readership. The publications will be one of the long-term legacies of PPI. My main recommen-

ation is that the remaining three planned volumes be published and that the book series be continued in some way after the closure of PPI.

Website and database

The PPI website receives over 3000 visits a month and is considered a useful resource by many people. Between May 2002 and March 2003 there were 30,400 visits to the site consulting 167,000 pages. It is good that it is to be continued as I strongly recommended and this will be through collaboration with the Chinese. The PPI database is also a useful resource and a suitable home must be found to maintain it.

The three countries of PPI Phase 3

Work in Kenya coastal forest has successfully helped to make many wood carvers change from using scarce native trees to fast-growing "Good Wood" alternatives such as neem, a species that has the advantage of producing other products along the way. The change to Good Wood is both enabling the woodcarving industry to survive and also taking pressure off the traditionally used native species.

... *The success of PPI is that it has both been involved in the field in practical projects with local people and in training and the production of material for use in training.*

An impressive number of farmers are now growing neem for its wood and other uses. My main recommendation is that it is vitally important to see through to completion the process of certification of Good Wood in Kenya. The Good Wood project could easily be extended to other areas of Kenya and to Tanzania. Further Good Wood trees in addition to neem should be researched.

Work in Nepal has built capacity in ethnobotany and has helped to draw attention to Tibetan medicine of the *amchis*. It has also raised awareness about medicinal plants and helped their conservation through cultivation. I recommended that this work could be expanded to other areas of Tibetan culture. The ethnobotanical methods and people trained through PPI could develop a programme in the Kanchenjunga Conservation Area. The Traditional healthcare Clinics of the *amchis* still needs further support and encouragement to finish the good job done so far by PPI.

In Pakistan PPI has been particularly successful in establishing ethnobotany in the curriculum of universities and in training ethnobotanists. The field projects at Ayubia National Park and Swat are both stimulating the sustainable use of plant resources and conservation particularly of medicinal and fuel wood plants. The introduction of fuel-efficient stoves around Ayubia has definitely been beneficial. At Ayubia the establishment of fuelwood nurseries has also helped. I recommended that a community based forest programme be established for Pakistan based on the PPI approach and the capacity already built.

Capacity building

Undoubtedly one of the greatest successes of PPI has been its role in capacity building in applied ethnobotany and its application to issues of conservation. PPI has given extensive training to 86 people from 10 developing countries. This includes 6 PhDs, 28 Masters degrees and 3 Licenciaturas, as well as several shorter study periods. The training had taken place in Kenya, Malawi, Malaysia, Mozambique, Nepal, Pakistan, Rwanda, Tanzania, and Uganda. This list does not include the many hundreds of people who have attended shorter PPI courses in all countries where PPI has operated. The list of research subjects reviewed showed their close link to applied ethnobotany and to the field sites of PPI, especially at

... one of the greatest successes of PPI has been its role in capacity building in applied ethnobotany and its application to issues of conservation.

Dolpa, Nepal; Bwindi, Uganda; and Ayubia and Swat, Pakistan. The postgraduate training has particularly strengthened the work in Kenya (13), Uganda (12), Pakistan (10) and Nepal (5). An impressive number of those trained are now active in applied ethnobotany. The PPI courses have influenced teaching in 25 departments in 23 universities or colleges in 8 countries (Austria, China, Kenya, Nepal, Pakistan, South Africa, Uganda and USA). The majority of these courses did not exist or did not include applied ethnobotany in their curriculum before the influence of PPI.

PPI mentors and all have been praised through both questionnaire responses and the interviews, especially Tony Cunningham, Robert Höft, Yildiz Aumeeruddy-Thomas and Alan Hamilton. They have obviously made a significant contribution to teaching and capacity building within PPI. The short courses given by Gary Martin in the earlier phases of the project were also picked out as popular, successful and useful.

My principal recommendation in this area is that a continuing effort be made to stimulate and encourage this network of young ethnobotanists that have emerged through the capacity building side of PPI. It is to be hoped that PP International fosters these individuals.

NGOs established or influenced by PPI

Part of the capacity of building role of PPI in the countries where it has worked, has been to encourage the establishment of NGOs in ethnobotany. When PPI started in 1992 there were no ethnobotanical societies in any of the countries where it has operated. Between 1996 and the present several have been established. PPI has been instrumental in the formation of ethnobotanical societies for China, Kenya, Nepal, Pakistan, Tanzania and Uganda and Zimbabwe, for an ethno-

botanical network for Africa, and for the Himalayan Amchi Association, see Table 1 on page 5. Prior to PPI these organisations did not exist and they are now playing important roles in their respective countries.

This is an important aspect of PPI because it will help continuity of applied ethnobotanical work after the life of PPI. It is also important for the networking that is occurring through these fledgling societies.

Conclusion

The concept of maintaining some continuity from PPI is essential since so many of the initiatives created by PPI are still very young and will need encouragement for some years to come. The formation of the new NGO PPIInternational to continue the stimulation of applied ethnobotany is an excellent idea. The basic team that has been gathered to form the initial board of PPIInternational consists of some of the stars of applied ethnobotany. PPIInternational should spread the lessons learned from PPI and provide a knowledge network for the community based approach to conservation. The young NGOs listed in Table 1 will need further stimulation to make them more central to conservation in their countries and to include them in a wider network. PPIInternational has considerable opportunity and potential for involvement with the Convention on Biological Diversity (CBD) to develop the area of plant resources for human livelihoods and for the development of the Global Strategy for Plant Conservation.

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PUBLICATIONS, VIDEOS AND WEBSITE

People and Plants produces a wide range of publications, at a variety of levels, with the aim of spreading information and knowledge of our projects and achievements as widely as possible.

People and Plants Conservation Series

This series of handy books is designed to provide practical guidelines for those involved in conservation and community development. The individual titles treat a range of issues, approaches and methods, and together they are useful for guiding work relevant to the Convention on Biological Diversity. The emphasis is very much on the reconciliation of conservation with the needs and traditions of local people. So far seven books have been published in the series, with another two in press (one about the international woodcarving trade, and one about writing floras). The final book from the People and Plants programme will be an introduction to plant conservation. People and Plants International intends to continue the series in the future.

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ETHNOBOTANY: A METHODS MANUAL

Gary J. Martin; 1995.
Original publisher: Chapman & Hall. Re-issued by Earthscan, 2004
Editions: English, Bahasa (Malaysia), Chinese and Spanish.

Contents: data collection and hypothesis testing; botany; ethnopharmacology and related fields; anthropology; ecology; economics; linguistics; ethnobotany; conservation and community development; references; further reading; index.
This manual has proved extremely useful for stimulating work in ethnobotany, with much interest expressed by a wide-ranging audience. The Bahasa and Chinese manuals have been strategically distributed by WWF-Malaysia and the WWF Programme Office for China, as well as by Professor Pei Shengji of the Kunming Institute of Botany.

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PLANT INVADERS: THE THREAT TO NATURAL ECOSYSTEMS

Quentin C.B. Cronk and Janice L. Fuller; 1995.
Original publisher: Chapman & Hall. Re-issued by Earthscan, 2001.

Editions: English, Spanish.
Contents: the nature of plant invasion; how invasion occurs; action against invasive plants; case-studies of some important invasive species; representative invasive species; appendices; glossary; references; index.

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BOTANICAL DATABASES FOR CONSERVATION AND DEVELOPMENT

Michael Berjak and Jeremy Grimsdell; 1999.
Publisher: WWF.
Editions: English.

This large-format publication is an introduction to the use of databases in botanical projects. The material is presented in an uncomplicated manner, and very little previous knowledge is assumed from the reader - either about databases or about computers. The book is aimed at botanists who have little direct experience of databases but understand that they may of use in their work. A demonstration diskette is included, providing an introduction to operating a database package. This has been designed to illustrate the main principles of all the main database operations. Available from WWF, and downloadable from the People and Plants website.

PEOPLE, PLANTS AND PROTECTED AREAS: A GUIDE TO *IN SITU* MANAGEMENT

John Tuxill and Gary Paul Nabhan; 1998.
Original publisher: Stanley Thornes. Re-issued by Earthscan, 2001.
Editions: English, Chinese, Spanish.

Contents: why conserve plant resources *in situ*?; *in situ* plant conservation: who is involved?; working with local communities; setting priorities and planning for management; monitoring and evaluating plant resource management; traditional agriculture and plant conservation; further reading; a model for quantifying the threat of genetic erosion; schematic background for collecting background information on crop varieties; references; index.

This practical and multidisciplinary book facilitates better management of protected areas, and illustrates new approaches to conservation of plants within their natural habitats. It highlights the collaboration necessary between the conservation professionals and local communities involved, and focuses on how to set priorities and plan for monitoring and evaluation of plant resource management. Gary Nabhan and John Tuxill were recently awarded the 2004 Conservation Award of the Association of Zoological Horticulture, for authoring People, Plants, and Protected Areas.

APPLIED ETHNOBOTANY: PEOPLE, WILD PLANT USE AND CONSERVATION

Anthony B. Cunningham; 2001.
Publisher: Earthscan.
Editions: English, Chinese, Spanish.

Contents: conservation and context: different times, different views; local inventories, values and quantities of harvested resources; settlement, commercialisation and change; measuring individual plants and assessing harvesting impacts; opportunities and constraints on sustainable harvest: plant populations; landscapes and ecosystems: patterns, processes and plant use; conservation behaviour, boundaries and beliefs; striving for balance: looking outward and inward; acronyms and abbreviations; further reading; references; index.

Wild or non-cultivated plants are crucial to the lives of a large portion of the world's population, providing low-cost building materials, fuel, food supplements, medicines, tools and sources of income. Despite their importance, their vulnerability to harvesting and other social impacts is not well understood. This is the first practical guide to be published on how to manage wild plants sustainably.

UNCOVERING THE HIDDEN HARVEST: VALUATION METHODS FOR WOODLAND AND FOREST RESOURCES

Bruce M. Campbell and Martin K. Luckert (eds); 2002.
Publisher: Earthscan.
Editions: English

Contents: towards understanding the role of forests in rural livelihoods; quantitative methods for estimating the economic value of resource use to rural households; understanding local and regional markets for forest products; an introduction to approaches and issues for measuring non-market values in developing economies; economic decision-making frameworks for considering resource values: procedures, perils and promise; participatory methods for exploring livelihood values derived from forests: potential and limitations; searching for synthesis: integrating economic perspectives with those from other disciplines; expanding our conceptual and methodological understanding of the role of trees and forests in rural livelihoods; acronyms and abbreviations; references; index.

This manual is about the economics of plant resources, based on rural households in developing countries -- a subject of central importance to conservation and development. For conservation of plant resources to succeed, it is essential to understand their importance for local people and their livelihoods. This practical and accessible handbook shows how to do this for a non-technical readership. It describes the diverse products and services provided by forests and woodlands - the hidden harvest - and sets out clearly the range of economic and other approaches to valuing them. From this it explains how better-informed decisions on resource allocation and conservation can be made. With contributions from ecologists, economists and sociologists, reflecting the interdisciplinary nature of successful natural resource management, the manual shows how to untangle the complicated network of benefits from forests, and uses the full portfolio of approaches in valuing them. These include the analysis of household livelihoods and plant-based markets, non-market valuation and decision frameworks such as cost-benefit analysis.

BIODIVERSITY AND TRADITIONAL KNOWLEDGE: EQUITABLE PARTNERSHIPS IN PRACTICE

Sarah A. Laird (ed); 2002.
Publisher: Earthscan.

Contents: Section I: Biodiversity research relationships. Section II: Biodiversity research and prospecting in protected areas. Section III: Community relationships with researchers. Section IV: The commercial use of biodiversity and traditional knowledge. Section V: National policy context. Section VI: Conclusions and recommendations. Directory of useful contacts and resources; contact information; acronyms and abbreviations; glossary; references; index.

Biodiversity research and prospecting are long-standing activities taking place in a new legal and ethical environment. Following entry into force of the Convention on Biological Diversity in 1993, and other recent policy developments, expectations and obligations for research and prospecting partnerships have changed. However, to date there are few guides to integrating these concepts with practice.

This book provides practical guidance on how to arrive at equitable biodiversity research and prospecting partnerships. Drawing on experience and lessons learned from around the world, it provides practical case studies, analysis and recommendations in a range of areas that together form a new framework for creating equity in these partnerships. They include researcher codes of ethics, institutional policies, community research agreements, the design of more effective commercial partnerships and biodiversity prospecting contracts, the drafting and implementation of national "access and benefit-sharing" laws, and institutional tools to distribute financial benefits.

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TAPPING THE GREEN MARKET: MANAGEMENT AND CERTIFICATION OF NON-TIMBER FOREST PRODUCTS

Patricia Shanley, Alan R. Pierce, Sarah A. Laird and Abraham Guillén (eds); 2002.
Publisher: Earthscan.

Contents: introduction; the rise of certification, the current state of NTFP certification programs and future prospects; the process of drafting and revising guidelines for NTFP certification; field testing results in Mexico, Bolivia and Brazil; NTFP species profiles from around the world; the core elements of NTFP certification; conclusions and recommendations; appendix 1: generic guidelines for assessing the management of non-timber forest products; appendix 2: species-specific NTFP certification guidelines for production of maple syrup; appendix 3: list of acronyms used; appendix 4: resource directory; references; index.

There is rapidly-growing interest in, and demand for, non-timber forest products (NTFPs); they provide critical resources across the globe, fulfilling nutritional, medicinal, financial and cultural needs. This book explains the use and importance of certification and eco-labelling for guaranteeing best management practices of NTFPs in the field.

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WORKING PAPERS

The People and Plants Working Papers form an occasional series, and are published by UNESCO and WWF-UK. They provide information on specific ethnobotanical case-studies, mostly relating to fieldwork projects undertaken by People and Plants researchers. Such case-studies can be of great value for those working at sites with similar issues, or on the same themes at other places. Information is provided in some depth, to demonstrate the level of detail that is often necessary in finding practical solutions in plant conservation. Each paper is designed to provide information and to generate fruitful discussion on key issues in the sustainable and equitable use of plant resources. They may be downloaded from the website.

The Working Papers have been very well received and extensively used by conservationists, lecturers and natural resource managers in developing countries. They are distributed to about 4,000 people on the People and Plants mailing list. All Working Papers are published in English and some also in other languages (French, Spanish).

1 African medicinal plants - setting priorities at the interface between conservation and primary health care

Cunningham, A. B.; 1993

English, Spanish

Contents:

Introduction

Medicinal plant use in Africa

Policy priorities for conservation and primary health care

Conclusions

References

Appendix 1: African medicinal plants observed in trade

Appendix 2: Plant species mentioned in text

Sustainable management of traditional medicinal plant resources is important, not only because of their value as a potential source of new drugs, but due to reliance on traditional medicinal plants for health. The vast majority (70-80%) of people in Africa consult traditional medical practitioners (TMPs) for health care. With few exceptions, traditional medicinal plants are gathered from the wild.

Although reliance on TMPs may decline in the long term as alternative health-care facilities become available, increasing demand for popular herbal medicines is expected in the foreseeable future. Over the same period, certain vegetation types that were sources of supply of traditional medicines will drastically decline, due to forest clearance for agriculture, afforestation of montane grasslands, uncontrolled burning and livestock grazing. Exclusion from core conservation areas adversely affects TMPs who previously gathered medicinal plants in those sites. In addition, supplies of herbal medicines to TMPs are affected by competing resource uses such as timber logging, commercial harvesting for export and extraction of pharmaceuticals, and use for building materials and fuel. This creates a growing demand for fewer resources, in some cases resulting in local disappearance of favoured and effective sources of traditional medicine, and reduced species diversity.



2 Sustainability of harvesting *Prunus africana* bark in Cameroon - a medicinal plant in international trade

Cunningham, A. B. and Mbenkum, F. T.; 1993

English

Contents:

Introduction

Geographical distribution and values of *Prunus africana*

Prunus africana and medicinal plant trade from Cameroon

Forest conservation and harvesting bark from the wild

Alternatives to bark harvesting from wild populations

Conclusion

Recommendations

References

The Afromontane hardwood tree *Prunus africana* (Rosaceae; African Cherry, Red Stinkwood) is a multiple-use tree species with local and international economic and medicinal value. Bark is the major source of an extract used to treat benign prostatic hyperplasia, an increasingly common health problem in older men. All bark is taken from wild *Prunus africana* populations in Afromontane forests of Cameroon, Zaire, Kenya and Madagascar. *Prunus africana* has a remarkable ability to withstand bark removal. Despite attempts at sustainable bark harvesting from wild populations however, tree die-offs and felling of trees are frequent in high conservation priority sites. This occurs in Afromontane forest "islands" surrounded by savanna that provide habitat for important endemic birds, mammals and plants in both Madagascar and Africa. *Prunus africana* is an important fruit-bearing tree in Afromontane forest, providing a food source for endemic birds such as Bannerman's Turaco and Cameroon Mountain Greenbul, and endemic primates such as Preuss's Guenon. Research in Malaysian rain forests has shown that selective logging for hardwood timber results in reduced numbers and carrying capacity for fruit-eating birds such as hornbills. Destructive harvesting of *Prunus africana* may have a similar effect in Afromontane forest. This is made more serious by the limited area this forest type covers in Africa and Madagascar. An initial assessment is made of cultivation as an alternative source of supply and recommendations for practical action to promote the sustainable use of *Prunus africana* bark are given.



3 Local representations and management of agroforests on the periphery of Kerinci Seblat National Park, Sumatra, Indonesia

Aumeeruddy, Y.; 1994

English, French, Spanish

Contents:

Introduction

General presentation of Kerinci

Conservation of the environment seen through the prism of local representations

The bases and dynamics of agroforestry systems in Kerinci

Dynamics of agroforestry at Kerinci

Conclusions

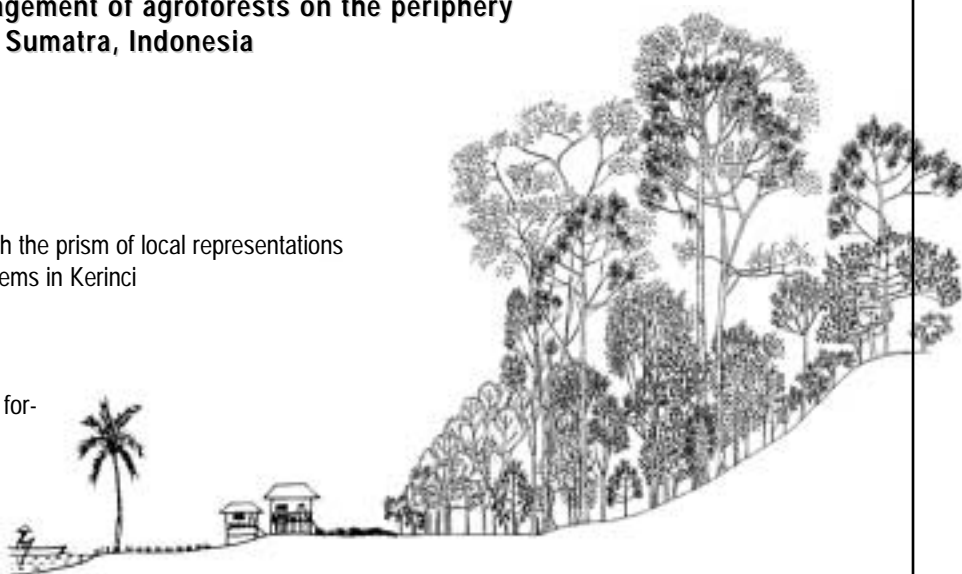
References

Appendices: useful plants in Temedak village forest, Keluru; plants of pelak agroforests in Jujun and Keleru; examples of the diversity of Rutaceae and Zingiberaceae used in Kerinci.

The zones surrounding parks and forest

reserves are the sites of many conflicts between con-

servation managers and local populations. Although economic compensation may have been envisaged in the form of development projects, management of these peripheral zones encounters the problem of divergence between conservation managers and village communities in their perceptions, modes of representation and systems of appropriating resources. The work presented in this paper examines these divergences in Kerinci, an agrarian valley with approximately 300,000 inhabitants that is encircled by Kerinci Seblat National Park, a protected area of some 15,000 km² in Sumatra, Indonesia. As the conservation authorities intend to develop agroforestry to limit pressure on the park, agroforestry dynamics were examined from the perspective of the modes of representation, appropriation and exploitation of resources in Kerinci society. An historical overview of the evolution of the agricultural landscape from the beginning of this century shows the impact on the agricultural landscape of the development of export crops, particularly cinnamon (*Cinnamomum burmani*).



4 People, park and plant use - recommendations for multiple-use zones and development alternatives around Bwindi Impenetrable National Park, Uganda

Cunningham, A. B.; 1996

English, French

Contents:

Introduction

Bwindi Impenetrable Forest: conservation importance and vegetation change

Creating guidelines for multiple-use zones

Results and recommendations

New natural products with commercial potential

References

Acronyms

Appendix: plant list

In the large, forested areas of the Zaire and Amazon basins, human densities are low, and disturbance by 'forest peoples' creates rather than reduces diversity, forming a mosaic of vegetation types at different stages of recovery after disturbance. Afromontane forests are at the opposite extreme. Situated in one of the most densely populated areas of Uganda, the remaining forests formerly occupied by the Batwa have become the focus for harvesting of plant resources by the farmers who cleared them. They have also become the subject of national and international conservation efforts.

Afromontane forests in western Uganda, and Bwindi Impenetrable Forest in particular, are now fragmented islands, surrounded by rural farmlands. Under these circumstances, sustainable forest management differs greatly from the use of low species diversity, highly productive reedbeds or thatch-grassland, where harvesting is seasonal, obvious and easy to manage. Recovery from harvesting in productive annual systems is also short, due to annual production of above-ground biomass. Instead of the short rotation applied in reed cutting, sustainable harvesting of forest for timber is usually aimed at rotation times of 50-200 years.

This report focuses on resource use and management issues relating to wild plants and multiple-use zoning in Bwindi Impenetrable National Park. Foresters usually group products into two categories for forest management purposes: major forest products (such as timber, fuel-wood or other wooden products), and minor forest products (all non-wooden products). The results and recommendations of this report are presented first for the latter category, involving mainly specialist users of non-wood products, including wild plant resources, honey, basketry and bamboo use. The various uses of wood, the major forest products, (e.g. blacksmiths, carved wooden handcrafts, beer boats, building poles, bean stakes) are then considered.



5 Conservation through community use of plant resources - establishing collaborative management at Bwindi Impenetrable and Mgahinga Gorilla National Parks, Uganda

Wild, R.G. and Mutebi, J.; 1996

English, French

Contents:

Introduction

History of resource use and conservation in Bwindi Impenetrable and Mgahinga Gorilla National Parks

The collaborative management process at Bwindi Impenetrable National Park

The potential of collaborative resource management in Uganda

Conclusion

References

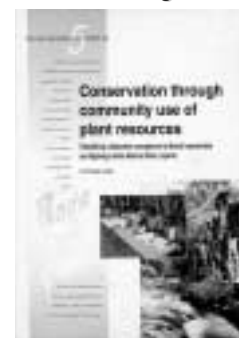
List of acronyms

Since 1988, the Development-Through-Conservation (DTC) project undertaken by CARE International in collaboration with government institutions, local communities, other NGOs and donors has been attempting to reconcile local needs with forest conservation at Bwindi Impenetrable and Mgahinga Forests, which were declared National Parks in 1991 after previous protection as Forest Reserve and Animal Sanctuary, respectively. These two parks are Afromontane forest blocks, remnants of a forest which once extended over much of south-west Uganda and into Rwanda and Zaire. There is an acute need for forest resources among the dense human populations surrounding the parks (200-400 people per km²) and virtually no forest now remains outside the park boundaries.

In 1992 at Bwindi, staff from the park and the DTC project with residents of three of the civil parishes adjoining the park embarked on a pilot process of planning and evaluating resource use. This process has resulted in written agreements being signed for collaborative management of forest resources. At Mgahinga Gorilla National Park, this process began in 1993.

Crucial to the process of collaborative management are community organisations which have the confidence of local people, such as the abataka (citizen's group), the engozi (stretcher groups) and the local Resistance Councils (RCs) as well as the knowledge of local resource-users such as herbalists, basketmakers and beekeepers.

In working with communities, tools were drawn and adapted from Participatory Rural Appraisal and Logical Framework Analysis. A system for rapid assessment of the vulnerability of useful species was tested, which combines social and biological data drawn from scientific literature and the knowledge of local resource-users and ecological principles, in order to identify species where the margin between sustainable use and over-exploitation is narrow.



6 Quantitative Ethnobotany - applications of multivariate and statistical analyses in ethnobotany

Höft, M., Barik, S. K. and Lykke, A. M.; 1999

English

Contents:

Introduction

Classification and ordination techniques

Applications of cluster and principal component analysis

Comparisons of several means

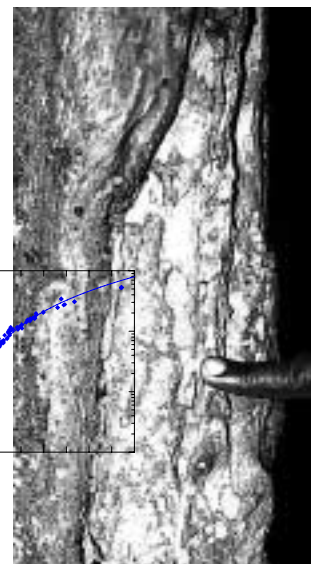
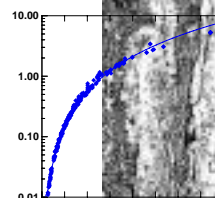
Applications of general linear models

References

Appendix

Some wild plant resources are severely threatened by habitat loss and species-selective overexploitation. In addition, indigenous knowledge about the uses of wild plant resources is rapidly disappearing from traditional communities. In the context of conservation and sustainable and equitable use of wild plant resources, quantitative ethnobotany can contribute to the scientific base for management decisions.

In the past, most ethnobotanical studies have recorded vernacular names and uses of plant species, with little emphasis on quantitative studies. In this working paper, a selection of multivariate and statistical methods particularly applicable to the analysis of ethnobotanical field data is presented. The working paper aims at assisting researchers and students to recognise the appropriate method to analyse their data and to develop management recommendations from scientifically sound conclusions. The techniques presented include cluster and principal component analysis, regression analysis, analysis of variance, and log-linear modelling. Multivariate and statistical analysis requires computerised statistics and graphics programs. Basic technical knowledge to use such tools as well as basic understanding of statistical terms are important requirements to get most benefit from this publication.



7 Joint Management in the Making - reflections and experiences

Aumeeruddy-Thomas, Y., Saigal, S., Kapoor, N. and Cunningham, A. B.; 1999

English

Contents:

Introduction

Major issues in Joint Management

Methodologies and approaches

Examples of joint management systems

Conclusion

Annotated bibliography

Subject index

List of institutions and addresses

As human needs and numbers increase, so do land-use conflicts at the interface between local communities and protected areas. Such conflicts are common, and practical examples of successful conflict resolution are rare - particularly where human population densities are high. One of the most extensively implemented success stories under extremely difficult circumstances of conflict between state (forest) departments and local communities has been participatory planning processes for Joint Forest Management (JFM) in India. Methods developed for participatory planning processes for JFM in India have been well publicised in the past four years, influencing field workers in Africa and Latin America. Conversely, field workers outside India have developed methods not yet used in India that could be of use there, and have received less media attention.

This working paper is not meant to be a fixed blueprint for joint management of forests, but rather seeks to identify trends, concerns and methods, and initiate further discussion and contributions on this subject. The annotated bibliographical references are included to give the reader an extensive view of the diversity of experiences in these different fields of activity. Some references included in the text are not in the annotated bibliography which is far from being exhaustive and also because some major references became available only after the work on the annotated bibliography was completed.



8 Ethnobotany of the Loita Maasai: towards community management of the Forest of the Lost Child; experiences from the Loita ethnobotany project

Maundu, P., Berger, D., Saitabau, C. ole, Nasieku, J., Kipelian, M., Mathenge, S., Morimoto, Y., Höft, R.; 2001

English

Contents:

Introduction

The Maasai: an overview

The Loita Maasai

Plant inventory and uses

Conservation and tourism potential

Recommendations for future research and management

References

Appendix: Plants of Loita arranged in families

The Loita Ethnobotany Project was initiated in 1995 to enable the Loita community to develop a locally directed management plan for Loita Forest. The project followed the registration in 1994 of the Loita Naimina Enkiyio Conservation Trust whose objective was to protect and manage the forest heritage held as trust land by the Narok County Council.

Within about 30 months, the Project trained about 15 young local participants on research and resource monitoring techniques; raised awareness among the local population of the dangers faced by the forest and some plant resources; collected and identified the most common plants of Loita; established a local herbarium; documented the uses of over 250 species of plants; identified species locally endangered by overexploitation; and contributed to the development of a proposal to prepare a management plan for Loita Forest.



9 Projek Etnobotani Kinabalu: the making of a Dusun ethnoflora (Sabah, Malaysia)

Martin, G. J., Lee Agama, A., Beaman, J. H. and Nais, J.; 2002

English

Contents:

Introduction

Floristic and ethnobotanical projects at Mount Kinabalu

Productivity of community-based botanical inventories

The making of a Dusun Ethnoflora

The palms of Mount Kinabalu (Sabah, Malaysia)

Ethnobiological inventories, biodiversity loss and erosion of local knowledge

References

Mount Kinabalu, famous among botanists for its remarkable floristic richness and high level of plant endemism, is located in the Malaysian state of Sabah in northern Borneo. It is one of 234 sites designated as primary centres of plant diversity in the world (Davis *et al.* 1995). Centrally located in the Flora Malesiana region, it rises to 4,094 m above sea level, and is the highest mountain between the Himalayas and New Guinea. It is the centerpiece of Kinabalu Park, a 753 km² protected area created in 1964, renamed as a State Park in 1984 and designated a World Heritage Site in 2000.

This working paper provides some of the results of a community-based inventory of useful plants carried out from 1992-1998 that was at the heart of the Projek Etnobotani Kinabalu, an ethnobotanical research and training project at Mount Kinabalu. Over this period of six years, seventeen local collectors from nine communities (or kampungs) made more than 9,000 uniquely numbered plant collections at more than 500 sites around Kinabalu Park, and recorded ethnobotanical data from fellow villagers. The community participants obtained specimens from a broad range of natural and anthropogenic vegetation types around their communities.



10 An economic evaluation of medicinal tree cultivation: *Prunus africana* in Cameroon

Cunningham, A. B., Ayuk, E., Franzel, S., Duguma, B. and Asanga, C.; 2002

English

Contents:

Introduction

Methodology

Results

Diminishing wild stocks

Domestication of *Prunus africana*

Conclusions and recommendations

Wild populations of *Prunus africana* are currently the sole source of bark and bark extract exported from Africa and Madagascar to Europe. Bark exploitation has caused serious damage to wild populations, including trees inside forests of high conservation value. This working paper reports the results of an economic feasibility study, investigating different planting systems for *Prunus africana* cultivation. Results of a comparison between the flow of costs and benefits from small-scale production of *Prunus africana* and *Eucalyptus camaldulensis* show that *Eucalyptus* cultivation is 30% more profitable than *Prunus* production. However, because of the high value of *Prunus africana* as an ingredient in many local medicinal treatments, its use in making tools, its value for poles and firewood, and the fact that crop yield is much less affected by the presence of *Prunus* trees in the fields, than by the presence of *Eucalyptus*, farmers might rather invest in the cultivation of *Prunus africana*.

Recommendations are made regarding clarification of Cameroonian forestry law, provision of relevant information to farmers and the initiation of an out-grower scheme involving the the pharmaceutical company that buys the bark.



11 The purposes and teaching of Applied Ethnobotany

A.C.Hamilton, Pei Shengji, J. Kessy, Ashiq A. Khan, S. Lagos-Witte & Z.K. Shinwari; 2003

English

Contents:

Rationale and methodology

Ethnobotany: scope and status

Relevance of applied ethnobotany to botany, forestry, agriculture and medicine

Courses and programmes in applied ethnobotany

Core competences and their acquisition

Possible topics to cover in courses and programmes in applied ethnobotany

Short professional courses

Acknowledgements

References

Appendices

This paper aims to provide recommendations for the teaching of Applied Ethnobotany - which is Ethnobotany applied to conservation and sustainable development. Ethnobotany is being increasingly recognised as an important subject, but has several weaknesses, including often a lack of rigour in its teaching.

Several matters which developers of courses or programmes should consider are discussed. These include the challenges posed by interdisciplinarity, possible types of courses and programmes (including lengths and levels), institutional contexts, enrolment requirements, staffing, and material resources. The three types of courses and programmes which seem to be most generally useful are: (1) introductory courses within undergraduate programmes (which might be in Agriculture, Anthropology, Botany, Forestry, Medicine, or indeed other subjects); (2) 2-year MSc programmes (half taught classes: half individual research), leading to professional-level ability; and (3) short professional courses of 5 days to 3 months duration, often focusing on specific well-defined topics.

The core competencies required of applied ethnobotanists are considered, along with how they may be acquired. So far as knowledge is concerned, suggestions are made for compulsory and optional topics to be covered in programmes, as well as some suggestions about their detailed content. Methods of acquiring practical skills are discussed, as well as the importance of adopting attitudes and behaviour appropriate to the profession. A list of People and Plants publications is included, with a guide to where descriptions of particular topics, including methods, can be found within them.



12 Applied Ethnobotany: case-studies from the Himalayan region

Yildiz Aumeeruddy-Thomas and Pei Shengji; 2003

English

Contents:

Introduction

Part 1: Resource management in the Himalayas: case-studies compiled and lessons learned

Part 2: Medicinal plant management: case-studies compiled and lessons learned

General discussion

References

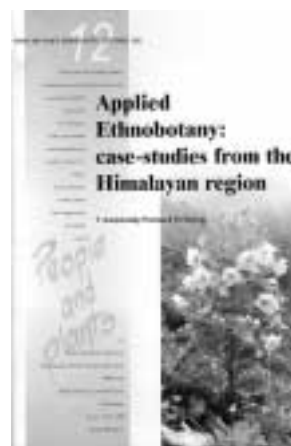
Annex

This working paper is a compilation of case-studies undertaken under the People and Plants UNESCO-ICIMOD Hindu Kush Himalaya project, the major aim of which was to launch applied ethnobotany in the Himalayan region, to encourage the sustainable management of plant resources.

It is important to emphasize that ethnobotany has an especially important role to play in the development of mountainous areas such as the Himalayas. People in rural Himalayan societies are highly dependent on natural resource use, due to isolation, and relatively poor access to arable lands. Over time, they have developed knowledge about the utilization of diverse biological resources. They also possess substantial information regarding soils, climates, vegetation types, stages of ecological succession, land use, etc., and in many cases have developed mechanisms or techniques for maintaining biological diversity. Although they live in remote areas, they also have much 'external knowledge' of the ways and habits of neighbouring societies with which they have interacted for trade or for political and cultural reasons over centuries.

Traditional knowledge systems are hundreds or even thousands of years old, and are still evolving. They involve not only the knowledge of plants for medicine and food, but also include strategies of protection for the utilization of plant resources as well as management systems. In this respect, ethnobotany will play an important role in the future in documenting and describing traditional knowledge about medicinal and edible plants, and their uses in different ecological zones and human Himalayan societies as well as at the global level.

This paper aims to show how applied ethnobotany may lead to a better understanding of resource management in this region.



13 Ethnobotany and the management of fodder and fuelwood at Ayubia National Park, North Western Frontier Province, Pakistan

Yildiz Aumeeruddy-Thomas, Zabta K. Shinmari, Abdullah Ayaz and Ashiq Ahmad Khan; 2004

English

Contents:

Part 1: Applied research activities

Introduction

Ayubia National Park

An interdisciplinary team approach

Ethnobotanical approaches and methods

Part 2: Implementation approaches in practice

Social forestry activities

Part 3: Environmental education

Conclusion and discussion

References

Acknowledgements

Acronyms and abbreviations

Fodder and fuelwood are two of the most important livelihood resources for mountainous regions, including in the Himalayas. There is a high level of dependency on natural resources such as medicinal plants for healthcare, fuelwood, and fodder for rearing livestock. This paper portrays a case of deforestation in the Himalayan mid-hills of northern Pakistan, with special reference to fodder and fuelwood management.



PEOPLE AND PLANTS HANDBOOKS

The People and Plants Handbook was initiated in January 1996 to provide a handy source of information on ethnobotany, conservation and development, and to enable ethnobotanists and others in developing countries to be in touch with one another and with a wider global network.

Specifically, the objectives of the Handbook are to: (1) promote ethnobotany applied to conservation and development through the dissemination of information on specific themes to ethnobotanists, especially in developing countries; (2) enable such ethnobotanists to be better in touch with one another and with useful institutions worldwide.

English versions of issues of the Handbook are currently sent to about 4,000 colleagues and institutions in over 80 countries, and Spanish versions (*Cuadernos de Pueblos y Plantas*) to some 1,500 colleagues and institutions, principally in Latin America and Spain. The first five issues in English are now out of print, but are available at People and Plants Online.

The Handbook is maintained in the third phase of the People and Plants Initiative, but is changing from a 'thematic' to a 'best practices' focus, reflecting news of People and Plants activities.

Issue 1. Keeping in touch: journals, networks, newsletters, organisations and professional societies

Gary J. Martin and Alison L. Hoare, editors. January 1996.

English and Spanish

This first issue is a general introduction to sources of information - international programmes, professional societies, networks, resource centres, journals and newsletters - which may not be known to everyone.

Issue 2. Protecting rights: legal and ethical implications of ethnobiology

Gary J. Martin, Alison L. Hoare and Darrell A. Posey, editors. July 1996.

English and Spanish

How can we ensure that our work will benefit the causes we have targeted, while avoiding appropriation of results for unintended purposes not in the interest of local people and long-term management of resources? This issue seeks to provide answers by putting the reader in touch with the many international programs, national organizations, working groups and other sources which can help tackle these complex questions.

Issue 3. Returning results: community and environmental education

Gary J. Martin, Alison L. Hoare, editors. March 1997.

English and Spanish

This issue deals with the topic of what do with the results of ethnobotanical studies. Should they be returned in the form of pamphlets, posters and guidebooks, or should we rely on new and old forms of communication that stimulate continued oral transmission?

Issue 4. Measuring diversity: methods of assessing biological resources and local knowledge

Gary J. Martin, Alison L. Hoare and Agnes Lee Agama, editors. December 1998.

English and Spanish

Dedicated to methods and tools for assessing biological resources, this issue looks at the theme of using all of the senses common to humanity to assess biological resources. These senses are reflected not only in the ways that local people identify plants, but also in how they name them.



Issue 5. Cultivating trees

Gary J. Martin, Agnes Lee Agama and Roger Leakey, editors. June 1999.
English and Spanish

The inclusion of trees within farmland has been a tradition going back through the ages. Ethnobotanical knowledge is therefore at the very heart of agroforestry, something we have only realized recently in developing agroforestry as a modern science. Ethnobotany has a part to play in the development of very new opportunities for the implementation of more socially- and environmentally-friendly land-use systems. These can go a long way towards the alleviation of poverty in both rural and urban populations of tropical and sub-tropical countries, by enhancing the quality and productivity of marketable tree products. At the same time, it is anticipated that agroforests will mitigate against land degradation through the integration of trees into agroecosystems that can mature as a climax vegetation.



Issue 6. Managing Resources

Gary J. Martin, Sasha Barrow, Anthony B. Cunningham and Patricia Shanley, editors.
May 2001
English and Spanish

It is widely recognized today that the future of most conservation areas largely depends on the support of the surrounding local communities. As a result, there is added emphasis on sustainable resource use and a broader approach involving land-users in bioregional management at an ecosystem level. Good management requires wide social acceptance of management plans and regulations. Achieving this in turn requires an understanding of the social, economic, ethical, religious and political factors that either encourage resource conservation or lead to resource depletion.



Issue 7. Growing Diversity

Gary J. Martin, Sasha Barrow and Pablo B. Eyzaguirre, editors. September 2001
English and Spanish

Over time, humankind has used more than 7,000 edible plant species, but now only about 150 crops are commercialized on a significant global scale and world food security is increasingly dependent upon just a handful of crops. Narrowing the base of global food security limits livelihood options for the rural poor, particularly in marginal areas. The focus of research and development must broaden to include a wider range of crop species and varieties, and it is here that ethnobotany has an important role to play.



Issue 8. News from People and Plants

Martin Walters, editor. 2002

This issue summarizes the work of People and Plants, detailing some of its aims, achievements and aspirations, including reports of field projects from around the world. It also sets out the information generated by the initiative and published in various formats and languages.

Issue 9. The People and Plants legacy

Martin Walters, editor. 2004

The theme of this current issue is the identification and promotion of more effective practices in applied ethnobotany. It summarizes some of the achievements of People and Plants as it draws to a close, and presents some of the findings of the recent evaluation process. It also points towards ways in which the results of our work will continue to have an influence in the future, partly through the work of People and Plants International.

VIDEOS

The People and Plants Initiative has produced low-budget videos as a training and awareness-raising tool to supplement its books and other publications, and we believe that they demonstrate the value of applied ethnobotany to a much wider audience. They also enable young developing country researchers (rather than expatriate researchers) to "talk" through the video medium to foresters, protected area managers, resource users or other young researchers in similar circumstances. These training videos are produced at 6-10 times lower cost than those by a professional company, with better control to ensure factual content, and they can introduce people to written material (manuals, key publications) by suggesting extra reading at the end of the video. Finally, the use of video to show applied ethnobotanical projects reaches many more people than publications, so forms a useful tool in influencing people's opinions of issues.

Video production is versatile, enabling original footage to be re-edited for a different audience. One example is the 10-minute video "Carvers, Conservation and Consumers". This was edited into a shorter form for a different audience from the training video "Saving the wooden rhin" which illustrates methods for studying woodcarving markets. "Carvers, Conservation and Consumers" is being used by the "Ten thousand villages programme" at their retail outlets in the USA and Canada as well as to raise tourist awareness of about carvings and conservation by Kenya Airways and at hotels in Mombasa, Malindi and Nairobi.

People, Gorillas and Forests: ethnobotanical methods and multiple-use management in Uganda

Duration: 27 minutes

Theme: This video describes steps towards involvement of communities in the management system of Bwindi Impenetrable National Park. To an extent, conflict is inherent in any conservation programme based on protected areas, particularly where the short-term sacrifices towards the long-term goals of conservation are expected to be paid by local people, rather than being more evenly spread regionally or internationally. Integrated Conservation and Development Areas (ICDPs) are an experimental approach to resolving some of these conflicts, and an integrated approach is being applied at Bwindi-Impenetrable National Park in Uganda. In this case, the concept of multiple-use zones in protected areas has been supported. These are zones where local community members have the opportunity to responsibly use selected resources, such as collect medicinal plants, species used for basketry and to practice beekeeping under stipulated rules. The video illustrates the process whereby multiple-use arrangements were worked out carefully and collaboratively, based on an awareness of priorities for both conservation and communities, and monitoring methods used by P&P supported researchers.

Saving the Wooden Rhino: ethnobotanical methods and Kenya's woodcarving industry

Duration: 25 minutes

Theme: The largest value and volume of African carvings in international trade comes from Kenya, and the bulk of these carvings are exported to North America, primarily to the USA. This video illustrates methods used to assess the history and the impact of the carved wood trade and why there is a need for responsible sourcing of woodcarvings. It illustrates the history of the Kenyan woodcarving industry from two perspectives. On one hand, the Kenyan woodcarving industry as an incredible rural development success, on the other, as a major ecological problem. The video illustrates methods used in a series of research projects funded by the People and Plants Initiative, supporting researchers at the National Museums of Kenya (NMK), East African Wildlife Society (EAWLS) and Kenya Forestry Research Institute (KEFRI). It ends by introducing the concept of certification and the common interest carvers should have in a sustainable future of carved wood use - for no wood means no work. This video has been very versatile in its use, having been seen for example by woodcarvers at Wamunyu (Kenya), 200 woodcarvers in the Masvingo area, Zimbabwe and 200 woodcarving retailers at Nanyuki (Kenya). It has also been shown twice on Kenyan national television (to several million people) as well as being used by at least five African universities.

Carvers, Conservation and Consumers: three ways to save Kenya's woodcarving industry

Duration: 10 minutes

Theme: This is a popular production describing the threats to the sustainability of the hardwood carving industry in Kenya, and the steps being taken to improve the situation. All over the world - and particularly in Europe, North America and Japan, there are thousands of shops selling beautiful wooden carvings: wooden zebras, elephants and leopards charm the customers who buy them. Very few of the carving importers, shop-owners or the many people buying these carvings realize the ecological impact of this trade. The message of this video is "choose carvings carefully". The 'ecological footprint' of the wooden rhino can be a very heavy one, not only for forest habitat or rare East African wildlife, but ultimately for the woodcarvers themselves. By buying carefully and ordering carvings of alternative woods such as neem (*Azadirachta indica*), mango and jacaranda, buyers can make a choice - and a difference.

People and Plants in Practice: conservation through ethnobotanical training

Duration: 25 minutes

Theme: This video shows some of the practical outcomes of the global People and Plants Initiative for field conservation, starting with botanical inventory as one of the most basic, yet most necessary, steps for conservation and resource management. It then illustrates the types of approaches taken in combining training and research on solutions to field conservation problems. It covers People and Plants projects in Africa, Asia and the South Pacific where applied ethnobotanical work takes places in key sites representing eight of the Global 200 priority ecoregions, five of which are

critically endangered. Because the link between people and plants is so fundamental to the conservation of both biological and cultural diversity, it concentrates on the core of our capacity building: training in applied ethnobotany, providing people with inter-disciplinary skills highly relevant to conservation action. The video ends with an answer to the question: what happens when the People and Plants Initiative ends?

Medicinal Plants in the Hidden Land of Dolpo: working with Himalayan healers at Shey Phoksundo National Park, Nepal

Duration: 26 minutes

Theme: Tibetan health-care traditions and their links to landscape and culture are central to the medicinal plants conservation programme supported in Shey Phoksundo National Park in the alpine meadows of the Eastern Himalaya, Nepal. With the cultural perception that the people's health is linked to that of the environment, medicinal plant conservation and health care are closely inter-related in the Dolpo region. In addition, local traditional healers, or amchis, are not only responsible for provision of health care, but also for environmental management, such as the regulation of grazing in alpine pastures. The new challenge being faced is a large-scale commercial trade of medicinal plants from this area of Nepal to India and elsewhere, with at least 40 tonnes of medicinal plants exported from the Shey Phoksundo National Park area in 1996/97. An example given in this video is the reduction of local self-sufficiency in popular and effective herbal medicines such as *Nardostachys grandiflora* and *Picrorhiza scrophulariifolia*. The video shows the work of People and Plants, which since 1997 has been studying systems of management used for medicinal plants by local amchis and investigating how they can be strengthened.

Tree Skin: methods for studying people's use of bark

Duration: 26 minutes

Theme: Billions of people use bark: cork oak bark for fishing floats and wine bottle corks, leather shoes tanned with wattle bark extract, bark for spices, anti-malaria tablets from Cinchona bark, fibre for making mats or low-cost housing, cloth or even high-quality paper - useful, culturally important sources of income. This video, in five sections, is an introduction to methods of studying bark use, emphasising practical field methods, which blend forestry and ethnobotany to link sustainable harvest and people's livelihoods.

Carving a Future: 10 lessons for sustainable woodcarving enterprises

Duration: 24 minutes

Theme: Woodcarving adds more value to wood than the timber industry, and often creates more jobs and income - yet, throughout the world, government Forest Department support to woodcarving enterprises is very limited. Based on research studies carried out over a ten-year period by a range of organisations, this video suggests 10 'wise-practice' lessons which are useful to take into account when commercial carving enterprises are developed.

Videos can be ordered from:

Natural History Book Service Ltd
2-3 Wills Road, Totnes
Devon TQ9 5XN, UK
Tel: +44 1803 865913
Fax: +44 1803 865280
Email: sales@nhbs.co.uk
Website: www.nhbs.com

Video Production

Tony Cunningham

The beauty of digital technology today is that it enables DVDs or videos to be produced quickly, cheaply, but also economically, so that they can be tailored to small audiences. This was the case in July and August 2004. With support from the University of Hawai'i, I spent some time with Kesaia Tabunakawai (Conservation Director, WWF-SPP) and Francis Areki (WWF-Fiji and MSc student registered at USP for a research study of woodcarving) on Kabara, southern Lau province, Fiji.

The objectives of this trip were to visit WWF SPP and the WWF Fiji Country Programme office to discuss progress and outcomes of the WWF/UNESCO People and Plants Initiative funded study on woodcarving, to visit the study site and guide Francis at a stage when he was writing up his thesis. A final objective was to produce a video for WWF SPP that they can use to communicate results of Francis's work and to raise additional funds for continuation of community-based forest conservation on Kabara, which falls within a marine conservation priority area and where forest conservation and maintenance of marine systems are closely linked ecologically and to people's livelihoods.

Developing a community-based forest management plan with *Intsia* as the 'flagship' species is really the only solution in an area far from formal (State) Forest departments and where both land and resources are under customary tenure. One of the problems on Kabara, however, is that the centre of the island is only nominally under communal tenure, and is something of an 'open access' area. This is an issue that is in the process of being resolved. I attended an excellent workshop with representatives from all four villages on Kabara and with woodcarvers, where Kesaia and Francis led the process towards developing a 20-year 'vision' for forest management and *Intsia* production. This is an important step in the process of management plan development.

Since my last visit to WWF-SPP, WWF-UK couriered a copy of the Beta cam version of 'Carving a Future' to Kesaia Tabunakawai at WWF SPP for broadcast on Fijian TV. This is much appreciated, and the Beta cam has been copied and will be scheduled for broadcast soon. During this reporting period, I also completed a short (9 minute) video. This was mainly in the Lauan dialect (with English subtitles) with translation and subtitles prepared with help from Kesaia and Francis. The video editing exercise itself proved to be a useful training process, with Francis Areki keen to start editing on his own. A longer video will also be prepared for the local community to contribute to the overall management plan (which includes diversification of handicraft production to more resilient species such as *Brousonettia* and *Pandanus*) and as a way of "returning results" to the community.

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The opinions expressed in the *People and Plants Handbook* are those of the various authors and contributors cited, and should not necessarily be attributed to the editors or sponsoring institutions.

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PEOPLE AND PLANTS ONLINE

One of the best sources of information about the People and Plants Initiative is provided by our website:

<http://www.peopleandplants.org>

This website contains full details of projects worldwide, as well as information about all our publications. The website also acts as a gateway to selected useful information about ethnobotany, with many links to other on-line information courtesy of the Royal Botanic Gardens, Kew. We believe that this is one of the best internet-based sources of information about ethnobotany worldwide. A special feature of our is the web-newsletter which is updated about every 2 months, with an archive of earlier newsletters. Visitors may also subscribe, cost-free, to this news service, and will then receive the newsletter by email as a convenient reminder to re-visit the site. WWF itself has now developed a research section on its own website which also links to the website of People and Plants. This may be found at:

<http://www.wwf.org.uk/researcher/programmethemes/plants/index.asp>