

CHAPTER 13

LOCAL USE OF FORESTS, FOREST MANAGEMENT AND NATURE CONSERVATION

CHAPTER OUTLINE

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13.1 INTRODUCTION

In this chapter we explore some of the issues surrounding local use of the forest and how this relates to nature conservation. First we look at to what extent local people make use of the forest, then at how compatible this may be with nature

conservation objectives, and finally we look at some of the options open to managers of forests to involve local people in management while at the same time promoting conservation.

13.2 FOREST MANAGEMENT AND LOCAL COMMUNITIES

Forests mean different things to different people. To a commercially-minded forester, they mean timber, to a hydrologist they mean water catchments, and to a nature conservationist, they mean areas of high biodiversity. These three values of forests are those that have often been taken by forest departments the world over, to be the only values worthy of consideration when prescribing management of the forest estate; they will probably continue to do so. Summarising the characteristics of forest departments in Africa, we might note the following (Mather, 1991):

- Emphasis on commercial forestry, and on growing timber that could be sold either within the country (primarily for mines and industries) or for export;
- Corresponding emphasis on exotic species, with little interest in indigenous species (except for logging concessions);
- Little enthusiasm for the knowledge systems of local people, usually regarded as ignorant about forestry and as spoilers of the environment;
- Emphasis on setting aside certain proportions of the total land area for forest reserves;
- Foresters have been regarded by local people as auxiliary police, since one of their functions

has been to keep people out of reserves and to prosecute them for infringement of regulations.

We are only now beginning to realise that one major group of stakeholders has been left out of this process, namely the **local people** living around the forest. There are at least two reasons why we need to change our policies to take account of local people and their use of the forests:

- They are often numerically important. In any democratic society their needs and aspirations should be taken into account. Foresters should be seen to be serving their interests too.
- Their use of the forest can have a large impact on it, which may conflict with the interests of other stakeholders especially if the use is unregulated. Foresters need their co-operation in carrying out management.

Bringing local use of forests into the planning process can be seen as an obligation, or at least as a means of averting possible conflict over the use to which forests should be put. Nature conservation, the subject which concerns us here, is therefore closely linked with the livelihoods of people living near the forests.

13.3 LOCAL USE OF FORESTS

13.3.1 General

There is a whole range of ways in which local people use forests. Box 13.1 lists some of these. In Uganda, a large proportion of the native plants are used in some way, either as food, medicine, or in construction of buildings, baskets etc. Appendix 2 lists some of the woody plants native to Uganda that are thought to have medicinal value, while Appendix 3 is a similar list for edible species. Globally, out of a total of 250,000 higher plant species, at least 75,000 are probably edible.

Despite this, only 12,000 have been used as food at some time; 200 have been domesticated; and only 150 have been commercially cultivated. In fact, 30 plant species provide 90% of the world's nutritional needs (Hamilton, 1993). However, in Africa, an estimated 80% of vitamin A and more than a third of vitamin C are still supplied by traditional food plants (UNEP, 1993). Bush meat is an important food source in many countries in Africa. Even in Uganda, bush meat was estimated to provide 5% of meat protein supply in 1977 (WCMC, 1992).

Box 13.1

Some of the possible uses to which forests are put by local people. After Raintree (1991)

- Food for people: fruits, nuts, oils, pods, relishes, spices, starch, sugary sap, beverages, honey, mushrooms, caterpillars, stimulants and other ingestibles;
- Feed for livestock, fish, bees, silkworms, mushrooms etc.: leaves, fruits, nuts, pods, bark, roots, wood
- Fertiliser: from prunings, litter, root dieback, animal dung;
- Energy: firewood, charcoal, wood chips, sawdust, oils, latex, resins;
- Building materials: poles, posts, planks, sawnwood, lumber, thatch, flooring;
- Raw materials for local industry: wood (carving, turnery, furniture, hand tools, musical instruments, utensils, weapons, wheels), fibre (rope, clothing, basketry), wrappings (leaves), processed foods (dried fruits and leaves, juices, coffee and tea);
- Medicinals, pharmaceuticals, stimulants, narcotics etc.

13.3.2 Case studies of local use in Uganda

There has been an upsurge of interest in documenting the use made of forests by local people, in recognition of the need to take these values into account in deciding on forest management. Forests that have been studied include Bwindi, Elgon, Rwenzori and Budongo. Summaries of some of the findings from Bwindi and Budongo are given below.

13.3.2.1 Local uses in Bwindi Forest

The following information is drawn from Cunningham (1992), from a study aimed at determining which uses were sustainable, which should continue to be allowed within the National Park and on what basis, which needed monitoring or control, and which should be prohibited. Three hundred and seventy-seven plant species are noted as being used by local people. Some of the main uses are listed below, while a fuller list of the more commonly used plants is given in Box 13.2.

- **Edible species** include *Dioscorea bulbifera* (a very popular wild yam), the fungus *Lentinus prolifer*, the "forest pineapple" *Myrianthus holstii* and several others. Most are collected and eaten chiefly by the poorer people.
- **Honey** is collected widely, not only from honeybees *Apis mellifera*, for which hives are erected, but also from six species of wild stingless *Trigona* spp. bees. Hives are set in an estimated 4% of the forest area.
- **Medicinal plants** include the very important worming remedy *Rytigynia kigeziensis*, and several species whose bark is sold commercially in local markets, including *Polyscias fulva*, *Symphonia globulifera*, *Croton macrostachyus*, *Ocotea usambarensis*, *Entandrophragma excelsum* and *Hallea rubrostipulata*. The bark of *Prunus africana* is also collected for the international trade.
- **Basketry and weaving** is a major user of native plants. For baskets, favoured species are the palms *Raffia farinifera* and *Phoenix reclinata*, the climbers *Loesneriella apocynoides* (especially for tea baskets) and *Smilax kraussiana*, papyrus sedge *Cyperus*

papyrus, and the bamboo *Arundinaria alpina*. For woven stretchers, *Dracaena laxissima* is favoured, while for woven granaries, *Hippocratea adongensis* is used. Bamboo is used by about half the population in the area, and 92% of this comes from the forest (half of it bought under licence, the rest collected for free).

- **Wood carving** for pestles, mortars and hoe handles uses hardwoods such as *Alangium chinense*, *Drypetes gerrardii*, *Sapium ellipticum*, *Millettia dura* and *Prunus africana*.
- **Beer boats** are usually made from *Prunus africana*, *Sapium ellipticum*, *Ficus* spp. and *Erythrina abyssinica*.
- **Building poles** are now mostly obtained from exotics outside the forest, chiefly from eucalyptus and from *Acacia mearnsii*. These can be grown at a density that yields over 1300 poles per hectare, whereas the best areas of natural forest will only yield 525 usable poles per hectare. Communities living nearest to the forest still use natural forest trees of many species for poles.
- **Bean stakes** are an important and scarce commodity for farmers. Millions of stakes are needed every year in the parishes surrounding Bwindi. *Alchornea hirtella* is heavily used for this, as are a few other species including *Acanthus arboreus*, *Rytigynia kigeziensis* and *Sapium ellipticum*. Crop residues are also used, especially by communities living at some distance from the forest.
- **Fuelwood** is now mostly obtained from farmland, chiefly from crop residues, eucalyptus and *Acacia mearnsii*. Only about 7.5% of the fuelwood of surrounding parishes comes from the forest, and it is chiefly fallen dead wood that is collected.

The extent of use of some of these products was found to be very variable. In general, it has been felt that some restrictions on harvesting are necessary to ensure that uses are sustainable and compatible with wildlife conservation in the National Park. One reason for this is that there is rapidly decreasing forest cover outside the Park, so pressure for the resources contained within the park may be expected to increase. In 1954, there were 120 km² of forest within a 15 km radius of Bwindi's boundary, but by 1972 it had been reduced to 42 km², by 1983 to less than 20 km² and by 1992 to virtually none. It has been suggested that the following restrictions should apply, although not all suggestions have yet been agreed upon or followed up:

- **Open access** for specialist uses, such as beekeeping and the non-commercial harvesting of medicinal plants.
- **Seasonal access** to popular plant resources with limited distributions, by harvesters elected within local user groups (for example for the plants used for basketry work).
- **Seasonal access** for specialist harvesters, together with **rotational management** of their resource, such as bamboo, with potential resource-users involved in assessing the resource and setting quotas.
- **No access** to resources where sustained use is not possible due to either complexity of management, high demand or slow plant growth-rates (such as resources for beer-boats, building-poles and bean-poles). This may also have to apply for fuelwood. In each case, emphasis needs to be placed on providing alternatives outside the Park.

13.3.22 Local uses in Budongo Forest

These notes are based on the findings of Johnson (1993), who carried out a questionnaire survey of 224 inhabitants of Nyabyeya parish, on the edge of Budongo Forest, examining to what extent they used the forest and what their attitudes were towards it. The main uses identified, together with some of the species involved, are given below:

- **Edible species:** the forest is not viewed as a major source of wild plant food, although there are some exceptions: 91% of interviewees consume forest mushrooms; 23% forest *Dioscorea* yams; 35% the fruits of *Afromomum*. Fruits of "forest pineapple", *Myrianthus arboreus*, are only eaten by one per cent. Guava, an exotic well-established within the forest, was more popular, and 43% claim to consume forest-grown guava fruit.
- **Medicinal plants** are used as the usual treatment for common illnesses and diseases by 36% of interviewees.
- **Building poles** are mostly obtained from nearby plantations or from farmland, but some are still taken from the forest.
- **Beer boats** are made from many species, but the endangered *Cordia millenii* is favoured.
- **Basketry and weaving** employs several species, chiefly the rattan cane *Calamus deerratus* for baskets, stools and whips for construction, the palm *Phoenix reclinata* for baskets and floor mats, papyrus sedge *Cyperus papyrus* for sleeping mats, and *Marantochloa leucantha* for baskets, binding and food wrapping.

Box 13.2

Some of the more commonly-used plants around Bwindi Forest, Uganda. After Cunningham (1992)

<i>Acalypha</i> sp.	Midwives	<i>Maytenus acuminata</i>	Herbalist, Walking-sticks, Veterinary
<i>Acanthus arboreus</i>	Bean-stakes	<i>Mimulopsis solmsii</i>	Bee-nectar and nesting-sites
<i>Aframomum</i> sp.	Edible	<i>Monanthotaxis</i> sp.	Granaries
<i>Agauria salicifolia</i>	Midwives, Charcoal	<i>Musanga leo-errerae</i>	Herbalist, Firewood
<i>Alchornea hirtella</i>	Bean-stakes, Building	<i>Myrica salicifolia</i>	Midwives, Herbalist
<i>Alangium chinense</i>	Bee-hives, Bee nectar, Pestles, Bean-stakes	<i>Myrianthus holstii</i>	Midwives, Edible
<i>Aidia micrantha</i>	Spear-handles, Pipes	<i>Neoboutonia</i> sp.	Covers for food, pots etc.
<i>Allanblackia kimbiliensis</i>	Spear-handles, Building	<i>Newtonia buchananii</i>	Building, Firewood, Beer-boats
<i>Anthocleista zambesiaca</i>	Herbalist	<i>Ochna</i> sp.	Herbalist
<i>Arundinaria alpina</i>	Building, Weaving, Bee-hives, Bean-stakes	<i>Ocotea usambarensis</i>	Herbalist, Building, Firewood, Beer-boats
<i>Ataenidia conferta</i>	Weaving	<i>Oxyanthus speciosa</i>	Spear-handles, Hoe-handles
<i>Basella alba</i>	Midwives, Edible, Veterinary	<i>Oxyanthus subpunctatus</i>	Bean-stakes
<i>Beilschmiedia ugandensis</i>	Building, Firewood, Bee-nectar	<i>Parinari excelsa</i>	Building, Charcoal
<i>Bersama abyssinica</i>	Midwives, Herbalist	<i>Peddiea fischeri</i>	Herbalist, Twine and rope
<i>Borreria princeal</i>	Midwives	<i>Pennisetum purpureum</i>	Granaries, Bean-stakes
<i>Bosqueia phoberos</i>	Edible, Building, Bee-nectar	<i>Pentas longiflora</i>	Midwives
<i>Bridelia micrantha</i>	Midwives, Herbalist, Building, Charcoal, Bean-stakes	<i>Phoenix reclinata</i>	Weaving
<i>Brillantisia niteus</i>	Bee-nectar and nesting-sites	<i>Phyllanthus fischeri</i>	Midwives
<i>Carapa grandiflora</i>	Edible, Building, Bee-nectar, Fats, Bean-stakes	<i>Phytolacca dodecandra</i>	Midwives, Veterinary
<i>Celtis durandii</i>	Building	<i>Piper capensis</i>	Bean-stakes, Bee-hives
<i>Chrysophyllum gorungosanum</i>	Building, Bean-stakes	<i>Pleiocarpa pycnantha</i>	Pipes
<i>Croton macrostachyus</i>	Midwives	<i>Podocarpus latifolius</i>	Building
<i>Croton megalocarpus</i>	Building, Bean-stakes	<i>Polyscias fulva</i>	Herbalist, Bee-hives
<i>Cyathea manniana</i>	Building	<i>Premna</i> sp.	Straw for drinking beer
<i>Cyperus papyrus</i>	Weaving	<i>Prunus africana</i>	Midwives, Hoe-handles, Bee-nectar, Beer-boats, Mortars
<i>Dioscorea bulbifera</i>	Edible	<i>Psychotria megistosticta</i>	Bean-stakes, Walking-sticks
<i>Dodonea viscosa</i>	Veterinary, Dental care	<i>Psychotria schweinfurthii</i>	Bean-stakes
<i>Dombeya goetzenii</i>	Midwives	<i>Raffia farinifera</i>	Weaving
<i>Dracaena laxissima</i>	Weaving	<i>Rawsonia spinidens</i>	Bee-nectar, Combs
<i>Drypetes bipindensis</i>	Spear-handles, Walking-sticks, Building	<i>Rinorea ferruginea</i>	Rakes, Building
<i>Drypetes ugandensis</i>	Building, Bee-nectar, Bean-stakes	<i>Rhipsalis baccifera</i>	Midwives, Herbalist, Weaving
<i>Entandrophragma excelsum</i>	Herbalist, Building, Beer-boats	<i>Rothmannia longifolia</i>	Spear-handles
<i>Euphorbia schimperiana</i>	Midwives	<i>Rubia cordifolia</i>	Midwives
<i>Faurea saligna</i>	Bee-hives and nectar, Building	<i>Rubus steudneri</i>	Midwives
<i>Ficalhoa laurifolia</i>	Building, Bee-hives, Bean-stakes	<i>Rytigynia kigeziensis</i>	Midwives, Herbalist
<i>Ficus urceolaris</i>	Spear-handles	<i>Sabicea</i> sp.	Herbalist
<i>Ficus sur</i>	Edible, Beer-boats	<i>Salacia elegans</i>	Granaries, Bee-hives
<i>Galiniera coffeoides</i>	Bean-stakes, Building, Firewood	<i>Sapium ellipticum</i>	Bean-stakes, Building, Firewood, Pestles
<i>Glyphaea brevis</i>	Twine and rope, Granaries, Firewood	<i>Schefflera barteri</i>	Herbalist, Hunting-dog medicines, Building, Bee-nectar and nesting-sites
<i>Grewia</i> sp.	Granaries, Weaving	<i>Sesbania sesban</i>	Herbalist
<i>Hagenia abyssinica</i>	Firewood	<i>Smilax kraussiana</i>	Weaving
<i>Hallea rubrostipulata</i>	Bee-nectar, Veterinary, Herbalist	<i>Solanum nigrum</i>	Edible
<i>Harungana madagascariensis</i>	Building, Bean-stakes, Bee-nectar and nesting-sites	<i>Strombosia scheffleri</i>	Building, Bee-nectar, Bee-hives
<i>Lantana trifolium</i>	Midwives	<i>Symphonia globulifera</i>	Building, Bean-stakes
<i>Linociera johnsonii</i>	Spear-handles	<i>Synadenium</i> sp.	Bean-stakes, Walking-sticks, Veterinary
<i>Loesneriella apocynoides</i>	Weaving, Granaries, Bee-hives	<i>Syzygium guineense</i>	Building, Charcoal, Bee-nectar
<i>Macaranga kilimandscharica</i>	Building, Bee-nectar, Bean-stakes	<i>Tabernaemontana holstii</i>	Midwives, Hunting-dog medicines, Building
<i>Macaranga schweinfurthii</i>	Midwives	<i>Tabernaemontana odoratissima</i>	Building
<i>Maesa lanceolata</i>	Midwives, Herbalist, Building, Firewood, Bean-stakes	<i>Teclea nobilis</i>	Walking-sticks, Building
<i>Maesopsis emini</i>	Herbalist, Bee-nectar, Building	<i>Trichilia rubescens</i>	Bows and arrows
<i>Marantochloa leucantha</i>	Weaving, Veterinary medicines	<i>Triumfetta macrophylla</i>	Midwives, Twine and rope, Veterinary
<i>Markhamia platycalyx</i>	Mortars, Building	<i>Xymalos monospora</i>	Bean-stakes, Hoe-handles, Building
		<i>Zanthoxylum gillettii</i>	Herbalist, Building
		<i>Zanthoxylum leprieurii</i>	Herbalist

- **Firewood** is mostly collected from the forest; 83% of interviewees collect at least some of their firewood there, whereas only 8% collect it from savannah and 17% collect at least some of theirs from their own land. Only 3% use charcoal. Firewood is mostly collected for domestic use, but 13% of interviewees also collect it for curing tobacco, and 13% for distilling alcohol.
- **Sawnwood** still comes almost entirely from pit sawyers operating illegally in the forest. Thirty-two per cent of interviewees admitted to obtaining sawnwood this way, and a further 30% refused to respond. Only 11% said they obtain it from the sawmill.
- **Hunting** is widespread, and about 18% of interviewees admitted to hunting; a further 10% said they would do if it were legal. Most hunting is for family consumption. Quarry species, in decreasing order of frequency of use, are bush pig, duiker, bush buck, cane rat, squirrel, and others including hyrax, pangolin, mongoose, porcupine, guinea-fowl, snakes, tortoise and primates. Thirty-seven per cent buy wild game meat from local hunters from

time to time. Twelve per cent admitted to eating primate meat. Termites are eaten by 92% of respondents, and grasshoppers by eighty-four per cent.

- **Destructive animals:** the forest is seen as a source of many destructive animals. Seven per cent of interviewees would like to see all baboons killed. Baboons were mentioned as problems by 96% of respondents, bush pigs by 72%, other monkeys by 42%, cane rats by 16%, squirrels by 13%, bush buck by 9%, porcupines by 8%, duiker by 5%, chimps by 4%, birds by 3%, guinea-fowl by 2% and civets by one per cent.

Overall, the people in the survey felt overwhelmingly that the forest should remain (90% in favour); only 5% said it should be cut down for agriculture. The overall values that people associate with the forest are listed in Box 13.3. It should be noted that some of the interviewees are relatively well-educated because of the presence of the forestry college in the parish.

Box 13.3

The overall values that people in Nyabyeya Parish associate with Budongo Forest, Uganda, according to the frequency with which it featured in their responses to a questionnaire. After Johnson (1993)

- | | |
|-----------------------------------|--|
| • Firewood (61%) | • Tuber collection (3%) |
| • Craft materials (6%) | • Electricity poles (1%) |
| • Prevention of soil erosion (2%) | • Rainfall attraction (17%) |
| • Building materials (52%) | • Air cooling (3%) |
| • Fruit collection (4%) | • Fishing (1%) |
| • Seed collection (2%) | • Water collection (13%) |
| • Timber (51%) | • Scientific research (2%) |
| • Soil fertility maintenance (4%) | • Pit sawing (1%) |
| • Boat construction (1%) | • Medicine (11%) |
| • Employment (20%) | • Tourists (2%) |
| • Mushroom collection (3%) | • Provision of dry season seed beds (1%) |
| • Wind protection (1%) | • Government (7%) |
| • Animal resources (18%) | • Wood for furniture (7%) |

13.4 OPTIONS FOR FOREST MANAGEMENT INVOLVING LOCAL COMMUNITIES

It is clear that forests can be a very important part of the local economy. Whatever we decide to do with the forest estate has important implications for local people. It is clear that local people can suffer if their access to the traditional forest resources is taken away (FAO 1989b). This is not only bad for the people concerned, but it can present conservation problems too if the people

feel alienated from the forest or from the forest's managers. If they cannot use the forest, it may lose value to them, and they may prefer to see the forest put to some other use such as farmland. There are thus very good conservation arguments for involving local people in forest management in some way or other.

13.4.1 Possible management options

There is a range of possible management options for involving local people in management and decision-making. Most are still experimental, and so no particular course can be recommended. Options range from handing over the entire management of a forest reserve to local communities, to simply discussing the implementation of a management plan with community representatives. The important thing is that, in the long term, *the more the local people are excluded from this process, the less likely it is that management will succeed*. Chapter 7 looks more closely at management planning and how local communities could be involved at this stage, while Chapter 10 looks at ecotourism as one possible way of involving local communities.

There is a common feeling amongst foresters that, given the chance, local people will destroy the forest and its resources. This is sometimes the case, if the local people do not value the forest as much as the land on which it sits. But in other cases, there exist strong cultural control systems over the use of resources, to stop over-exploitation or a "free-for-all". Which situation exists depends on who is seen to "own" the forest and who is responsible for looking after it. There is a range of possible ownerships (Rodgers, 1994):

- Closed (private or state)
- Common (communal/traditional)
- Open (no ownership perceived)

Forest reserves in Uganda fall into the first category (state ownership), although sometimes this is not recognised locally because the Forest Department does not maintain sufficient legitimate presence on the ground. This is one reason why some forest reserves are treated as open resources, resulting in a free-for-all. For instance, work with local communities surrounding Mount Elgon (Scott, 1994) has revealed that the locals are very aware of which of their activities are sustainable and which are not; they are aware that some of their activities are destroying their own resource-base, but since the forest was made into a reserve they have had no incentive to restrict their harvesting to sustainable levels, since they have perceived the forest as no longer being theirs.

Table 13.1 shows the control systems used in traditional forest management by local communities in Nepal. The possibility that such systems could exist in Uganda, or could be introduced, should not be dismissed. The main problem is that forest resources usually already have to be scarce before people will voluntarily introduce controls. Until that time, they have no need for controls, and the forest can become severely degraded, losing much of its conservation value in the process.

Table 13.1.
Control systems used in traditional forest management in Nepal (Arnold and Campbell, 1985)

Basis of group rules	Examples
Harvesting only selected components	• Trees: timber, fuelwood, fruit, nuts, seeds, honey, leaf fodder, fibre, leaf mulch, other minor products • Grass: fodder, thatching, rope • Other wild plants: medicinal herbs, food, bamboos • Wild animals: mammals, birds, bees, other insects
Harvesting according to condition of product	• Stage of growth, maturity, alive or dead • Size, shape • Plant density, spacing • Season of flowering, leaf-fall, etc. • Part: branch, stem, shoot, flower
Limiting amount of produce	• By time: season, days, year, several years • By quantity: of trees, headloads, baskets, animals • By tool: sickles, saws, axes • By area: zoning, blocks, types of terrain, altitude • By payment: task, kind, food, liquor, manure • By agency: women, children, contractor, animal
Using social means for protecting area	• By watcher: paid in grains or cash • By rotational guard duty • By voluntary group action • By making mandatory use of herders

13.4.2 Joint forest management

Joint forest management, involving both the Forest Department and local communities, is perhaps best suited to small, already degraded forests in highly populated areas. In such situations, it could help to stabilise the situation, and perhaps even reverse degradation. Even when this condition is met, however, there are many questions that would have to be addressed before implementing joint forest management. These questions would include (Moench, 1990):

- Who uses the forest area and for what?
- What forest resources are available and what condition are they in?

- How much direct economic interest are local communities likely to have in forest resources?
- How many communities use the forest area, and how divided or united are they?
- Is it clear that current degradation is linked to a problem of access to the forest?
- What resources can the forest department allocate to support joint forest management?

Box 13.4 suggests how the overall shift of emphasis of management that would be involved in joint forest management might take shape. It should be noted that even if joint management is not fully taken on board by the Forest Department, the shift of emphasis is still a useful one to be undertaken.

Box 13.4

The shift of emphasis in management required to operate joint forest management (Rodgers, 1994)

Achieving single, pre-set objectives	⇒⇒⇒⇒⇒⇒⇒⇒	Fulfilling multiple, needs-based objectives
Area management	⇒⇒⇒⇒⇒⇒⇒⇒	Site-specific management
Timber or single forest product	⇒⇒⇒⇒⇒⇒⇒⇒	Multiple non-timber forest products plus, water and soil
Single technical package	⇒⇒⇒⇒⇒⇒⇒⇒	Menus of options
Fixed procedures	⇒⇒⇒⇒⇒⇒⇒⇒	Experimentation and flexibility
Single-species forestry	⇒⇒⇒⇒⇒⇒⇒⇒	Multi-species forestry

13.5 SUMMARY

- Nominal ownership of the forest estate by government agencies is sometimes a help in enabling conservation to be carried out, but it can also be a hindrance if local people thereby perceive the forest resource as being open access or effectively unmanaged.
- Local people may traditionally make wide use of forest resources, including many non-timber forest products that have previously been largely ignored by forest departments. Some of these uses are theoretically sustainable, while others are not.
- There is no one formula for successfully involving local people in forest management;

different situations require different solutions. Although involving local people is a worthy objective, it is not something that can be hurried if they have been excluded from the management and decision-making process for a long time.

- Whatever approach is adopted, it is clear that single-objective forestry is likely to be largely replaced by multiple-objective forestry. The task faced by managers is to ensure that the uses to which a forest is put are compatible with each other and, in particular, with nature conservation objectives.

13.6 FURTHER READING

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