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(Submissions have been reproduced as received by the Secretariat)

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AUSTRALIA

Department of the ENVIRONMENT SPORT and TERRITORIES

Dr Calestous Juma
Executive Secretary
Secretariat of the Convention on Biological Diversity
World Trade Centre
413 St Jacques Street Office 630
Montreal
Quebec CANADA H2Y 1NY

Dear Dr Juma

Response to Request for written contributions and Information on Forests and Biological Diversity

I refer to your request for written contributions and information on forests and biodiversity.

Key actions to improve the conservation of forest biodiversity include the following:

Improve the knowledge base

The need to improve the knowledge base is a particular concern in Australia. Australia's millions of years of isolation from the other continents has resulted in the evolution of a unique flora and fauna. As a result, a high percentage of Australian species occur nowhere else. At the species level, about 82 per cent of our mammals, about 45 per cent of our land birds, about 85 per cent of our flowering plants, about 89 per cent of our reptiles, and about 93 per cent of our frogs are found only in Australia. However, it has been estimated that we have identified less than 50 per cent of native species. Invertebrates are a particular concern, and these are an important component of forest biodiversity.

The 1996 *National Strategy for the Conservation of Australia's Biological Diversity* (Biodiversity Strategy) identifies improving our knowledge of biodiversity as a major goal. It states that major research initiatives are required in the areas of compilation and assessment of existing knowledge, conservation biology, rapid assessment and inventory, long-term monitoring, and ethnobiology.

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An example of recent work in this area is a consultancy commissioned by the Commonwealth government to prepare a report on evaluating and comparing the efficiency of environmental surrogates and modelling techniques in predicting the distribution of biodiversity. Surrogates investigated include forest types, vegetation types, environmental domains and environmental units.

The research needs identified above are also relevant to forest biodiversity at the international level. Research on ethnobiological knowledge is a priority. In Australia, the Biodiversity Strategy seeks to recognise the value of the knowledge and practices of Aboriginal and Torres Strait Islander peoples and incorporate this knowledge and those practices in biological diversity research and conservation programs by:

(a) encouraging the recording (with the approval and involvement of the indigenous people concerned) of indigenous peoples' knowledge and practices;

(b) assessing the potential of this knowledge and these practices for nutritional and medicinal uses, wildlife and protected area management and other purposes;

(c) applying the knowledge and practices in ways that ensure equitable sharing of the benefits arising from their use.

Parties to the Convention on Biological Diversity (CBD) could consider assisting research aimed at improving knowledge of forest biodiversity through identifying training requirements and capabilities for providing that training, facilitating co-operative arrangements between parties to the Convention aimed at increasing expertise (including, for example, staff exchange), and information exchange through the CBD Clearing House Mechanism. Research and information exchange on monitoring of forest biodiversity is also needed. Where appropriate, parties should assist work by the Intergovernmental Panel on Forests to develop criteria and indicators for sustainable forest management.

Integrating biodiversity conservation and natural resource management

National governments should take the lead in developing policies, programs and practices that integrate biodiversity conservation into all aspects of natural resource management. Australia has developed the *National Strategy for Ecologically Sustainable Development* as its principal sustainable development policy. A core objective of the Strategy is to protect biodiversity and maintain essential ecological processes and life-support systems. This objective is further addressed in the *National Strategy for the Conservation of Australia's Biological Diversity.*

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Within this framework, Australia has provided for the ecologically sustainable management of its forests by developing the *National Forest Policy Statement* in conjunction with its States and Territories. The Strategy seeks to:

- provide for a comprehensive, adequate and representative (CAR) forest reserve system which will protect old growth forest, wilderness and biodiversity;
- develop an efficient, value adding, internationally competitive and ecologically sustainable wood products industry which includes the expansion of plantations;
- provide for a range of other forest values including water supply, tourism and recreation in an ecologically sustainable management framework;
- coordinate decision making between the Commonwealth and the States and Territories; and
- assist communities faced with structural adjustments as a result of the implementation of these measures.

An integral component of the Strategy is a process of joint Comprehensive Regional Assessments (CRAs) leading to the negotiation of Regional Forest Agreements (RFAs) between State and Commonwealth governments. RFAs recognise the range of economic, social and environmental obligations both tiers of government have regarding the long term management and protection of forest values in specific regions. RFAs aim to bring certainty to the timber industry by guaranteeing a sustainable resource base, whilst at the same time ensuring the protection of Australia's biodiversity through a CAR reserve system and complementary management of off-reserve areas.

The Commonwealth approach to biodiversity conservation as a component of CRAs includes the following elements:

a) A national framework - the development of consistent approaches using appropriate scientific methods for assessing forest biodiversity, the coordination or assembling of information to provide the national context for biodiversity aspects of CRAs, consistency with international developments on sustainable forest management related to biodiversity, and the development of common approaches to management issues that cross CRA boundaries.

b) Regional biodiversity assessments - the collection, assessment and analysis of biodiversity information for CRA regions through collaborative projects with the States. Includes public consultation and public participation in the assessment process.

c) Threatened species management - the development of recovery plans for endangered and vulnerable species and endangered ecological communities, and threat abatement planning for threatening processes in accordance with the Endangered Species Protection Act 1992.

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The CBD Clearing House Mechanism could be used to assist countries to integrate biodiversity conservation into forest management through the dissemination of information on the valuation of the full range of forest biodiversity values, the impact of subsidies on forest biodiversity, regional planning for forest management including research into incorporating biodiversity conservation into forest planning, the role of reserve systems, ecologically sustainable forest management principles, and the use of incentive measures to achieve biodiversity conservation. The Global Environment Fund, as the interim financial mechanism, should continue to be used to support projects related to forest biodiversity.

Managing threatening processes

The Biodiversity Strategy recognises the need for Australia to:

* Monitor, regulate and minimise processes and categories of activities that have or are likely to have significant adverse impacts on the conservation of biological diversity and be able to respond appropriately to emergency situations;

* Ensure effective measures are in place to retain and manage native vegetation, including controls on clearing;

* Control the introduction and spread of alien species and genetically modified organisms and manage the deliberate spread of native species outside their historically natural range;

* Minimise and control the impacts of pollution on biological diversity;

* Reduce the adverse impacts of altered fire regimes on biological diversity;

* Plan to minimise the potential impacts of human-induced climate change on biological diversity;

* Repair and rehabilitate areas to restore their biological diversity;

* Ensure that potential impacts of any projects, programs and policies on biological diversity are assessed and reflected in planning processes, with a view to minimising or avoiding such impacts.

Ecologically sustainable forest management, which is a key principle of the *National Forest Policy Statement,* ensures forest harvesting occurs in a manner which protects the full range of forest ecosystems and other environmental values. It will be given effect through:

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- the continued development of integrated planning processes;
- codes of practice and environmental prescriptions;
- management plans that, among other things, incorporate sustainable yield harvesting practices; and
- continuing research and long-term monitoring so that adverse impacts that may arise can be detected and redressed through revised codes of practice and management plans.

The management plans will provide a set of operational requirements for wood harvesting and other commercial and non-commercial uses of forest areas.

Addressing threats to forest biodiversity is another issue for which national governments need to show leadership by working co-operatively with other government jurisdictions in their countries and affected communities to develop appropriate programs.

In Australia, a major threat to forest biodiversity is land clearing. The Commonwealth intends to provide national leadership in ensuring significant areas of remnant vegetation are preserved and properly managed by working with the States, Territories, Local Government and landholders in establishing guidelines for the provision of incentives for landholders who voluntarily preserve vegetation which may otherwise be cleared. The Commonwealth is examining a range of possible incentives, including payments for voluntarily signing heritage agreements, rate rebates, community awareness and education programs and financial assistance for fencing and other works. A Council for Sustainable Vegetation Management is to be established to advise the government on areas of priority for protection from land clearing. Such an approach will recognise the specific needs of individuals and communities as well as the current policy positions of various state governments.

Land clearing and revegetation are also addressed in the *National Greenhouse Response Strategy*. Other threats to biodiversity as a whole are being addressed through the Biodiversity Strategy and in turn through more specific strategies such as those on weeds, feral animals, endangered species, wetlands, and rangeland management.

The CBD Clearing House Mechanism could be used to disseminate information on the threatening processes affecting forest biodiversity and the underlying causes of these processes. Economic instruments and other measures could then be identified to address these causes. The usefulness of this material would be further assisted by including several case studies which, between them, respond to the range of environmental and socio-economic factors affecting forest biodiversity around the world.

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Finally, Australia recognises that conserving forest biodiversity requires community involvement and participation. Parties to the Convention could consider mechanisms to enhance public education, particularly in relation to global issues, and to encourage broad community involvement in biodiversity conservation. This includes ensuring that relevant material produced by the Secretariat is widely distributed and is used to progress the development and refinement of measures to conserve forest biodiversity within each country.

I trust the above information is of assistance in the production of the background document.

Yours sincerely

Jennie Ludlow
Director
Biodiversity Unit
6 June 1996

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BURUNDI

Ministère de l'Aménagement du Territoire et de l'Environnement
CABINET DU MINISTRE

B.P. 631 Tél. 224979 Télélex : 228102

BUJUMBURA — BURUNDI

N° 770/ 7 /1336 -

Objet :

Institut National pour l'Environnement et la Conservation de la Nature (I.N.E.C.N.)

Arrivé le ....
Enregistré le ... 25/1/96 ...
N° enregistrement ... 70/6/40 ...
Transmis ...... à ......
Répondu par ...... le ......

À Monsieur Calestous Juma
Secrétaire Exécutif
Secrétariat de la Convention sur la diversité biologique
15, Chemin des Anémones
CH- 1219 Châtelaine, Genève.
SUISSE.-

Monsieur le Secrétaire Exécutif,

J'ai l'honneur de me référer à votre note de demande d'information relative aux forêts, populations autochtones et communautés locales, pour vous adresser notre sincère encouragement et vous assurer de notre entière disposition pour contribuer à la réussite de votre projet de document.

En effet Monsieur le Secrétaire exécutif, comme dans toutes les sociétés traditionnelles, le Burundi dont la population est rurale à 85 % possède encore dans sa culture des atouts non négligeables pour la protection du patrimoine naturel : à travers les contes, les récits, les chants, proverbes et poésies populaires les adultes parviennent à inculquer à la jeunesse des attitudes positives pour le respect de la vie. Ils adoptent des comportements bénéfiques pour la Conservation du Patrimoine Naturel, surtout en ce qui concerne la petite faune sauvage (aussi bien les animaux anthropophiles que les animaux de forêts ou de savanes).

Le séminaire atelier que vous organiserez durant la première semaine de février 1996, nous intéresse à plus d'un titre, et je vous serais très reconnaissant de bien vouloir associer nos cadres techniques à ses travaux. Le Directeur Général de l'Institut National pour l'Environnement et la Conservation de la Nature (INECN), Dr. Gaspard NIKWIMU est prié de vous fournir la synthèse des informations utiles

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à ce sujet.

Veuillez agréer, Monsieur le Secrétaire Exécutif, l'assurance de ma haute considération.

LE MINISTRE DE L'AMENAGEMENT DU TERRITOIRE ET DE L'ENVIRONNEMENT

Patrice NSABAGANWA.-

CABINET DU MINISTRE

C.P.I.#/

- Monsieur le Ministre des Relations Extérieures et de la Coopération.
- Monsieur le Secrétaire d'Etat Chargé de la Coopération
  à BUJUMBURA.-
- Monsieur le Directeur Général de l'I.N.E.C.N.
  à GITEGA.-

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CANADA

Forests and Biological Diversity

I. Background:

At the second meeting of parties to the Convention on Biological Diversity (COP2), the Executive Director of the Convention's Secretariat was mandated to carry diversity. Parties to the Convention (COP), will consider this document at their next meeting and decide whether further input to the Intergovernmental Panel on Forests (IPF) is required. The report will also be transmitted to the IPF for their information (COP2 Decision II/9).

Canada, as a signatory to the Convention and as a member of the IPF, believes that forest biodiversity must be conserved and that forest biological resources be used in a sustainable manner. Thus, work by the COP and the IPF should be complementary, coordinated and mutually supportive.

The purpose of this paper is to provide advice to the Executive Director to assist his preparation of a background document on forests and biological diversity for consideration by parties to the Convention on Biological Diversity at their next meeting. Parties will determine if the background document should be transmitted to the IPF for their consideration.

The advice provided in this document is presented under 3 major themes, which are:

1. The need for cooperation and collaboration between the COP and the IPF;

2. The need for country capacity building in order for them to implement an Ecological Management Approach or Sustainable Forest Management Approach; and

3. A list of potential forest biodiversity topics that the COP and the IPF may choose from and initiate activity on in 1997.

II. Cooperation and Collaboration:

Formal and informal linkages must continue to be developed between the COP and IPF to ensure that both organizations focus on key forest biodiversity issues and avoid duplicating efforts. That is, work by the COP and the IPF should be complementary, coordinated, non-duplicative, and mutually supportive. To accomplish this, the Executive Secretary of the COP should:

1. Ensure that the COP is informed of the work of the panel, and ensure that the panel is aware of the work of the COP. The IPF should report on their work at COP3.

2. Ensure that IPF members receive invitations to participate in relevant conferences, meetings and expert groups established under the COP or

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the COP's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA).

3. Work with the IPF to identify biodiversity experts that could assist the IPF in their work, and work with the IPF to establish mechanisms for the COP and the IPF to pursue mutually supportive initiatives.

III. Ecological Forest Management and Forest Ecosystems - Sustainable Forest Management

Note: the terms ecological forest management and sustainable forest management are synonymous in this paper

The conservation of forest biodiversity and the sustainable use of forest biological resources requires the adoption and implementation of an ecological management approach. Adoption of a ecological management approach requires substantial human and financial resources and technical and other capacities.

The ecological management approach which requires the integration of social, cultural, economic and environmental objectives consists of several elements. Many of these elements are described in the following steps:out work on forests and biological diversity with a view to producing a background document on the links between forests and biological

Step 1: Management Goals and Objectives

Each nation must set management goals and objectives which have the support of all major stakeholders. Broad goals such as ensuring the conservation of forest biodiversity and the sustainable use of forest biological resources should be established at the beginning of the planning process, with more specific objectives agreed to as planning and management progresses to more detailed levels.

The Convention on Biological Diversity, especially the Convention objectives and Articles 6-14, provide elements from which to develop forest management goals and objectives.

The importance of setting goals and objectives can not be stressed too much. Each nation must set goals and objectives based upon its situation. While each situation will be unique, it is recommended that each country:

1. Ensure that they establish goals and objectives that reflect all forest values, (economic, social, cultural and ecological values);

2. Ensure that goals and objectives are developed and agreed upon by all major stakeholders and decide who will be responsible for what; (Without this support, goals and

objectives will not likely be achieved).

3. Establish who will be responsible for the planning and management activities and establish timelines.

4. Use international biodiversity and forest agreements where applicable to develop national goals and objectives, complementing these with site-specific goals and objectives for each forest type or forest management area; and

5. Periodically review goals and objectives to ensure they reflect current needs and priorities.

Step 2: A Commitment to Action

Governments, forest companies, land and woodlot owners, indigenous and other local communities, non-government organizations and individual citizens all must set goals and objectives and commit themselves to action to ensure the implementation of the ecological management approach. Commitments are required to:

1. Conserve forest biodiversity;

2. Maintain and enhance forest ecosystem condition, ecological services and productivity;

3. Conserve soil and water resources;

4. Protect forest ecosystem contributions to global ecological cycles; and

5. Maintain the multiple benefits to society provided by forests.

These general commitments will need to be complimented with more detailed commitments as planning processes advance specific forest sites are selected for study.

Step 3: Communication and Involvement

Effective communication among government agencies responsible for management of various forest resources, local and indigenous communities, forest companies, environment groups, research and education institutions and others, is an essential component of the ecological management approach. All stakeholders must have opportunities to participate in forest management decision-making processes from the early planning phases through to implementation of management practices, policies and legislation. Effective communication is a prerequisite to obtaining participation in planning processes. This requires developing processes that encourage participation, including eliminating obstacles to participation such as providing language translation if required and preventing over-representation by one sector or interest.

Indigenous and other local communities in particular, must have opportunities to participate in forest planning and management to ensure

the wise use of resources upon which they depend. These communities also possess knowledge about forests that must be considered in conserving and developing forest resources.

The communication plan must include a public education component as individuals make decisions and consumer choices which influence the use of forest resources. Public understanding of the many values of forests, (economic, ecological, social, cultural and intrinsic values), must be increased in order to convince members of the public and their elected officials to provide staff and financial resources to support forest conservation and management efforts.

Step 4: Understanding Forest Ecosystems

Ecological management of forests requires a basic understanding of these complex ecosystems. There are three major elements to achieving this understanding. The first requirement to enhancing understanding is basic biophysical inventories. The level of inventory required depends upon the availability of existing inventory data and information, land-use objectives for the area, and the intensity of any proposed development or use of the area.

Comprehensive biological inventories at the species and genetic levels will generally be cost prohibitive for large areas, and constrained by the lack of available expertise. Consequently, resource managers will need to carefully consider what inventories can be conducted that will yield the best data to support management decisions. Inventories should be enhanced as financial resources and expertise become available, to the level appropriate to their purposes.

An alternative to comprehensive forest inventories are the selection and use of indicators. Indicators can be used to monitor changes in forest biodiversity over time and to evaluate management programs. Indicators must be cost-effective while providing adequate information to support management decisions. Focused, small scale comprehensive inventories are recommended to complement the use of indicators.

The second key element to understanding forest ecosystems is research. Research is required to understand the structure, function, composition and dynamics of ecosystems; it is necessary to assess appropriate uses of resources, and levels of use to ensure sustainability. Integrated or multi-disciplinary research programs are necessary to understand forest ecosystems, to determine appropriate resource use options, and to evaluate management practices. Integrated research is critical to achieving sustainable forest management which requires understanding of the interactions among flora and fauna, environmental

characteristics and resource management practices.

Understanding natural ecological processes will aid resource managers to plan the use of forests in ways that replicate, as much as possible, natural disturbance patterns.

Included in the research component is the need to include knowledge of indigenous and local people. Individuals that live in or near forests know what resources exist, understand the impacts of different traditional uses of resources, and can provide both detailed and an overview of changes to the forest over time.

Far too often the knowledge of indigenous and local people is ignored or misunderstood by scientists, government officials and others. Finding ways and means for indigenous and local knowledge to become integrated into forest planning and management processes can only improve the understanding and management of forest ecosystems.

The third key element of the ecological management approach is an understanding of the monetary and non-monetary values of forest ecosystems. Economic values result from both timber and non-timber resources and ecological services that forest ecosystems provide. Forests provide food, materials for shelter, medicines and many other benefits which must be accounted for.

In addition to monetary values, forests have many non-monetary values that should be accounted for when assessing the overall value of a nation's forests.

Resource evaluations and accounting procedures are very important elements of the ecological management approach as they will promote conservation and sustainable use efforts by demonstrating how unsustainable practices and the loss of biodiversity negatively impacts a nations economy.

Step 5: Threats to Forest Biodiversity

The Convention on Biological Diversity requires nations to identify components of biodiversity requiring urgent conservation measures and as far as possible and, as appropriate, take action. The Convention provides for a range of conservation measures: establishment of protected areas; rehabilitation of ecosystems and recovery of threatened species; prevention, control or eradication of alien species; and implementation of legislation, guidelines and other measures to manage the use of biological resources.

In cases where components of biodiversity are facing immediate extinction, appropriate action should proceed as rapidly as possible, based upon the best available knowledge.

In addition to immediate action to address threatened biodiversity, nations

need to address the underlying causes of the loss of biodiversity.

The COP and the IPF can address international policies and activities that lead to the loss or decline of biodiversity.

Step 6:Planning and Environmental Assessment

Resource and Land Use Planning are crucial aspects of the ecological management approach. These processes support the establishment of specific objectives and targets. Data and information gathered from inventories and research are analyzed and decisions are made on appropriate and inappropriate use of resources.

Successful planning will often exhibit the following 3 characteristics:

a) It provides opportunities for all stakeholders to be involved with all phases of planning, which requires the establishment of non-intimidating processes to promote involvement;

b) It is hierarchical and continuous. Thus, decisions are made on the best available information and then refined with experience with additional data and information is collected and analyzed; and

c) It provides feedback mechanisms to ensure periodic review of progress towards goals and objectives.

Site specific planning and management is necessary to accommodate the needs and desires of indigenous and other local communities, to prevent conflicts between resource users and to ensure decisions regarding uses are based upon local ecological characteristics.

This level of analysis and planning makes it possible to zone forest management units. For example, an area may be subdivided into forest harvesting areas, protected areas and multiple use areas.

Environmental Assessments are not typically used in Canada to manage forest ecosystems. However, they are an important and commonly used tool to assess potential impacts of proposed projects on ecosystems including forest ecosystems, and provide direction to prevent or reduce impacts. Thus, environmental assessments complement land-use and forest planning and management activities.

Environmental assessments can also be used to assess impacts of proposed policies to ensure that they do not result in unintentional impacts.

Like planning, environmental assessments need to be open and transparent processes. Multi-stakeholder participation in environmental assessments

enhances their credibility, improves the data and information bases for decision-making and often increases the acceptance of the decisions that emerge from the process.

Resource and land planning and Environmental Assessment are complementary processes which not only assist in short-term and long-range planning, but collectively are invaluable tools for determining the cumulative impacts of human use of ecosystems.

Step 7: Public Education and Awareness

Education and awareness programming are essential components of an ecological management approach. Education provides a foundation that promotes citizen involvement in decision-making processes and increases awareness of individual or group responsibilities in ensuring the sustainable management of resources.

Step 8: Legislation and Incentives

Establishing a sound legislative and incentive framework tailored to meet the needs of individual countries, is an important element of an ecological management approach. The key is to obtain the right mix of these policy instruments to ensure their acceptance in the communities that will be employing them.

Step 9: Data and Information Management

Developing effective data and information networks is essential to implementing ecological management approaches. Data and information on forests are often collected by scientists, landowners and mangers, conservation organizations and naturalist, over long periods of time. Data and information are required on climate, soils, hydrology, flora and fauna, land-use practices, culture and social characteristics and many other parameters.

Ideally, data and information standards and protocols will be agreed to by those gathering the data and information to make analysis and sharing of data and results more effectively. This may require: establishing a coordinating body; negotiating data and information sharing agreements, data standards and protocols; and maintaining a directory of data bases.

Step 10: Training

Training is a very important aspect of developing an ecological management approach, and may be required at all steps of the process. All individuals involved in the conservation and sustainable use of forest ecosystems must be competent in the performance of their duties. This requires training in many fields and each country must determine its own training priorities. In determining specific training needs, countries should also be aware of the need to provide

training in both communications and forest resource management, as ecological management has as much to with communicating with forest users as the actual management of the resource.

Step 11: Monitoring

Monitoring is another necessary component of the ecological management approach. The level of monitoring depends upon the objectives for the area and the intensity of resource use. Monitoring programs should be linked to management objectives in order to assess the impacts of policies, plans, legislation and programs.

As far as possible, monitoring of climate, soils, hydrology, flora and fauna and other parameters should be integrated and analyzed to provide a comprehensive view of the changes in forest ecosystems.

IV. Capacity Building

The Convention on Biological Diversity requires developed countries to assist developing countries to conserve biodiversity and sustainable use biological resources. Given the importance of forests to humans, locally, nationally and globally and the importance of forests in maintaining biodiversity, both the COP and the IPF should give high priority to capacity building.

Conservation of forest biodiversity and sustainable use of forest biological resources requires implementation of an ecological management which requires considerable capacity to communicate, inventory, research, analyze, plan and implement programs. There are many technologies that can assist with these functions, and thus, finding ways and means to make these technologies available to developing countries will be very important.

Given the importance of building capacity to ensure the conservation and sustainable use of forests, the COP and the IPF need to collaborate to examine ways and means to build capacity in developing countries, and profile this need internationally.

V. Sharing of Benefits and Access to Forest Genetic Resources and Technology

Sharing of benefits arising out of the use of genetic resources, access to genetic resources and transfer of technologies, are all important elements of the Convention on Biological Diversity. Contracting parties must develop mutually agreed upon terms to access other countries genetic resources and find ways and means to share benefits that arise from the use of these resources. The Convention also recognizes the need for parties to develop arrangements to provide access to technologies

relevant to the conservation and sustainable use of biodiversity.

Given the obligations of the Convention, the COP and IPF need to collaborate to: a) ensure continued access to forest genetic resources on mutually agreed terms, b) establish effective mechanisms for sharing the benefits arising from the use of forest genetic resources, and c) find ways and means to transfer technologies necessary to support the conservation of biodiversity and sustainable use of forest biological resources.

V. Conclusions

Note: the recommendations provided in the following section are based upon the assumption that the IPF will continue its work beyond 1996 and will have a mandate to pursue the suggested topics. The reader should also be aware that the recommendations essentially constitute a list of topics that the COP and IPF would choose from according to their priorities.

1. It is essential that the COP and the IPF collaborate to avoid duplication of efforts and to ensure action is taken on priority issues. Therefore, the COP should continue to establish formal and informal linkages with the IPF, and working groups that report to the IPF. The IPF should be invited to participate in relevant working groups established directly under the COP, and indirectly by SBSTTA.

2. International agreements, national and sub-national strategies and plans and site-specific planning and analysis, and ecological management approaches are required to conserve forest biodiversity and sustainable use forest biological resources and are being developed by countries and international organizations. Therefore, the COP should examine these guidelines to ensure that biodiversity has been adequately considered.

3. International and national voluntary standards for achieving sustainable forest management systems could be extremely valuable as means to ensure that members of the public and other clients identify companies

committed to sustainable forest management, and products that are produced from forest that are managed on a sustainable basis. Therefore, the COP should recommend that the IPF continue to work toward adopting internationally acceptable criteria and indicators against which progress towards ecological sustainable forest management (including conserving forest biodiversity), can be measured.

4. Immediate and appropriate action must be taken to conserve components of forest biodiversity that are currently threatened. Therefore, the COP should recommend to the IPF that they collaborate and work with countries and regions to identify forested areas where biodiversity is under immediate threat and set priorities to address these threats. They should also examine the underlying causes of the loss of biodiversity, deforestation and forest degradation.

5. The world forests provide genetic resources that have value for many economic sectors, including: agriculture, forestry, pharmaceutical production, chemicals and other manufacturing, to name a few. Fair and equitable sharing of the benefits arising out of the utilization of genetic resources is essential to ensure the conservation of these resources. Therefore, the COP should recommend to the IPF that they work with FAO and other international organizations to identify mechanisms for providing access to forest genetic resources and for sharing the benefits arising from the use of these resources.

6. Many existing and emerging technologies could assist developing countries to conserve forest biodiversity and sustainably use forest biological resources. Therefore, the COP should recommend to the IPF that they identify technologies and methodologies that can assist countries to conserve forest biodiversity and use forest biological resources in a sustainable manner. The COP should also recommend use of their Clearinghouse Mechanism to disseminate this information.

7. Indigenous and local communities have knowledge that can contribute to the conservation of forest biodiversity and the sustainable use of forest biological diversity. The Convention requires contracting parties to examine means of sharing the benefits arising from the use of indigenous and local knowledge, innovations and practices. Therefore, the COP and the IPF should provide opportunities for indigenous and other local people to participate in considering ways and means to protect, use and share the benefits arising from the use of forest related knowledge, innovations and practices of

indigenous and other local communities.

8. Research, inventory and training are required to ensure the sustainable use of forest biological resources and the conservation of forest biodiversity. The Convention on Biological Diversity requires developed countries to cooperate with developing countries to conduct research and training. Therefore, the COP should recommend to the IPF that they collectively establish an international forest research, inventory and training agenda. If agreeable to both parties, the SBSTTA could establish a process to develop this agenda.

9. Capacity building is essential to developing ecological management approaches for forest ecosystems. Therefore, the COP should ensure that the Global Environment Facility considers country proposals that include requests for financial resources to build capacity in the management of forests, and also recommend to the IPF that they establish mechanisms to assist countries, especially developing countries, to develop user needs assessments to properly match technologies with individual country needs.

10. Countries need to assess the multiple benefits of forest resources in monetary and non-monetary terms, and create conservation and sustainable use incentive mechanisms where required. Therefore, the COP should recommend to the IPF that they jointly develop and test methods, models or guidelines for evaluating forest resources and examine or develop forest conservation incentive mechanisms.

11. Environmental impact assessments are valuable tools for identifying potential impacts of proposed projects on forests ecosystems. Therefore, the COP should promote sharing of environmental assessment legislation and guidelines and make this information available through the Convention's Clearinghouse Mechanism.

12. Education and awareness are essential to achieving the conservation of forest biodiversity and the sustainable use of forest biological resources. Therefore, the COP should recommend to the IPF that they collaborate to inventory existing education and awareness materials relating to forest ecosystems, and distribute this information using the Convention Clearinghouse Mechanism.

CHILE

REPUBLICA DE CHILE
MINISTERIO DE RELACIONES EXTERIORES
EMBAJADA EN KENYA

NO 45-C-3/96

La Representación Permanente de Chile ante el Programa de las Naciones Unidas para el Medio Ambiente (PNUMA) saluda muy atentamente al Secretario Ejecutivo de la Convención de la Diversidad Biológica y tiene el honor de referirse a su Nota de fecha 4 de Enero pasado, mediante la cual solicita la opinión del Gobierno de Chile respecto de una serie de Resoluciones de la Segunda Conferencia de las Partes (II/10, II/4, II/9, II/6, II/3 y II/12).

Sobre el particular, esta Representación Permanente cumple con informar a la Secretaría Ejecutiva que, efectuadas las consultas del caso ante las autoridades pertinentes de Chile, estas han informado que se encuentran en plena elaboración y análisis de los referidos documentos, razón por la cual no ha sido posible hasta esta fecha hacerlos llegar oficialmente a la Secretaría Ejecutiva.

En consideración a lo anterior, esta Representación Permanente se permite solicitar al Señor Secretario Ejecutivo que se prorroge el plazo fijado a Chile para la recepción de dichos antecedentes hasta fines del presente mes de marzo.

La Representación Permanente de Chile ante el Programa de las Naciones Unidas para el Medio Ambiente aprovecha la oportunidad para reiterar al Señor Secretario Ejecutivo las seguridades de su más alta y distinguida consideración.

Nairobi, 19 de Marzo de 1998

REPRESENTACION PERMANENTE DE CHILE - P.N.U.M.A. -

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CHINA

Forest Ecosystems

Forest ecosystems. The natural forests in China can be divided into coniferous, broad-leaved, and mixed coniferous and broad-leaved forests.

- Cold-temperate coniferous forests. These forests are mainly characterized by larch (*Larix* spp.), spruce (*Picea* spp.), fir (*Abies* spp.), and pine (*Pinus* spp.) forests. The sites of these forests are cold and moist, providing habitats for more than 200 species of wild animals, including more than 40 species of mammals and about 120 species of birds. Among them the *Gulo gulo, Alces alces, Cervus elaphus, Felis lynx, Lepus timidus, Tetra parvitostris, Tetrastes bonasis, Lyrurus tetrix* and others are protected by the State as priority species.
- Temperate mixed coniferous and broad-leaved forests. These forests are characterized by the mixed Korean pine (*Pinus koraiensis*) and broad-leaved forests. After destruction they would be replaced by deciduous broad-leaved forests. They provide habitats for about 360 species of wild animals, including 53 species of mammals and 280 species of birds. Among animals protected with priority are *Panthera tigris altaica, Cervus nippon, Panthera pardus, Gulo gulo, Moschus moschiferus* and others.
- Warm-temperate deciduous broad-leaved and coniferous forests. Warm-temperate deciduous broad-leaved forests are characterized by oak (*Quercus* spp.) and oak mixed with many broad-leaved trees, such as *Betula* (spp.) and *Populus* (spp.). Warm-temperate coniferous forests include *Pinus tabulaeformis, Pinus densiflora, Pinus bungeana* and *Platycladus orientalis* forests. These forests contain about 2,000 species of wild plants and more than 200 species of vertebrates. Among animals protected with priority are *Panthera pardus, Macaca mulatta, Crossoptilon mantschuricum, Naemorhedus goral, Aquila chrysaetos, Chrysolophus pictus* and others. The deciduous broad-leaved forests are severely degraded. Their secondary growth forests have become isolated islands, and their old age forests have already disappeared.
- Subtropic evergreen broad-leaved and coniferous forests. The subtropical areas in China have the broadest territorial extent in the world and the most favorable physiographic conditions. They cannot be compared with the narrow stretches of subtropical zones located in the Mediterranean region, Middle Asia, the South Asian subcontinent, Southwest Japan, the Florida peninsula, and East Australia.

  The forests in China's subtropical region are characterized by evergreen broad-leaved forests, associated with many kinds of coniferous forests. Evergreen broad-leaved forests are composed of *Fagaceae, Lauraceae, Magnoliaceae, Theaceae* and other families. Coniferous forests are characterized in the east by *Pinus massoniana*, and in the west by *Pinus yunnanensis* var. *tenuifolia*, and *Pinus armandii* forests. There are specific coniferous forests consisting of "live fossil" plants left over from the late Tertiary Period, including *Cathaya argyrophylla, Pseudolarix kaempferi, Metasequoia glyptostroboides* and *Taiwania Cryptomerioides*.

  The evergreen broad-leaved forests are growing sites for plants of 2,764 genera and 146,000 species and a great number of wild animals, with more than 1,000 species of vertebrates. More than 80 species of wild animals are protected with national priority in these forests, including *Ailuropoda melanoleuca, Rhiopithecus roxellanae, Panthera tigris amoyensis, Neofelis nebulosa, Budorcas taxicolor, Elelis temminckii*, and *Tragopan temminckii*.
- Tropical rain forests and seasonal rain forests. Tropical forests in China occupy only 0.5 percent of its territory, but contains 25 percent of the total number of species in the country. They are mainly distributed in the southwest part of Yunnan Province, Hainan island, south of Guangxi, and southeast of Tibet.

  Tropical forests in the Xishuangbanna region of Yunnan Province contain 15 percent of the total number of plant species and 27 percent of the total number of animal species in the country and provide habitats for many rare valuable animal species such as *Elephas maximus, Bos gaurus, Eylobates concolor*, and the like.

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Priority Forest Ecosystem Protection Regions and Nature Reserves

Tropical Areas

- Southern Tibet: Zhumulangma Peak Reserve, Motuo Reserve (2 reserves). The area represents the northernmost border of the tropical zone with distinct distribution from tropical forests up to the snowline and rich in endemic species.
- Xishuangbanna: Mengla, Menglun, Mengyang, and Naban Reserves (4 reserves). The only region with wild elephants, high in species diversity, some of which are endemic.
- Southwest Guangxi Zhuang Autonomous Region: Nonggang Reserve (1 reserve). The core region of the Indo-Malayan and Sino-Vietnamese flora zone with plentiful calcareous stone mountains and endemic species, especially white and black leaf monkeys (Presbytis spp.).
- Southern part of Hainan Island: Jianfengling Reserve, Bawanglin Reserve, Diaoluoshan Reserve, and Wuzhishan (Five Fingers) Mountain Reserve (4 reserves). The flora are characterized by Indo-Malayan components with rich species and endemic species especially the gibbons (Hylobates spp.).

Summary: There are altogether 11 nature reserves in 4 regions in the tropic area.

Subtropical Areas

- Southern section of the Hengduanshan Mountain: Gaoligongshan Reserve, Nujiang Reserve, Yaoshan Reserve, Baimaxueshan Reserve, and Ailaoshan Reserve in Yunnan province (5 reserves). The transitional region for the paleophytes of the North Pole and the tropics, with high species diversity and endemism. Well-known as the center of origin and evoluation for mammals, and wide altitudinal differences from subtropical to alpine. Yunnan golden monkey (Rhinopithecus spp.) is concentrated here.
- Northern section of the Hengduanshan Mountain: Wolong reserve, Baishuijiang reserve, Tangjiahe reserve, Baihe reserve, Wanglang reserve, Jiuzhaiguo reserve, Xiazhaizhigou reserve, Huanglongshi reserve, Mingbaogou reserve, Labahe reserve, Fengyongzhai reserve, Mabian-Dafengding reserve, and Meigu-Dafengding reserve in Sichuan and Gansu provinces (13 reserves). The habitats of giant panda and red panda characterized by species diversity and endemism from subtropical to permafrost with scrub forests in the valleys.
- Wulingshan mountain regions: Fanjingshan Reserve and Dashahe Reserve in Guizhou province; Badagongshan Reserve in Hunan province; Jinfoushan Reserve in Sichuan province; and Shennongjia Reserve in Hubei province (5 reserves). The core region of central China flora of the East Asian flora with high species diversity, endemism, and relic species.
- Nanling Mountains: Mangshan Reserve and Qianjiadong Reserve in Hunan province; Huaping Reserve in Guangxi Zhuang autonomous region; Jiulianshan Reserve in Jiangxi province; Babaoshan Reserve in Guangdong province; and Meihuashan Reserve in Fujian province (6 reserves). The juncture region of Central China, East China, and South China floras of the East Asian flora with high species diversity and endemism.
- Jiangxi-Fujian mountain region: Wuyishan Reserve (Fujian), Wuyishan Reserve (Jiangxi) (2 reserves). Center of East China flora of the East Asian flora rich in species diversity and endemism.
- Zhejiang mountain region: Western Tianmushan reserve, Longtanshan reserve, Qinliangfeng reserve, and Baishanzu-Fengyangshan reserve (4 reserves). One of the distribution centers of the East China flora and Japanese flora in the East Asian floristic region with rich wild species, especially endemic species.
- Miaoling Mountains: Leigongshan Reserve (1 reserve). Concentrated distribution region of Flous Taiwania, with many other species, some which are endemic.
- Jiuwandashan Mountains: Maolan Reserve in Guizhou province and Jiuwandashan Reserve in Guangxi autonomous region (2 reserves). Maolan reserve is the best preserved subtropical forest in the calcareous stone regions containing many endemic species. Jiuwandashan reserve also contains well-preserved subtropical forests with Yuanbaoshan fir.
- Jiangnan hilly area: Guaniujiang Reserve in Anhui province (1 reserve). Contains high species diversity and endemism.
- South China hilly area: Damingshan Reserve and Dayaoshan Reserve in Guangxi autonomous region and Dinghushan reserve and Heishiding reserve in Guangdong province (4 reserves). The transition zone between tropical and subtropical regions with the best protected species around the Tropic of Cancer.

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- Qinling and Baoshan Mountains: Taibaishan Reserve, Foping Reserve, and Yangxian County (crested ibis) Reserve in Shaanxi province (3 reserves). The transition region between sub-tropical and temperate zones with high species diversity and endemism, e.g., pands, golden monkeys, and crested ibises.
- Funiushan Mountains: Baotianman Reserve (Neixian county), Baotianman Reserve (Nanzhao county), and Laojieling Reserve, Longchiman Reserve, Laojunshan Reserve and Shirenshan Reserve in Henan Province (6 reserves). North tropical zone with high species diversity and endemism and various varieties of Yangtao.
- Dabieshan mountains: Mazongling Reserve in Anhui province, Jigongshan Reserve and Dongzhai Reserve in Henan province (3 reserves). Located in the north tropic zone with high species diversity and endemism.

Summary: There are altogether 35 nature reserves in 13 regions in the sub-tropical area.

On forests and biodiversity

Chinese government has always attached great importance to the conservation of the forest and biodiversity. The Forest Act has been enacted. The area of afforestation in China numbers first in the world. 12 March of each year is the National Tree-planting Day in China. There is much information on the forest and biodiversity in China and it can be referred to in China's Biodiversity Country Study .

CZECH REPUBLIC

Re: Request for Written Contribution and Information on Forests and Biological Diversity

- Inclusion of documents on forests into biodiversity agenda is very important for the Czech Republic, as the forests cover 1/3 of total country area and have played an important role not only in environmental conservation but also in country historical development.
- We fully support coordination of actions with other relevant organizations, including IPF.
- Environmental services and non-consumptive values of forests have an ever increasing importance and therefore methods for the proper valuing of multiple benefits derived from forests are needed.
- Principles of sustainable forest management should be included into national forest strategies and policy.
- The importance of forests in sequestration of CO_2 from the atmosphere in connection with climate change should be emphasize.
- We recognize the importance of public awareness and education as well as of their raising at all levels of society.
- Forest research represents a prerequisite for forest biodiversity valuation and appropriate management. The state supervision and funding is necessary to assure required quality and continuation.
(Certain difficulties appeared in this respect in countries with economy in transition, as a result of restrictions in sectors with hardy measurable or low immediate profit.)
- Implementation of resolutions agreed on during Ministerial Conferences on Forest Conservation in Europe (Strasbourg 1990, Helsinki 1993) is an important task for European countries. The results of these meetings should be included and coordinated with the CBD programmes, especially as regards the H2 Helsinki Resolution on conservation and sustainable development of European forests biodiversity.

DENMARK

MILJØ & ENERGI
MINISTERIET

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Ministry of
Enviroment and Energy

The National Forrest and
Nature Agency

1996-885/46-0003

14. June 1996

Re: Request for Written Contributions and Information on Forests and Biological Diversity.

As requested in the letter of 10. January 1996 from the Executive Secretary of the CBD, Denmark hereby, pursuant to Decition II/9 of COP2, submits its views and additional information to be used in the preparation of the background document on "the links between forests and biological diversity".

The document is, pursuant to Decision II/9, to be used by COP3 for considering "whether further input to the Intergovernmental Panel on Forests is required", but should, given the urgency of the matter, also be used to support the considerations on the subject of forests and biodiversity under the relevant items on the COP agenda.

Denmark worked actively at COP2 to secure that a strong Statement was sent to the IPF, and commends that the Statement clearly recognised that the CBD has a number of important roles to play in relation to the conservation and sustainable use of all types of forests.

Danmark supports that further input related to the provisions of the CBD be given to the ongoing process in the IPF by COP3. The background document should as far as possible take into account the current status of the negotiations of the IPF.

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At the same time, given the fact that tropical, temperate and boreal forests are among the most diverse ecosystems on earth, and are at the same time among the ecosystems most severely and immediately threatened by degradation, it is important that the CBD also takes immediate steps to fulfill its own mandate to secure the protection and sustainable use of forest ecosystems.

As many of the subjects relevant to forest biological diversity are of a scientific, technical and technological nature, Denmark suggests that the background document is submitted to the SBSTTA in order to enable it, should it so decide, to make recommendations to the COP on specific actions to be taken in relation to forest ecosystems.

The links between forests and biodiversity are multiple, and encompasses most of the CBD. Denmark suggests that the background document is prepared in such a way that it enables the COP to include the subject of forests and biodiversity under the following COP agenda items. At the same time this approach would best enable the COP to give further input to the IPF:

6.1. General measures for conservation and sustainable use,
6.1.1. Implementation of articles 6 and 8.

- Actions to promote national forests and land use plans and programmes (TOR of IPF I/1) should fully take into account the provisions of the CBD, particularly those of articles 6 and 8 of the convention. Specifically, the need to carry out multiple use planning in the forestry sector, based on a sustainable ecosystem management approach, should be emphasised.

- Recommendations to the IPF, and to the parties, concerning the use of systems of protected areas to secure the in-situ conservation of biological diversity (article 8), including forest genetic diversity. Recommendations should fully take into account, that in most cases the degradation of the forest

ecosystems is closely related to socio-economic issues. Therefore participatory processes in the establishment and management of protected areas should be adopted if conservation efforts are to have any lasting success. Participatory processes should include efforts to identify alternative income generating activities, e.g. in bufferzones, especially where conservation measures will reduce local income opportunities.

6.4 Consideration of the future programme of work for terrestial biological diversity in light of the outcome of deliberations of the third session of the CSD in 1995:

- Funding criteria and guidelines for the CBD's financial mechanism concerning forest ecosystems should be established.

- Definition of constituent elements of forest quality from a biological diversity perspective and, related to this, a definition of forest degradation. These definitions should be presented to the IPF for inclusion in its deliberations, and distributed to the parties for their use.

  In order to secure the quality of forest ecosystems there is a need to define and use appropriate criteria and indicators for sustainable forest management. Such criteria and indicators should, keeping within the framework of those already internationally adopted, e.g. those following from the Helsinki-resolutions, the Montreal process and as elaborated by ITTO, reflect both the need to avoid ecosystem degradation in existing forests in general, and the need to secure both an authentic composition of flora and fauna and the processes and functions of the various types of forest ecosystems, taking into consideration the subsistence needs of local people and the role of forests in national development processes. This point should be based on a review of work carried out in the IPF (TOR of IPF, item III/2)

- Guidelines for ecologically sound re- and afforestation should be established, including suggestions for ways and means to fascilitate and support the establishment of an authentic and diverse flora and fauna (TOR of IPF I/4)

- The background document should enable the COP3, based on its considerations under the relevant agenda items, and based on relevant issues on the COP4 agenda, particularly 7.3 Measures for implementing the CBD, should it so decide, to start the process of making a programme of Action for Forests.

  The programme of action should be the instrument used by the COP in its future work related to the biological diversity of forests; recognising that among the terrestial ecosystems the biological diversity of forests is particularly under threat.

  Denmark suggests that the COP3, if it decides to start the process of making a programme of action for forests, should request expert advise from the SBSTTA on all issues relevant to the decision on the programme of action related to forests and biological diversity.

  The programme of Action for Forests should complement the outcome - in terms of recommendations and actions - of the IPF, and coordinated implementation should be decided upon by IPF/CSD5 and subsequently initiated.

6.5 Knowledge, innovations and practices of indigenous and local communities

6.5.1. Implementation of Article 8(j)

- Denmark attaches great importance to the issue of the "pro tection and use of forest-related knowledge. innovations and

practices of forest dwellers, indigenous people and other local communities, as well as fair and equitable sharing of benefits arising from such knowledge, innovations and practices" (TOR of IPF, item I/3). Without a substantial effort to promote such a protection, use and fair and equitable sharing of benefits other measures to protect the biodiversity of forest ecosystems may in many cases prove to be without lasting effect.

Today, however, the situation in many parts of the world is that indigenous peoples are under strong pressure being subject to different kinds of suppressions and in danger of losing the basis of their existence. This is not least the case regarding indigenous communities making their living in forest areas throughout the world.

One of the major obstacles to the preservation of indigenous knowledge and practices is that the rights of indigenous people to their land are not broadly recognized. It is crucial that those rights to land as well as resources are properly recognized and that possibilities to self-organization are given as being the basis for the survival of local communities and their culture. To that effect work on the development of local or regional models of agreements between indigenous people and states should be initiated as soon as possible, including models adapted to forest-dwellers. In that connection the Danish government would like to point to the fact, that Greenland is a part of the Kingdom of Denmark, where the majority of the people are inuit people. For more than a decade there has been an extended Home Rule system in Greenland. Except for foreign policy and a few other matters all decisions are taken by the Greenlandic Parliament.

Another important element for a more general acceptance and recognition would be increased information and public awarenes to further an understanding of and for the culture, economic systems and rights of indigenous peoples.

Finally it should be underlined that the main aspects of indigenous knowledge and practices is integrated in any possible future international instrument as being one of the most important elements of the conservation and sustainable use af forest ecosystems.

The background document should enable the COP3 to make substantial recommendations to both the IPF and the parties on this issue.

6.8 Incentive measures

6.8.1. To consider the compilation of information and experiences shared on the implementation of Article 11.

- The development and application of appropriate incentive measures are imperative to the promotion of conservation and sustainable use of forest ecosystems. COP3 should make recommendations on the issue to IPF as well as to the parties and other relevant intergovernmental institutions.

Robert Jensen
Head of Section

GERMANY

Forests and biological diversity

I. Due to the significance of forests for the conservation of biological diversity stopping global deforestation is a prerequisite for further progress in this field.

This means that all underlying causes of deforestation must be tackled in a comprehensive way. Since the most important causes of deforestation lie outside the forest sector only integrated solutions also addressing other policy sectors can lead to success.

The COP therefore gives strong support to all relevant efforts of the IPF.

Management, conservation and sustainable development of forests - as described in the Rio forest priciples and chapter 11 of AGENDA 21 - have to be considered together.

II. As so the special aim of improving sustainable forest management both generally and with respect to biological diversity the European States, soon after the Rio conference, agreed on two specific pan-european guidelines (General guidelines for the sustainable management of forests in Europe, H1, and General guidelines for the conservation of the biodiversity of European forests, H2) within the framework of the Ministerial Conference on the Protection of Forests in Europe.

Moreover, a follow-up process was started guiding relevant action to implement the decisions.

In the German view these guidelines could also serve as a model for the international level and therefore are provided together with this

document.

Among others the definition of sustainable forest management given by H1 (preamble, para.D) has to be pointed out at this occasion.

MADAGASCAR

Conservation et utilisation durable de la diversité biologique

Forêts et diversité biologique

(Décision II /9 de la CDP 2 de la Convention sur la Diversité Biologique)

Vues et informations de Madagascar

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a) L'importance du rôle vis-à-vis de la forêt joué par les populations autochtones et les communautés locales dans la conservation et l'utilisation durable de la diversité biologique :

Fidèles à des modes de vie traditionnelle, les populations autochtones et les communautés locales jouent deux rôles vis - à vis de la forêt, l'un négatif, l'autre positif.

Le premier est fait de destruction, de pratiques et techniques agricoles inadéquates (*tavy, hatsake* , culture itinérante sur brulis,feux de pâturage).

Le second rôle consiste à protéger la diversité biologique d'une manière directe ou indirecte. Les populations et les communautés respectent la forêt en raison de que celle-ci représente pour elles.

La forêt est considérée comme le domaine privilégié des diverses forces de la surnature et habitée par des esprits (*Kokolampy, Kalanoro, Bemihitsara, Songomày*).

La forêt a une dimension sacrée. L'installation de communauté fidèle à des modes de vie traditionnelle s'accompagne de la découverte et de la création du « sacré », d'où la notion de forêt sacrée, de lac sacré, d'arbre sacré, d'animaux sacrés chez presque tous les groupes de populations malgaches.

La forêt est souvent un lieu de culte des ancêtres.

La forêt est un nécropole des souverains en pays Mahafale, Sakalava et Betsimisaraka, Tanala.

La forêt est utilisée comme parc à boeufs et pâturage de saison sèche pour les Bara, Sakalava et Masikoro,dans le Sud et l'Ouest de Madagascar

La forêt est nourricière : le *tsindroke*, ou pratique de la cueillette (miel, tubercule)et de la chasse (hérissons, oiseaux , lémuriens, sangliers.....).

La forêt est utilisée par les populations locales dans la pharmacopée en raison des vertus curatives des plantes médicinales qu'elles savent distinguer et protéger.

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b) L'état actuel du savoir traditionnel et des pratiques relatifs aux forêts des populations autochtones :

Un inventaire exhaustif de ces pratiques n'a pas encore été fait dans le cadre des travaux de recherche , mais des cas spécifiques doivent cependant être relevés, à savoir:.

- sélection des animaux chassés en fonction de leur sexe et âge, interdiction de toute chasse en période de production et d'allaitement dans la région de Morondava et Tsiribihana.
- gestion du couvert végétal par le contrôle des feux et protection des massifs forestiers sélectionnés.
- préservation d'allées d'arbres porte-graines à caractère sacré.
- système de rotation de l'agriculture sur brûlis permettant une régénération du couvert végétal par le contrôle végétal.
- utilisation limitée des produits de la forêt (ramassage du bois mort et bois de construction, interdiction de la forêt aux étrangers).
- distinction entre zone pastorale, zone agricole et zone forestière.

c) les menaces sont de plusieurs ordres ;on peut citer:

- l'amplification du mouvement migratoire, de l'accroissement démographique et [illegible]
- l'exiguité des bas-fonds réservés à la riziculture notamment sur les Hautes Terres

Madagascar est confronté depuis longtemps à un phénomène global de dégradation de ses ressources forestières. L'Inventaire Ecologique Forestier National (IEFN) exécuté actuellement au niveau de la Direction des Eaux et Forêts donnera une estimation plus fiable de la surface forestière existante. Toutefois, on peut affirmer que le pays est bien en train de perdre son capital forestier renfermant son haut niveau degré d'endémisme (75 % en flore, 85 à 80 % en faune). Le problème de la perte de biodiversité qu'occasionne cette tendance est connu, mais le risque est aussi économique et social.

d) Voies et moyens pour une protection effective des forêts et de la diversité biologique

1) Utilisation du savoir relatif aux forêts, des innovations et pratiques des populations autochtones et des communautaires locales

- restitution aux populations cibles des résultats de recherche (exemple: Foyer utilisant des herbes comme source d'énergie).
- utilisation des structures traditionnelles. Exemple du *filongoa* qui est un pacte conclu entre tout nouveau venu et la communauté d'accueil. Celui-ci, par le biais de *titike* (serment), se soumet aux lois régissant le microcosme consistant notamment à protéger la forêt.
- étude du savoir des guérisseurs, des communautés *vazimba* et Mikea qui ont des rapports magico-religieux avec la forêt.

2) Gestion forestière communautaire :

La gestion durable des ressources forestières ne peut être envisagée sans une prise de responsabilité au niveau des collectivités locales ;le transfert de gestion se fait dans le cadre d'une démarche de cogestion contractuelle entre l'administration forestière d'un côté et les collectivités locales de l'autre. Cette gestion participative constitue un élément essentiel de la stratégie forestière : la création de groupements villageois, regroupés en coopération forestière est à envisager ; ceux-ci joueront un rôle dans l'utilisation des terres, préalablement à un schéma d'aménagement forestier.

3) Politique forestière :

De nouvelles options de développement sectoriel du pays ont été définies notamment par l'adoption de la Charte de l'Environnement, puis d'une nouvelle politique pour le Développement Rural.

L'ensemble de ces évolutions font que la redéfinition de la politique forestière malagasy est aujourd'hui considérée comme une priorité.

Cette politique forestière malagasy est tournée vers la lutte contre la dégradation forestière, compte tenu de l'importance de ce phénomène, et vers la recherche de la meilleure adéquation possible entre les ressources et besoins dans le cadre d'une gestion durable.

Elle comporte quatre axes prioritaires :

Axe 1 : mieux gérer les ressources forestières en :

-1.1 <u>en élaborant des plans d'aménagement des ressources forestières</u>

- la description des ressources forestières à aménager, les contraintes environnementales, le régime de propriété et d'utilisation des terres, les conditions socio-économiques et un profil des terres adjacentes,
- la description du système de sylviculture ou autre aménagement, sur la base de l'écologie de la forêt, concernée et des données obtenues par le biais d'un inventaire des ressources ;
- la justification des taux des coupes annuelles et la sélection des essences ;
- les dispositions prévues pour le suivi de la croissance et de la dynamique de la forêt;
- les mesures de sauvegarde de l'environnement basées sur une évaluation de l'environnement;
- les plans d'identification et de protection des espèces rares, en danger ou menacées d'extinction ;
- les cartes décrivant la masse des ressources de la forêt (y compris les aires protégées, les activités d'aménagement envisagées et le régime de propriété foncière) ;
- la description et la justification des techniques et matériels de récolte à utiliser.

-1.2- <u>en gérant rationnellement l'exploitation des ressources forestières</u> :

- l'ensemble des conditions d'accès à la ressource forestière devra garantir une exploitation durable en responsabilisant les acteurs concernés. Enfin, des mesures sont à prendre afin de réduire le phénomène d'exploitation illicite. L'exploitation forestière sera cantonnée dans les zones prescrites dans les plans d'aménagement.

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-1.3- en réorganisant les recettes forestières :

Il est nécessaire de revoir le taux et le mode de recouvrement des distances bénéficiant aux collectivités décentralisées afin de favoriser la prise de conscience des riverains sur la valeur qu'ils peuvent tirer de la forêt et de ses produits.

-1.4- en instituant le professionnalisme forestier :

- Instituer de véritables métiers en favorisant les différents niveaux de la filière, de la récolte à la transformation des produits de la forêt.
- Accorder des avantages aux opérateurs du secteur formel qui se professionnalisent.
- Créer ou rédynamiser les unités de formation professionnelle forestière dans les différentes régions écologiques du pays.

Axe 2 : contribuer à rationaliser l'approvisionnement en produits forestiers en :

- augmentant la part des reboisements dans la production,
- valorisant mieux les produits forestiers,
- maîtrisant la consommation de produits forestiers
- améliorant et maîtrisant les circuits des produits forestiers.

Axe 3 : augmenter la superficie et le potentiel forestiers en :

- assurant la sécurité foncière aux planteurs,
- redéfinissant le système d'appui aux initiatives ou reboisement.

Axe 4 : enrayer le processus de dégradation forestière et assurer une meilleure gestion de la biodiversité en :

4.1 - Appuyer les pratiques rurales de substitution en :

- planifiant l'utilisation des ressources forestières,
- améliorant la politique de défense et restauration des sols,
- contribuant à la maîtrise des feux de brousse,
- redéfinissant les systèmes de suivi et d'évaluation de la dégradation forestière,
- conciliant le développement avec conservation,
- préservant le patrimoine forestier et les équilibres écologiques tout en favorisant les conditions qui concilient leur mise en valeur et leur conservation à long terme.

La politique forestière malagasy a fait l'objet d'un atelier national qui a été soumis au niveau de l'Assemblée Nationale.

L'application de cette politique constitue le Plan Directeur Forestier National (PDFN). Ce dernier va être finalisé pour être proposé dans le Programme Environnemental II (1997-2001).

Il s'agit de :

- faciliter l'adoption par les populations rurales de nouvelles pratiques agricoles, à la fois plus productives et moins préjudiciables à la forêt dans le cadre de l'aménagement des vallées forestières et plus généralement de la gestion des terrains villageois.
- encourager et diversifier les activités liées à l'utilisation des produits secondaires de la forêt, de générer des revenus supplémentaires pour les populations rurales (miel), plantes médicinales, champignons, diverses matières pour l'artisanat en veillant à ce que cela contribue à une prise de conscience sur l'intérêt de la préservation du patrimoine forestier

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4.2 - Contribuer à la maîtrise des feux de brousse.

4.3 - Préserver le patrimoine forestier et les équilibres écologiques.

L'amélioration de la gestion visera à favoriser un développement durable des ressources forestières dans les conditions qui concilient leur mise en valeur et leur conservation à long terme.

QUELQUES EXEMPLES D'EXPLOITATION RATIONNELLE DE LA FORET

Face à la dégradation accélérée des différentes composantes du milieu naturel, il est apparu de plus en plus évident que la gestion rationnelle des ressources naturelles au service du développement durable devient une urgente nécessité, ainsi il est nécessaire d'avoir des approches nouvelles concernant les rapports de l'homme et de son milieu. Le projet consiste à faire participer la population locale à la gestion de la biodiversité.

Pour cela, il est envisagé :

- la mise en place d'un programme d'exploitation de la faune et flore de façon rationnelle et durable axé sur la création de revenus pour les populations rurales, afin de les rendre conscientes de la nécessité de conservation de leur patrimoine naturel.
- l'établissement d'une carte de zone riche en biodiversité, hors aires protégées, pour le développement d'activités d'exploitation rationnelle et durable d'espèces de faune et de flore au profit de la population rurale.
- l'organisation de la population rurale en groupement de collecteurs et des éleveurs en association des éleveurs. Ceci dans le but que le secteur privé associé aux populations rurales soit en mesure de pérenniser le système du programme de développement de l'élevage ou la reproduction artificielle de la faune et flore sauvage générant des revenus aux populations riveraines des zones riches.

Ainsi l'apport des institutions nationales ne serait plus qu'au niveau de l'information des nouveaux opérateurs malagasy, des contrôles et des prises de décision finale.

EXEMPLE SUR LE DEVELOPPEMENT DE L'ELEVAGE DE CROCODILES A MADAGASCAR, S'ORIENTANT VERS LE RANCHING (PROJET DEF/F.A.O.)

L'approche qui a été préconisée fût bien évidemment celle d'impliquer les populations rurales dans la collecte des oeufs de crocodile. Les revenus générés par la collecte des oeufs sont parfois considérables et indispensables pour l'achat des vêtements, des matelas, d'ustensiles de cuisine, voire de charrette ou de zébus dans certain cas.

Des mesures de protection ont été instaurées par la population locale. Elles consistent en la protection de la ressource en particulier sous la forme de la surveillance continue du site de ponte pendant la période de reproduction pour éviter la présence d'étrangers susceptibles de briser les oeufs et pour éviter le passage des zébus qui dérangent les sites de ponte. Cette protection s'est faite sous la forme d'un *dina*, pacte scellant un accord traditionnel entre les paysans. Ceci a pu se voir lors de la collecte où les populations locales ont demandé spontanément si elles pouvaient avoir une autorisation administrative pour empêcher le passage de zébus et d'étrangers susceptibles de déranger leurs crocodiles. La population locale a émis le souhait que la collecte soit un peu mieux organisée pour qu'elles soient prévenues un peu plus à l'avance et que le prix soit augmenté.

Le résultat le plus fondamental est de voir que des animaux perçus aussi négativement que les crocodiles peuvent, de par l'intérêt économique qu'ils génèrent, se voir considérer comme une ressource renouvelable appartenant à la communauté. /...

Ces résultats montrent que l'on peut sérieusement penser que l'implication de la population rurale dans des projets d'exploitation rationnelle et durable de la faune peut être un moyen de plus intéressant pour la conservation d'espèce et de leur habitat dans les pays en voie de développement

L'EXEMPLE LIENS ENTRE LA POPULATION LOCALE ET LA BIODIVERSITE FLORISTIQUE

Un projet en collaboration avec le WWF réalisé dans la réserve spéciale de Manongoarivo au nord-ouest de Madagascar, s'efforce de combiner un développement bien conçu et la conservation de la diversité bioculturelle de la région sans toucher à la tradition et à la culture ancestrale de la population mais au contraire en cherchant les liens entre la population et les éléments de la biodiversité qui les entourent. La population ressentira les avantages des liens qui l'unissent à la biodiversité et participera alors aux activités de conservation. Le projet a mis en place dans la région un système de santé intégré dans lequel il soit de règle d'utiliser à la fois des remèdes traditionnelles à base de plantes médicinales et des médicaments modernes. Ce système amène la communauté locale à assumer volontairement la responsabilité de la conservation de biodiversité qui l'entoure. Des habitants de la région ont déjà cessé de défricher certaines zones de la forêt primaire pour cultiver, pour la simple raison que diverses plantes médicinales qui en proviennent ont réussi à les guérir. Il s'en suit bien entendu, une réaction en chaine puisque les autres organismes peuplant les même habitats sont de ce fait également préservés.

e) Le partage juste et équitable des avantages découlant du savoir, des innovations et pratiques des populations locales et de la forêt en général.

On peut citer la mise en place de :

- sites pilotes : essai de reproduction de modèle de communauté soucieuse de la conservation et de l'utilisation durable de la diversité biologique tenant compte notamment de mode d'appropriation et de gestion des ressources spécifiques à l'espace considéré. Amélioration du niveau d'organisation sociale par le biais de conseils appropriés. Encouragement fait sous forme d'encadrement de petits travaux et de crédits.
- l'encadrement permanent (groupes homologues) et modélisation multidimensionnelle (lier les savoirs : forêt, élevage, agriculture) sur 3 niveaux : communautés locales (échange d'informations et pratiques) ; département et région (conseil de gestion, diffusion des innovations techniques, décisions dans les conditions traditionnelles);

• La forêt, lieu d'écotourisme, favorisera la vente sur place de produits artisanaux par les groupements villageois.

Les populations autochtones doivent recevoir une compensation pour l'application de leurs connaissances traditionnelles en matière d'utilisation d'essences forestières ou de systèmes d'aménagement dans les opérations forestières. Cette compensation doit être fixée avec le libre consentement des populations concernées, préalablement au début des opérations.

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* La plupart des Aires Protégées (A.P.) de Madagascar sont des forêts et leur gestion avec la population riveraine commence à être envisagé (cf. Divers ateliers, Antsirabe 1995, Majunga 1994, Mantasoa 1995, etc..).
Pour mieux sensibiliser ces populations riveraines, vivant dans les zones périphériques de ces Aires Protégées, le Conseil d'Administration de l'ANGAP a décidé, lors de sa réunion du 30 Mars 1993, d'octroyer les 50 % des droits d'entrée dans les Aires Protégées à des activités (conformes à la conservation) que ces populations veulent exécuter, selon la décision d'un comité de gestion mis sur place par ces populations.
Il est vrai que cet octroi ne correspond pas directement à l'utilisation du savoir traditionnel relatif aux forêts, des inventions et pratiques de ses habitants, il constitue toutefois une part importante du pays dans la recherche de voies et moyens en vue d'une protection effective. Les populations conscientes de l'importance de l'existence de ces Aires Protégées, dont elles reçoivent des avantages concrets, sont des partenaires de conservation actifs.

* L'autogestion est à envisager : les populations assurent elles-mêmes la collecte, la maintenance, recevront les ristournes provenant de la vente des produits tels que phytomédicaments et autres produits de la forêt.

* Les opérations d'aménagement forestier doivent promouvoir une utilisation rationnelle des multiples produits et services forestiers pour assurer la viabilité économique et une gamme étendue d'avantages environnementaux et sociaux.

1- l'aménagement forestier doit s'efforcer de réaliser la viabilité économique tout en prenant en considération les coûts local, environnemental et opérationnel de la production et en consentant les investissements nécessaires au maintien de la productivité écologique de la forêt.
2- l'aménagement forestier et les opérations de commercialisation doivent encourager l'utilisation optimale et la transformation locale des multiples produits de la forêt.
3- l'aménagement forestier devra réduire au minimum les pertes liées aux opérations de récolte et de transformation sur place et éviter tous dégâts aux autres ressources de la forêt.
4- l'aménagement forestier doit tendre à renforcer et diversifier l'économie locale en évitant la dépendance vis-à-vis d'un seul produit.
5- les opérations d'aménagement forestier doivent reconnaître, entretenir et, le cas échéant, valoriser les ressources et services forestiers tels que les bassins versants et les pêcheries.

MEXICO

Desde su creación el Instituto Nacional Indigenista consciente de la necesidad de rescatar y valorar los conocimientos y prácticas tradicionales de manejo y uso que los diversos grupos indígenas hacen sobre sus recursos naturales, ha instrumentado acciones que permitan recopilar e impulsar actividades en pro de este legado cultural. En este sentido apartir de 1989 el Instituto ha incorporado algunos criterios al quealhecer indigenista, con la intención de impulsar estas políticas:

- ***Los pueblos indígenas son herederos y poseedores de conocimientos sobre la naturaleza y el medio ambiente, desarrollados y decantados durante muchos siglos, lo que les ha permitido establecer criterios de utilización y manejo sobre los mismos.***

- ***La razón por la cual la sociedad contemporánea (rural y urbana) y la naturaleza sufren un proceso generalizado de expoliación y deterioro, es la pérdida del control de la sociedad humana sobre la naturaleza y sobre si misma.***

- ***Que esta toma de control debe considerarse como punto de partida para el desarrollo comunitario; que por un lado implica el mantenimiento y defensa de su cultura y por otro lado el rescate de sus tecnologías y el diseño de estrategias para el uso adecuado o no destructivo de los recursos naturales (flora, fauna, suelos, recursos hidraúlicos) que forma parte de su territorio .***

- ***En este contexto en los últimos años se ha observado una reactivación de la participación de los pueblos indígenas que atañe precisamente a la defensa de su cultura y su desarrollo material.***

- ***Este proceso obedece a una toma y recuperación, no solo de la identidad étnica, sino de su propia dignidad. Es decir, la discriminación y el desprecio hacia sus técnicas tradicionales de producción y manejo de recursos así como de sus formas de interpretar y conocer la naturaleza, elementos importantes de su cultura, han traído consigo una baja autoestima y pérdida de su propia dignidad (1).***

México es una nación que cuenta con recursos naturales abundantes, diversos y complejos, es depositario del 12% de la biota mundial, ocupa el primer lugar mundial en herpetofauna, el segundo en mamíferos, el cuarto en anfibios, sin mencionar la riqueza de fauna de invertebrados, por lo que respecta a la vegetación, México cuenta con aproximadamente 22 mil especies de fanerogramas, de las cuales el 52% de ellas son endémicas, por lo que se considera un país con "megadiversidad"(2)

En lo sociocultural no es menos diverso, rico y complejo. Los registros más antiguos señalan que este territorio ha sido habitado por diferentes pueblos desde hace por lo menos 30 mil años.

1 *La Jornada Ecológica*. Año 2. No. 15, septiembre de 1992.
2 *Plan de Acción Forestal* 1995-200. SEMARNAP, 1995.

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Actualmente existen más de 56 pueblos indígenas, con 94 variantes dialectales en proceso de recuperación y afirmación, lo cual subraya la existencia de una experiencia ancestral y una amplia relación con la naturaleza.

En este sentido el Instituto junto con las comunidades indígenas ha trabajado en diversas líneas de acción; por un lado en la elaboración de un inventario sistematizado de las especies vegetales utilizadas en las prácticas medicas tradicionales, lo cual culminó en la elaboración y publicación del "Atlas de las Plantas de la Medicina Tradicional Mexicana" y de la "Flora Medicinal Indígena de México", que incluyen 3,103 especies de plantas medicinales de mayor frecuencia de uso. Paralelo a estas acciones se realizó un inventario de las prácticas asociadas al uso de las plantas; en los diversos grupos indígenas del país así como de los términos utilizados por estos grupos, para definir sucesos particulares del tratamiento y cura de alguna enfermedad, recopilados en las obras "La Medicina Tradicional de los Pueblos Indios de México" y el "Diccionario de la Medicina Tradicional Mexicana". Por otro lado se han apoyado propuestas concretas (proyectos productivos piloto) en comunidades indígenas, que plantean modelos de desarrollo comunitario sustentable. En cada uno de los proyectos que se describen a continuación; se trabaja con especies tanto de flora como de fauna considerados por los Pueblos Indios como elementos importantes dentro de su propia cosmovisión, los objetivos de estos proyectos están enmarcados en el rescate de las técnicas tradicionales de manejo de recursos, en la conservación, el uso y aprovechamiento sustentable de los mismos.

Producción de Vainilla Orgánica (Vainilla plannifolia) en el Norte de Oaxaca.

A partir de 1985, se inicio el rescate, domesticación y cultivo de vainilla, planta nativa de la selva Chinanteca; actividad que pronto rebasó los limites geográficos y étnicos por sus particularidades, la actividad social que generó el cultivo de vainilla se considera un proceso que ha propiciado y fortalecido la identidad y organización entre los pueblos chinantecos y mazatecos, quienes históricamente han padecido divisiones fuertes, no tan solo por las variantes de su propia lengua, sino de su religión y ahora por sus afinidades políticas. En este proceso alrededor de dos mil campesinos de 15 municipios -9 chinantecos y 6 mazatecos- han encontrado en ella no solo un catalizador de revaloración a su cultura y de recuperación de su dignidad étnica; sino un agente coadyuvante en la regeneración, y conservación de sus recursos naturales en forma ecológica, productivamente sustentable y económicamente rentable, es decir que el proyecto se sustenta en los conocimientos y tecnologías propias derivadas del contacto del grupo con su entorno fisico-ambiental.

Aprovechamiento Forestal en la comunidad indígena de Nuevo San Juan Parangaricutiro, Mich.

La comunidad indígena de Nuevo San Juan, en los últimos 15 años ha venido promoviendo acciones para conservar y aprovechar el bosque. En este aspecto son importantes los avances logrados, destacan las medidas de recuperación a través de la reforestación con

especies de pino *(Pinus pseudostrobus, Pinus moctezumae y Pinus leiophylla)*, encino *(Quercus laurina, Quercus rugosa y Quercus obtuso)*, especies pertenecientes a la flora original de estas localidades. La participación de las comunidades indígenas en tareas como la vigilancia y el mantenimiento de sus viveros forestales y áreas de repoblamiento han tenido impacto directo en la recuperación del bosque.

Es importante destacar que el trabajo del bosque, también ha permitido, por medio de la empresa Forestal de la comunidad, la generación de alrededor de 850 empleos directos, apoyando el arraigo de las familias a la comunidad.

Para continuar e incrementar el ritmo de desarrollo de la comunidad, se hizo necesario establecer un Plan de Manejo Integral, mediante el cual se obtienen opciones productivas para dejar de presionar solamente el recurso forestal y al mismo tiempo se aprovecha el potencial que la comunidad tiene mediante actividades controladas en áreas agropecuarias. hortícolas, recursos hidrológicos, producción de abonos orgánicos y comercialización de la flora medicinal y aromática, así como la crianza de especies faunísticas en semicautiverio para repoblar al bosque.

Manejo Sustentable de Venado Cola Blanca (Odocoileus virginianus spp) en las comunidades indígenas huicholas.

Los huicholes cuentan con una reserva forestal de 140,000 has. en estos terrenos el proceso de deforestación ha avanzado de manera muy importante, esto se debe principalmente a la acción de las compañías madereras ajenas a las comunidades indígenas.

Este fenómeno provoca un fuerte deterioro de la cobertura vegetal de los ecosistemas de la Sierra, siendo consecuencia inmediata la extensión de la frontera desertica y la drástica disminución del venado cola blanca y otras especies de la fauna silvestre.

Esta especie es un elemento fundamental de la cultura de los huicholes, lo cual ha afectado incluso, el ciclo ritual del calendario sagrado del grupo.

En este sentido se trabaja por la conservación y recuperación de la fauna silvestre y en particular del venado cola blanca a través de la reproducción y domesticación en semicautiverio, y bajo la estrategia de una suma de esfuerzos de ONG´S, instituciones gubernamentales e integrantes de la comunidad indígena para fortalecer una visión común de conservación del medio ambiente y que el aprovechamiento ritual del venado y otras especies silvestres sea sustentable.

La importancia del proyecto con respecto al desarrollo, es que actualmente son pocos los trabajos que se orientan hacia modelos de manejo y aprovechamiento sustentable de los recursos naturales en zonas indígenas. Para lo cual es necesaria la capacitación y la

conformación de equipos técnicos y promotores comunitarios, cuya principal función sea asumir esta nueva filosofía de producir-conservando.

Programa para el Desarrollo de Unidades de Conservación, Cultivo y Comercialización de Plantas Medicinales, Especies y Aromáticas, como parte del proceso de desarrollo de la medicina tradicional en Comunidades Indígenas de México.

En este programa participan diversas organizaciones y comunidades indígenas del país en el desarrollo y establecimiento de unidades de conservación y cultivo (de tipo orgánico) de plantas medicinales, se ha proyectado también el desarrollo de infraestructura para el procesamiento, industrialización y envasados de las mismas; así como las búsqueda de líneas de comercialización en los mercados nacional e internacional.

Tomando como antecedentes que el manejo y la utilización de las plantas medicinales ha sustentado por muchos años el desarrollo de la medicina tradicional en diversas culturas en el mundo, tales son los casos de la medicina tradicional china, la medicina tradicional Ayurvédica y de nuestra propia medicina tradicional en América Latina. Por ello, existe una gran preocupación, a nivel mundial, por desarrollar programas de conservación y cultivo de plantas medicinales, ya que estas son reconocidas como materia prima para la elaboración de medicamentos y por consiguiente para la cura de numerosas enfermedades.

Las grandes líneas de acción que provee este tipo de proyecto son:

- Realizar el inventario y clasificación terapéutica (periódicamente actualizado) de las plantas medicinales empleadas en las diferentes regiones y estados del país.
- Establecer criterios y métodos científicos para la utilización segura de los productos elaborados a partir de plantas medicinales.
- Establecer estandares internacionales y especificaciones de identidad y pureza.
- Proponer acciones productivas concretas, que redunden en el desarrollo comunitario sustentable.

Objetivo general del proyecto:

Promover y apoyar el desarrollo de la medicina tradicional mexicana, a través de el establecimiento de unidades de conservación, cultivo y comercialización de plantas medicinales, especias y aromáticas, que contribuyan a elevar el ingreso económico y la calidad de vida de las comunidades indígenas involucradas.

Las comunidades integradas en este proceso son las siguientes:

- Nuevo San Juan Parangaricutiro, Michoacán, comunidad de habla Purépecha. La comunidad maneja y fomenta el crecimiento de 2 especies de plantas utilizadas

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tradicionalmente como tés aromáticos y que poseen posibilidades de explotación comercial el Nurite *(Satureja macrostema)* y el quien sabe *(Hedeoma piperita)*, ambas recen de manera natural y abundante. En este sentido se ha proyectado el establecimiento de parcelas productivas en los terrenos propiedad de la comunidad.

- Cuetzalán, Puebla. Comunidad de habla Nahuatl. El trabajo se inicia con el cultivo jengibre *(Zingiber officinale)*; propuesta a cultivar por la Sociedad de Solidaridad Social de Médicos Tradicionales Indígenas de estado de Puebla, "Masehualpajti". Quienes pretenden propagar y acopiar otras especies medicinales de importancia para ellos, además de el rescate de especies de plantas medicinales consideradas en peligro de extinción.

- Capulalpan de Méndez, Oaxaca. Comunidad zapoteca con una fuerte organización social, la Unión de Organizaciones de la Sierra Juárez de Oaxaca UNOSJO, esta organización propone el establecimiento de unidades de conservación y producción de plantas medicinales, en particular de especies de árnica *(Heterotheca imuloides)*; gordolobo *(Gnaphalium spp.)* y Santa María *(Tanacethum parthenium)* entre otras.

- Organización de Terapeutas Indígenas Tzeltales A.C. (ODETIT), comunidad sede Oxchuc, Chis., ha planteado el establecimiento de unidades de conservación y cultivo de jengibre *(Zingiber officinale)*, Higuerilla *(Risimus communis)*, el cardomomo *(Cinamomum cardomomum)*, Angélica *(sp/nrp.)* y spoxil lucum *(sp./nrp)*.

Rescate, protección y aprovechamiento de frutales nativos del trópico mexicano en la región de Papantla, Ver.

El trópico mexicano esta considerado como uno de los cinco lugares con mayor biodiversidad del mundo, las condiciones climáticas, edáficas y orográficas, propician el desarrollo de una amplia diversidad de plantas de importancia frutícola, maderable, medicinal, industrial, ornamental, de uso doméstico y ritual. Las actividades propuestas de rescate, protección y aprovechamiento de frutales tendrá que ser de acuerdo a la capacidad del suelo que predomina en las zonas indígenas; la mayoría son suelos pedregosos, delgados y de topografía irregular, que año con año se van empobreciendo, hasta quedar inservibles cuando aflora la roca madre.

Por ello, en 1984 "La convención de pueblos totonacas" propuso:

1. Realizar acciones encaminadas a evitar la erosión de los suelos.

Establecer plantaciones de frutales y especies nativas comerciales como zapote mamey, *(Calocarpum, mammosum)*; pitaya, *(Hylocereus undatus)*; chicozapote, *(Manilkara zapota)*; pimienta gorda, *(Pimenta dioica)*; pagua, *(Persea, shiedeana)* y zapote negro, *(Diospyros digyna)*, como alternativas a sus cultivos tradicionales.

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1. Reforestación con especies maderables, cedro *(Cedrela mexicana)* y caoba *(Swietenia macrophylla)*.
2. Capacitación que les permita conjugar la nueva tecnología con la tecnología tradicional, para eficientar el uso de los recursos naturales en condiciones sustentables.

Como resultado en 1992 se inicio el rescate de germoplasma vegetal nativo del trópico, registrando y evaluando las especies antes mencionadas, seleccionando el material que reunía las características de calidad comercial.
Esta acción ha permitido el establecimiento de viveros del zapote mamey en ocho comunidades, logrando la propagación de 15,000 plantas, que serán injertadas con vareta de los árboles seleccionados, para el establecimiento de 150 has. de plantaciones comerciales.

En relación a la pitaya, se están organizando 10 grupos de campesinos para propagar 50 mil esquejes, y plantar 50 has. a nivel comercial.

Producción Estabulada de venado cola blanca en la Región Maya de Quintana Roo

Después de ocurrido el huracán Gilberto y los incendios en los municipios de Benito Juárez, Isla Mujeres, Lázaro Cardanes y Cozumel, en el Norte de Quintana Roo, se encontró indispensable el estudio de la regeneración de la selva y la búsqueda de alternativas de manejo en la zona afectada.

Entre otras acciones se destaca propiciar el desarrollo de las comunidades al utilizar apropiadamente sus recursos naturales. Como parte de estos estudios, desde 1992 se ha venido realizando un Programa de "domesticación" del venado cola blanca *(Odocoileus virginianus)*, que ha permitido establecer técnicas de manejo y determinar las instalaciones que puedan hacer de este recurso natural una fuente de ingresos para los pobladores.

Se han encontrado indicadores claros de la factibilidad y de la necesidad de instrumentar esta actividad productiva como una alternativa de supervivencia real y de un gran valor cultural, para los pobladores del área.

Algunas comunidades utilizan al venado como un presente para los dioses en la celebración de LOH-KAH o "Bendición del Pueblo" en que piden al dios YUM BALAM evite la entrada de "Malos Vientos" y la fiesta de CHAA CHAC o "Primicias de la Milpa", en la que solicitan al dios CHAC la bendición de la lluvia para sus campos recién sembrados.

Participación Indígena y Desarrollo Sustentable en Areas Naturales Protegidas.

En muchas regiones indígenas se han establecido áreas naturales protegidas con fines de investigación, enseñanza y difusión de sus recursos bióticos.

Las condiciones de relativo aislamiento, han permitido la conservación de su diversidad biológica, la presencia de endemismos, y el estilo indígena del manejo de la naturaleza las hacen propicias para su protección.
En ocasiones su establecimiento se ha hecho sin expropiación, indemnización o consentimiento de las autoridades comunales que posteriormente quedan en la zona núcleo o de amortiguamiento de las reservas o parques nacionales, lo que les crea problemas de tipo socioeconómico, ya que el decreto de creación se acompaña de la prohibición absoluta de actividades dentro del área.

Ante esta situación el Instituto Nacional Indigenista se ha abocado en un esfuerzo de gestión ante las instituciones correspondientes como la SEMARNAP, INE, PROFEPA. Con el objeto de propiciar la participación local indígena en los diferentes proyectos como: propiciar la participación informada de los Pueblos Indígenas en los procesos de estudios básicos, decreto de creación, elaboración de planes de manejo y administración de Áreas Naturales Protegidas A.N.P., así como también en las tareas de conservación, educación, investigación y recreación, y finalmente la participación en los beneficios y responsabilidades que conlleva el manejo de un área natural protegida.

De las 89 Áreas Naturales Protegidas que maneja el Sistema Nacional de Áreas Protegidas S.I.N.A.P. del Instituto Nacional de Ecología en el país. El INI actualmente viene realizando actividades en las siguientes. (cuadro 1).

Finalmente el INI ha brindado apoyo sustancial a comunidades indígenas que poseen recursos forestales importantes susceptibles de ser aprovechados de manera racional. En este sentido cabe desfacar el fuerte impulso a proyectos productivos en áreas forestales principalmente en los estados de Chihuahua y Durango. De igual importancia son las acciones que el INI ha impulsado a través del Programa de Acción Forestal Tropical (PROAFT) en comunidades principalmente de los estados de Oaxaca, Veracruz, Quintana Roo y Yucatán, donde se desarrollan proyectos como;

El árbol del Nim en Santa Rosa de Lima, Tututepec, Oax.

El municipio de Tututepec a partir de 1960 ha sufrido severas transformaciones en su entorno natural, debido a la apertura de caminos y la expansión de una agricultura intensiva, transformando selvas medias y altas en campos agrícolas, para la introducción sucesiva de cultivos de algodón, cacahuate, limón, sandía, chile, papaya melón y tomate.

Una característica común de estos cultivos, es su dependencia casi total al uso de agroquímicos. Se estima que a la fecha se han aplicado 28,500 toneladas de plaguicidas, sin sumar fertilizantes, hormonas y otros, dejando suelos estériles o contaminados, afectando a las cadenas tróficas y la salud humana.

Ante esta situación se plantea como opción el uso de pesticidas orgánicos, cuya residualidad es limitada, no se acumulan en los ecosistemas y se incorporan a las cadenas tróficas.

El árbol del Nim *Azadirarchta indica* ha demostrado su eficacia al menos en 30 de las plagas más importantes en la agricultura sin afectar a sus depredadores y parásitos, crece en suelos pobres y resiste condiciones de sequia.

El objetivo del proyecto es proporcionar a los agricultores opciones menos agresivas para el control de plagas en los cultivos.

Promoción de la agricultura ecológica en la organización "Tukunwini" de Caxhuacan, Pue.

La región donde se ejecuta este proyecto se localiza en una zona montañosa de clima cálido-humedo, con zonas boscosas pero con partes erosionadas que ya no producen. Esta erosión se ha dado por la extracción de madera para la construcción de casas, o ser usada como leña.
El área de influencia de Tukunwini abarca las localidades de: Caxhuacan, Cuco Chochat y Cajinanin, donde habitan totonacos y nahuas de bajos recursos económicos.

Con la realización de este proyecto se pretende lograr el equilibrio ecológico de la zona, así como una producción agrícola, de buena calidad, de café, maíz, hortalizas y otros; dirigida a lograr la autosuficiencia de la comunidad.

Reforestación de las áreas de pastoreo del venado cola blanca (Odocoleus virginianus) en la comunidad de El pescador, Pajapan, Ver.

Desde su fundación, hace aproximadamente 12 años, la comunidad ha realizado diversas actividades tendientes a la conservación de los recursos naturales, estableciendo una campaña permanente en el cuidado de la selva y no a la quema de potreros. Estas actividades estan enmarcadas en el cuidado de especies acuáticas y en la reforestación del manglar así como de las áreas de pastoreo con especies maderables como la caoba, el cedro y la primavera.
Esta superficie reforestada ha servido como refugio para distintas especies de fauna silvestre, entre ellas el venado cola blanca (*Odocoileus virginianus*).

Este proyecto se propuso con la finalidad de lograr un manejo sustentable de la población de venado cola blanca, reforestar los linderos del área de pastoreo del venado con especies nativas de rápido crecimiento y enriquecerla con especies forrajeras.

Manejo Forestal de un predio cubierto con vegetación secundaria en Pajapan, Ver.

Este municipio ha sido uno de los más afectados por la ganaderización, el 80% de su territorio (antes cubierto por selva tropical) está convertido en potreros y acahuales, estos últimos se ven cada vez más precionados por la población para el abasto de leña y otras maderas usadas en la construcción de casas.
Considerando esta problemática se han buscado alternativas de producción que contribuyan al restablecimiento y conservación de áreas arboladas que a mediano y largo plazo ayuden a elevar la economía campesina.
Una de estas alternativas la constituye la palma camedor, experiencia iniciada en 1993, la cual ha servido como un módulo experimental y de capacitación en el cultivo de esta palma. La cobertura de cultivo alcanzada las 12 hectáreas, en algunas de las cuales se manejan de forma integral especies frutales, nativas y algunas introducidas como; mango, zapote, mamey, chicozapote, guaya, cítricos, entre otros.

Reforestación dirigida y reproducción de la planta para flor-cortada en la comunidad de Tekantó, Yuc.;

Este proyecto se realiza con un grupo de jubilados henequeneros quienes se encuentran consolidados como una Sociedad de Solidaridad Social, se inicia con el apoyo brindado por Sostenibilidad Maya (Universidad de California, Riverside) para el rescate y promoción del sistema de manejo de Xunan kab (*Melipona beechell* Beneth), como una alternativa productiva en los traspatios mayas-yucatecos y como un rescate cultural aunado a la posibilidad de tener una fuente de empleo de tiempo parcial.
Se pretende establecer criaderos de Xunan kab y conformar un módulo de producción de traspatio y como parte complementaria se realizará el establecimiento de viveros con 10 especies nativas multipropósito y plantas para flor-cortada. Todo esto con la participación directa de 12 mujeres a las cuales se les capacitará, además se diseñarán diferentes presentaciones del producto y se realizará la busqueda de vías de comercialización.

Manejo de un sistema integral selva-pradera en la producción bovina y forestal de Yucatán,

El manejo inadecuado del sistema roza-tumba-quema, el cultivo del henequén y el crecimiento de la ganadería extensiva, han sido la causa de la disminución de las áreas que comprenden la selva en el estado de Yucatán. El objetivo de este proyecto es desarrollar un modelo de manejo adecuado de la asociación selva-pradera-plantación forrajera; a través del establecimiento de plantaciones forestales y de especies forrajeras, arboreas y arbustivas, así como el enriquecimiento de la selva con especies forestales y finalmente el diseño del manejo para el pastoreo en la asociación selva-pradera.

Desarrollo del turismo ecológico y cultural en el ejido Tulum en Quintana Roo.

La comunidad originaria de Tulum representa a la población maya tradicional que más fuerte y directamente ha sido impactada por el desarrollo turístico de la zona, en los aspectos social, cultural, ecológico y económico; la idea principal de este proyeto es el desarrollo de un modelo turístico alternativo y de aplicación regional definido por: la participación comunitaria, el beneficio directo a la comunidad y el aprovechamiento adecuado del ambiente, así como la preservación de la cultura maya.

Todas estas acciones nos permiten conocer la situación de los recursos naturales que son objeto de manejo y explotación por los grupos indígenas de México, así como valorar la importancia que para ellos representa un continuo de los recursos a través del tiempo, dado que forma parte de su cultura y entorno.

Sin embargo aún se pueden considerar como un fenómeno aislado, dado que el reconocimiento de su importancia es reciente, para convertirlo en un fenómeno generalizado, es necesario impulsar la toma de conciencia de la sociedad en general para su fortalecimiento, a través de la capacitación y el apoyo decidido hacia la formación de organizaciones sociales que serian base para iniciar hacia un desarrollo comunitario sustentable.

AREAS NATURALES PROTEGIDAS/PROYECTOS PRODUCTIVOS

AREA NATURAL	ESTADO Y MUNICIPIO	EXT. Has.	ETNIAS	ORGANIZACIÓN SOCIAL	CATEGORIA	F. DE MANEJO	BIODIVERSIDAD	F. DE DEC.
Reserva de la biósfera El Vizcaino	BCS-Desierto del Vizcaino Guerrero Negro, Laguna Ojo de Liebre, Vertiente de California, Isla Delgadito Islas Pelicano, Islotes Delgadito, Isla Malcub, Isla San Ignacio, Isla San Roque, Isla la Asunción e Isla Natividad. entre otras zonas localizadas del Municipio de Mulege	2,546,790.25			Reserva de la biósfera	En operación	Matorral xerofilo-microfilo, matorral xerófilo-bosque de coniferas Fauna, felinos, ballenas, turión (Tursiops tauncatus), aves antilopes (Antilocarpa sp.)	30/11/88
Reserva de la biósfera Calakmul	CAMP-Champotón y Hopelchén	723,185.00 -12 - 50	Maya	Consejo de representantes	Reserva de la biósfera	En operación	Selva alta, mediana y baja subperennifolia, vegetación hidrólita Fauna, felinos, monos, tapir, temazate, oso hormiguero, aves.	23/05/89
Reserva de la biósfera Manantlán	Zapotitlán de Badillo, Autlán, Huxcacuesco, Cuautitlán, Casimiro Castillo Tolimán, (Jal.), Minatitlán, (Col.)	139,577.00 -12 - 50	Nahuatl	SSS "Ayotitlán Miguel Fernández Velasquez"	Reserva de la biósfera	En proceso	Bosque de encino, mesófilo de montaña, selva mediana subcaducifolia, vegetación de sabana	23/03/87
Reserva de la biósfera Sian Ka'an	QROO-Felipe Carrillo Puerto, Cozumel.	528 147.00 -66 - 80	Maya		Reserva de la biósfera	En operación	Selva mediana y baja subperennifolia, selva baja caducifoli, manglar, tintales, marismas, petenes, vegetación de dunas costeras. Fauna, felinos, monos, tapir, tepezcuintle, aves, manati, tortugas, cocodrilo	20/01/86
Reserva especial de la biósfera Mariposa Monarca	MICH-Ocampo, Angangueo-Zitácuaro, Contepec. EDOMEX-Donato Guerra, Villa de Allende y Temazcaltzingo.	16,110.00 -14 - 50	Nahuas y Purhépechas		Reserva especial de la biósfera	En operación (plan de emergencia)	Bosque de oyamel de latifoliadas pastizales, matorral de juniperus. Fauna mamiferos, aves, reptiles, anfibios y principalmente santuario de la mariposa Monarca	9/04/80
Reserva especial de la biosfera Isla Tiburon	SON-Hermosillo	120,800.00	Seris Konka'ak	Gobierno tradicional Konka'ak	Reserva especial de la biósfera	En proceso	Vegetación xerofila y selva baja.Fauna, aves, reptiles, mamiferos y aves migratorias	15/03/63
Reserva especial de la biósfera sierra de Santa Martha	VER- Soteapan, Mecayapan y Pajapan	20,000.00	Nahuas-Popolucas		Reserva especial de la biósfera		Selva alta perennifolia vegetación de dunas costeras, selva mediana subperennifolia, vegetacion rupicola Fauna. mamiferos, felinos, aves y otras especies.	28/04/80

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AREAS NATURALES PROTEGIDAS/PROYECTOS PRODUCTIVOS

AREA NATURAL	ESTADO Y MUNICIPIO	EXT. (Ha)	ETNIAS	ORGANIZACIÓN SOCIAL	CATEGORIA	P. DE MANEJO	BIODIVERSIDAD	F. DE DEC.
Reserva de la biosfera El Pinacate	SON	714,556.00	Seris O'dham	Gobierno tradicional O'dham	Reserva de la biosfera	En proceso	Matorral xerofilo, vegetacion costera y de humedales, chaparral, mezquites, matorrales arborescentes, 4spp. endémicas Fauna mamiferos, felinos, aves, reptiles, antibios y el pez perrito del desierto.	10/06/93
Reserva de la biosfera Alto Golfo de California y delta del rio Colorado	SON, BCN	934,756.00	Pai pai		Reserva de la biosfera	En operacion	Matorral inerme, de dunas costeras, desertos áridos arenosos, vegetación remanente de antiguos humedales del rio Colorado. Fauna: Aves, reptiles, canidos y felinos.	10/06/93
Reserva de la biosfera Sierra del Abra Tanchipa	SLP/Cd. Valles	21,464.00	Huasteco	Ejidos	Reserva de la biosfera	No tiene	Selva mediana perennifolia	1994
Area de proteccion de flora y fauna, silvestres y acuaticas YUMBALAM	QROO/Othon Blanco	154,052.00	Mayas	YUMBALAM A.C. Ejidos	Area protegida	En proceso	Selva mediana subcaducifolia	

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NEW ZEALAND

The protection of traditional Maori intellectual and cultural property and indigenous material, which includes forest-related traditional knowledge, is a matter of the utmost concern to Maori. Expropriation or inappropriate use of this knowledge is seen by Maori as threatening its integrity and as a consequence Maori custom.

Traditional Maori knowledge is, however, also seen by Maori as a productive asset able to be used to achieve social and economic development for Maori. The fact that indigenous knowledge and biodiversity are seen globally as having commercial value reinforces this view.

There are initiatives underway to address concerns that Maori have in relation to their cultural and intellectual property rights. These initiatives are in development phase at present but it is hoped that mechanisms developed will not only protect traditional knowledge but also realise scope for enhancement and innovation.

SAUDI ARABIA

بسم الله الرحمن الرحيم

Royal Embassy of
Saudi Arabia
Nairobi

سفارة المملكة العربية السعودية
نيروبي

TO FAX : 000-1-514-288-65-88

FROM FAX : 000-254-2-760939

No : SAE-K/71/4/96

17 April 1996

Mr. Calestous Juma
Executive Secretary
Secretariat of the Convention on Biological Diversity
World Trade Centre
413 St. Jacques Street,
Office 630
MONTREAL,
Quebec
CANADA H2Y 1N0

Dear Sir

With reference to your request for information on Forests, Indigenous People and Local Communities for preparation of draft document to be submitted in April 1996 for the consideration of the Intergovernmental Panel on forests, we would like to inform that the available information about the bushes in Saudi Arabia will not be of a big use for the document as this type of situation does not prevail in the Kingdom of Saudi Arabia.

Yours faithfully
ROYAL EMBASSY OF SAUDI ARABIA

ROYAL EMBASSY OF SAUDI ARABIA

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SOUTH AFRICA

Mr Juma,

Re: Request for written contributions and information on:

a. The Conservation and sustainable use of Marine and coastal biological diversity
b. Intellectual property rights
c. Transfer and development of technology under the CBD
d. Information on Forests and biological diversity.

Re: Background material
a. Knowledge, innovations and practices of indigenous and local communities
b. Incentive measures for promoting conservation and sustainable use of biological diversity
c. Identification, monitoring and assessment of biological diversity

Re: Guidelines of the review of the effectiveness of the financial mechanism of the CBD.

Unfortunately South Africa is not yet in a position to make a meaningful contribution with regard to the above mentioned requests.

South Africa is currently in the process of developing a strategy for the implementation of the Convention on Biological Diversity (CBD). As soon as this process is under way and the appropriate and responsible organisations have been identified, we would submit the information you requested (Target date, 31 August 1996).

Yours sincerely
Kallie Naude
Assistant Director
Department of Environmental Affairs and Tourism

SUDAN

Forests and Biological Diversity Contribution and Information on Biodiversity conservation and Management in the Sudan

1. Introduction:

1.1. Environmental and Developmental Issues in the Sudan:

Sudan the largest country in Africa, with a geographical area of 250.6 million hectares, faces serious environmental and economic problems which are interrelated. The most populated part of the country is located in the Sahelian zone, with low and erratic precipitation , and hence low biomass productivity. Annual deforestation, estimated as 282000 hectares (FAO, 1993) is one of the highest in Africa, second only to Zaire. Most of the deforestation is attributable to the expansion of authorized farming, both organized and unorganized, and the removal for fuelwood and charcoal. The clay plains which support extensive savannah woodlands became the main food producing area and in the quest of self-sufficiency, extensive areas have been cleared.

The above situation has had a deleterious effect on the unique flora and fauna in the area. Most of the savannah woodlands in the Central and Eastern States have been cleared and even reserves gazetted after protracted settlement procedures been altered through grazing, unsustainable removal of forest products and mechanized farming. Traditional nomadic routes have been blocked and this has increased the grazing pressure on what little remains of the natural vegetation. Although the savannah woodland vegetation has remarkable recuperative capacity, sustained pressure has led to irreversible damage.

Traditionally economic development and natural resource conservation were regarded as mutually incompatible and in the event of conflicts, the short term economic gains get precedence over long term sustainable management. The narrow protection oriented approach adopted by conservation agencies also contributed to the conflict between resource conservation and economic development. Although policies and programmes on conservation of natural resources have been formulated in the Sudan in the past, their implementation has been slack largely due to a variety of factors. However, with the increasing awareness of the inseparability between environmental conservation and sustainable economic development, there is an increasing emphasis on new strategies and approaches to natural resource conservation.

2. A survey of extinct and endangered tree species:

A study was compiled at the request of the Director General National Forests Corporation, to survey tree species threatened by the adverse climatic conditions including both indigenous and exotic tree species of forestry interest as well as those of cultural & scientific value which deserve more consideration. It is also to include tree species for which recent utilization has been discovered (economically, socially or culturally) and recommendations regarding their regeneration in adequate sites and necessary techniques to ensure their propagation.

As early as 1942 a warning was made that something must be done to protect tree species and a Soil Conservation Committee put forward many recommendations some of which saw the light in the 1960's but the majority still wait in the dark.

Since then the steady increase in population both, human and animal, the increasing urbanization and the rise in. the standard of living constituted an added burden which trees had to face.

Meanwhile desertification has been continuously at work and gradually intensifying until the catastrophic drought of 1984 hit a great part of the world .The Sudan was one of the more severely affected.

It is no exaggeration to say that most members of the plant kingdom are endangered. The more useful members suffer more than the others, where their condition has even inspired more uses to be made of the less useful due to the general scarcity of plant resources.

In the study the emphasis was naturally on tree species. Since the southern part of the country has been unstable for a long time information is deficient from the mid sixties to the present. The manner in which the survey was handled was as follows.

2.1. Indigenous species:

The list of endangered species includes the following categories of tree species:

1. Species threatened with extinction outright. Their existence is confined to limited locations some of which are not known and may require intensive as well as extensive field surveying. Such species include:

   Dracaena ombet kotchy & Feyr. Juniperus procera Hochst. ex Eng. Rhizophora micronata Lam.

2. Species which show marked retreat in their distribution and regeneration due both to the climatic conditions and also due to the intensity of their removal for wood, fodder, clearance for cultivation or utilization of one part or other of the plant. In most cases the extent of regeneration of such plants does not cope with the intensity of their removal . Under this category come the majority of species listed. Examples of these include *Faidherbia albida (Del.) Chev.*
(Acacia albida)
Acacia senegal (L.) Willd. var.senegal
Brenan
Acacia tortillis (Forsk.) Hayne subsp.
tortillis Brenan

3. *Species of cultural & scientific importance which require more attention to their regeneration and representation in different parts of the country. These include:*
Adansonia digitata L.
Delonix elata (L.) Gamble
Kigelia africana (Lam.) Benth.
Pterocarpus lucens Guill. & Perr.
Steriospermum kunihianum Cham.

4. *Species of potential intensive utilization by using techniques not previously employed. Such include:*
Acacia seyal Del. subsp. seyal Brenan
Balanites aegyptiaca Del.
Oxytenanthera abyssinica (A.Rich) Munro.

5. *Species requiring more exploration of their properties to ensure maximum utilization such include:*
Acacia senegal Del. subsp. senegal Brenan
Adansonia digitata L.
Boswellia papyrifera (Del.) Hochst.

2.2. Exotic Species:

The list of exotic species includes mainly species which have reached tree size and produced fruits and viable seeds. Of these we considered as endangered those which have been neglected and no longer propagated at a satisfactory scale, due either to:

a. The fact that they had originally been introduced to fulfill a particular objective which they did not or a more satisfactory alternative was resorted to. The important fact is that they had

not been considered for other jobs, thus requiring more investigation of their properties.

b. The fact that some of these species, although they had fulfilled their original objective, showed certain adverse properties. The important fact is that nothing was done to ameliorate such effects or to follow up their introduction with more suitable strains of the same species.

c. Some successful exotics had been neglected or not sufficiently propagated for no apparent reason. At any rate they qualify for more regeneration.

d. Certain species had been introduced under false identity discovered after decades but no one seems keen to correct the mistake and follow up the correct introduction.

2.3. Indigenous species endangered

2.3.1 Category 1 species threatened with outright estination

1. *Bruguira gymnorrhiza (L.) Lam.*
2. *Dracaena ombet kotchy & Feyr.*
3. *Gynocarpus jaequinii Laws.*
4. *Juniperus procera Hochst. ex Eng.*
5. *Maerua crassifolia Forsk.*
6. *Rhizophora mucronata lam.*
7. *Tamarix mannifera Ehremb.*

2.3.2. Category 2 ; Species with marked retreat.

1. *(Acacia albida Del) Faidherbia albida (Del.) Chev.*
2. *Acacia asak (Forsk.) Willd.*
3. *Acacia ehrenbergiana Hayne.*
4. *Acacia etbaica Schweinf. subsp. etabalca Brenan*
5. *acacia laeflar.br. exb enth*
6. *acacia sieberiana dc.*
7. *Acacia tortillis (Forsk.) Hayne subsp. raddiana (Savi) Brenan.*
8. *Acacia tortillis (Forsk.) Hayne subsp. tortillis Brenan*
9. *Avicennia marina Vierh.*
10. *Banalites aegyptiaca Del.*
11. *Bauhinia rufescens Lam.*
12. *Borassus aethiopum Mrt.*
13. *Capparis decidua (Fork.) Edgew.*
14. *Cassia italica (Mill.) F.W. And.*
15. *Cassia senna L.*
16. *Combretum africana (A.Rich.) Eng.*
17. *Commiphora africana (A.Rich.)Eng.*

/...

18. *Cordia abyssinica R.Br.*
19. *Cordia mellenii Baker.*
20. *Cordia ovalis R.Br.ex DC.*
21. *Cordia sinensis Lam.*
22. *Crateva adansonii DC.*
23. *Dalbergia melanoxylon Guill. & Perr.*
24. *Delonix elata (L.) Gamble*
25. *Diospyros mespilliformis Hochst ex DC.*
26. *Dobera glabra (Forsk.) A.Dc*
27. *Dodonea viscosa Jaccq.*
28. *Eculea schimperi (A.DC.) Dandy*
29. *Ficus sycamorus L.*
30. *Hyphaene thebaica (L.) Mart.*
31. *Isoberlinia doka Craib & Slapf.*
32. *Khaya senegalensis (Dese.) A.Juss.*
33. *Khaya grandifoliolia C.DC.*
34. *Kigelia africana (Lam.) Benth.*
35. *Lophira alata Banks. ex Gaerth.f.*
36. *Mitragyna inermis (Willd.) Kuntz.*
37. *Oxytenanthera abyssinica (A.Rich) Munro.*
38. *Parkinsonia aculeata L.*
39. *Prosopis africana (Guill. & Perr.) Taub.*
40. *Pseudocedrela kotschyi (Schweinf.) Harms.*
41. *Pterocarpus lucens Guill & Perr.*
42. *Salvadora persica L.*
43. *Sclerocarya birrea (A.Rich) Hochst.*
44. *Spathodia nilotica Seem.*
45. *Steganotaenia araliacea Hochst.*
46. *Sterculia africana (Lour.) Fiori*
47. *Steriospermum kunthianum Cham.*
48. *Tamarix aphylla (L.) karst.*
49. *Tamarix nilotica (Ehrenb.) Bunge*
50. *Terminalia brownii Fresen.*
51. *Terminalia glaucescens Benth.*
52. *Terminalia laxiflora Eng. & Diels*
53. *Terminalia spinosa Eng.*

2.3.3. Category 3. Species with cultural and scientific Importance:

1. *(Acacia albida Del) Faidherbia albida (Del.) Chev.*
2. *Adansonia digitata L.*
3. *Borassus aethiopum Mrt.*
4. *Delonix elata (L.) Camble*
5. *Hyphaene thebaica (L.) Mart.*
6. *Pterocarpus lucens Guill. & Perr.*
7. *Salvadora persica L.*

8. *Spathodea nilotica Seem.*
9. *Steriospermum kunthianum Cham.*
10. *Tamarindus indica L*

2.3.4. Category 4 Species of Potential intensive Utilization:

1. *Acacia nilotica (L.) Willd. ex Del. Subsp. nilotica Brenan*
2. *Acacia nilotica (L.) Willd ex Del. Subsp. tomentosa (Benth.)*
3. *Acacia nilotica (L.) Willd. ex Del. subsp. astringens Roberty*
4. *Acacia seyal Del. subsp. seyal Bernan*
5. *Acacia seyal Del. subsp. fistula Brenan*
6. *Balanites aegyptiaca Del.*

2.3..Category 5. : Species requiring more exploration:

1. *(Acacia albida Del.) Faidherbia albida (Del,) Cher.*
2. *Acacia nilotica (L.) Willd ex Del. subsp. nilotica Brenan.*
3. *Acacia nilotica (L.) Willd. ex Del. subsp. tomentosa (Benth.Brenan.*
4. *Acacia mellifera (Vahl.) Benth.*
5. *Acacia senegal Del. subsp.senegal Brenan.*
6. *Acacia seyal Del. subsp. fistula Brenan.*
7. *Acacia seyal Del subsp. seyal Brenan.*
8. *Dobera glabra (Forsk.) A.DC.*
9. *Salvadora persica L.*
10. *Sclerocarya birrea (A. Rich.) Hochst.*

3. Biodiversity and the livelihood and prosperity of the people of the Sudan.

3.1. Uses of trees & shrubs:

The diversity of trees & shrubs of the Sudan is reflected in their past and present uses. The following uses are made of trees and shrubs:-

1. Food by direct consumption of certain parts or extracts thereof. Examples are:

   -Boressus aethiopum Mrt. The boiled germinated seedling is eaten "Haluk", the fruit is also eaten and a palm toddy is extracted from the sap of the stem.

-Tamarindus indica L. the fruit is used to make a popular drink and there exists a sizeable trade in the fruits.
-Butyrospermum paradoxum an edible oil is extracted from the seed.
-Callotropis procera (Ait.) Ait .f. " Ushar" was used for producting sugar from the flowers, a practice no longer used.
-Adansonia digitata L. "Tebeldi" the fresh leaves are used for salads and of course the fruit is very popular for eating.

3.2. Forage: Trees and shrubs constitute the most important animal food and animals rely for over 70% of their fodder on trees particularly in the Northern half of the Sudan. Popular browse trees and shrubs are Acacia tortillis, A.seyal , A.senegal and many others.

3.3. Construction:
Wood from the stem and branches is sawn or used in the round for building, joinery and furniture.

Cordia abyssinica, Khaya senegalensis and Tamrindus indica are among the popular woods.

3.4. Energy:
This item ranks foremost in the uses of trees and shrubs in the Sudan. Wood will continue to be the source of energy in the Sudan for decades to come. At Present the Sudan relies for over 80% of its energy requirement on wood, as indicated in table 2 below.

Energy Source in Sudan (1993).

Energy source	Percent
Wood fuel (Fire wood & Charcoal)	72 %
Agricultural & animal residue	8 %
fuel oil	17 %
hydroelectricity	1 %
Total	100 %

Source : National Energy Administration, Ministry of Energy & Mining

3.5. **Fibers** : From the leaves and bark of many trees the fiber used in building, and various other purposes is obtained. Trees used are, Hyphaene thebaica "dom Palm", Phoenix dactylifera, Date palm", Adansonia digitata "tebeldi".

Some Ficus species were used in the Zande area to make textiles (Bagadi).

3.6. **Gums & Resin** : Gum Arabic is still a major export crop in the Sudan obtained from Acacia senegal "Hashab" and 80% of the world demand was once met from the Sudan. Gums from other trees eg. Boswellia papyrefera , (Tarak tarak), Commiphora africana (Gafal) and Sterculia setigera (Tartar) are finding their way to the export Market.

3.7. **Tanning Material** : From the pods of Acacia nilotica is obtained the major requirement of tanning material in the Sudan.

3.8. **Rubber** : This used to be obtained from Landolfia climber and faded out for the competition of other sources of imported rubber. A tree Manihot glaziovii was successfully introduced in the Sudan but again the competition of other sources killed the project.

3.9. **Aromatic & Medicinal** : There are over 13 species of tree and shrubs of aromatic and medicinal propects of which the following are only a few:
Acacia nilotica "sunt" "Garad"
Balanites aegyptiaca "Laloub"
Commiphora africana "gafal"

3.10. **Other Uses:**

- Salvadora persica "Arak" for toothbrushing.
- Terminalia brownii"shaf" wood smoke for cosmetic skin treatment.
- Nauclea lalifolia root from which is extracted a yellow pigment.
- Zizyphus spina christi "Sider" the dried leaves are used as a soap substitute.

However the greatest use of trees and shrubs lies in their protective function for villages, towns, agricultural land and against adverse wind effects. Shade trees are invaluable assets in many sites particularly Azadirachta indica "neem" and Ficus benghalenisis " Labakh"

The future holds great promise for the use of trees and shrubs for the production of many medical, industrial, food and fodder products, particularly with the progress of knowledge of their properties and the advance in technology.

We should not forget that the ancient civilization of Southern Arabia and the recent importance of the Horn of Africa and India was dominated by Incense gum, spices and other plant products.

4. Biodiversity in the Sudan, an Institutional Concern

Several government institutions are concerned with the conservation and management of Biodiversity . These institutions are:
The Forests National Corporation
The Agricultural Research Corporation Wildlife Conservation administrations
The Natural History Museum
Environmental and Natural Resources Research Instit.
Medical and Aromatic plants Research Institute
Omdurman University - Environmental Studies programme

Co-operation and Co-ordinations between those institutes is secured under the auspices of the Supreme Council for the Environment and Natural Resources with the National Council for Research.

4.1. Duties and Functions of the Biodiversity Unit in the Forests National Corporation (FNC)

The biodiversity unit in FNC is concerned with woody plants as represented by indigenous shrubs, bushes and trees.

The unit undertakes the following duties and functions.

4..1.1 Preparation and upkeep of comprehensive inventory of woody taxa, their natural distribution in the respective environmental conditions, their inter-relationships with man and other organizations.

4.1.2. Monitoring and evaluation of any changes in species composition, extinct and endangered species.

4.1.3. Upkeep and maintenance of herbaria and arboreta in the Various ecological zones in which the taxa are represented.

4.1.4. Establishment of seed stores and germ plasm banks for extinct and endangered taxa.

4.1.5. Cooperation and coordination with the various biodiversity units, National and International Organizations and non governmental organizations concerned.

4.1.6. Establishment and upkeep of biodiversity information bank.

4.1.7. Dissemination of biodiversity awareness among the populations specially to the decision making hierarchy.

SWEDEN

MINISTRY OF THE ENVIRONMENT

22.1.1996 M95/5122/4

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Dr Calestous Juma
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Secretariat CBD
Fax +41-22-797-2512
1 page incl. this

Dear Calestous,

Concerning our discussion about contribution on the forestry issue from a tropical expert, I would like to suggest that you take it upon you to identify and approach an appropriate person from a developing country to deal with tropical forests, in view of the sensitivities of officially designating a lead country. I've talked to our expert on international forest issues, Dr Nils-Erik Nilsson, and he suggested a contact with CIFOR in Indonesia to identify an appropriate person, and he also said that Malaysia probably was a good choice for country.

Yours sincerely

Johan

C.c.
Astrid Bergquist
Ulf Svensson

/...

SWITZERLAND

OFFICE FEDERAL DE L'ENVIRONNEMENT, DES FORÊTS ET DU PAYSAGE
Affaires internationales ✱ Section développement durable

TELEFAX

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Date:	27 February 1996
Nombre de pages:	1

REFERENCE: 8.07.27.5.1/ORT

Dear Mr Juma,

In your letter of January 10, you have requested the Parties to provide comments and additional information to the relationship between forests and biological diversity.

From our part, it will be not possible to provide any interesting contribution for March 15. In fact, we are about to organise a national consultation of experts on Swiss forest ecosystems as well as on tropical forest ecosystems, with a view of producing a substantial contribution for the document which will be prepared by your secretariat.

I need to know until when our contribution may be sent to the secretariat to be useful. Indeed, it will be tough to get this contribution before next May.

With my best wishes for your stay in Canada, I remain

Yours sincerely

Liliane Ortega

/...

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Executive Secretary
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Dear Calestous,

FORESTS AND BIODIVERSITY

Thank you for your letter of 10 January asking for views and additional information regarding the background document on the links between forests and biodiversity.

The UK regards this document as playing a crucial part in the international coverage of the importance of forests in conserving biodiversity. It will form the basis of the COP's consideration of its communication to the CSD Intergovernmental Panel on Forests. I understand that the Panel will be relying on the COP to provide the necessary input on biodiversity and forests, rather than commissioning any work of its own. It is therefore essential that the document and the resulting COP statement provide a comprehensive overview of the links between forests and biodiversity.

As you know, we feel that this work should include some factual and scientific analysis as to why forests are important for biodiversity and how biodiversity is being affected by changes in forests. This could include an analysis of what type and/or extent of change there can be without adverse effects on biodiversity.

The UK's Biodiversity Steering Group, comprising representatives of all major sectors, including industry, NGOs and research institutions, has recently considered forest biodiversity. Their report published in September 1995 gave advice to the UK Government and the attached extracts may be useful information for your study. The UK Government will respond to the report's conclusions shortly.

You will see from the extracts at Annex A (5.20 to 5.22) that there are four main issues in protecting the biodiversity of the UK's woodlands and forests:

- avoiding further reductions in the area of ancient and semi-natural

woodland;

- loss of biodiversity through replacement of habitats of high wildlife value by plantations with less value;

- loss of biodiversity through inappropriate woodland management or lack of management;

- failure of woodland regeneration due to over-grazing by sheep, deer and cattle, particularly in upland areas.

The innovative approach put forward in the UK report is to base the response on a series of species and habitat action plans. The conservation measures identified in these plans is summarised at Annex B (paragraph 5.43). These include providing better site protection, management and advice, undertaking reintroduction, determining conservation status, improving water quality or quantity, commissioning research and providing more sensitive development planning and control. The report also found three issues and actions that applied particularly to woodland management, calling for further action to encourage coppice management and to control the spread of non-native species and further woodland management guidelines. It also flagged up the problem of the poor market in domestic timber products (paragraph 5.48 at Annex C).

You may also be interested in the specific habitat action plans and statements at Annex D. The action plans cover Upland Oakwood and Native Pine Woodlands and the statements cover Broadleaved and Yew Woodland, Planted Coniferous Woodland, Native Pine Woodlands and Lowland Wood Pasture.

Yours sincerely,

pp. Tom Rivett

P F UNWIN
Head of Environment Protection International

/...

Lundy Cabbage

5.20 All woodlands and forests have some value for wildlife, but the remains of "natural" forest cover (the ancient semi-natural woodland - defined as woodland that is known to have existed continuously in England since before 1600 and before 1750 in Scotland) are the most valuable and diverse, and are of special importance because they cannot be replaced. New planting since the First World War has seen the woodland area of the UK expand to about 10% of the land surface. Much of the new woodland area comprises non-native, conifers but the planting of broadleaved species has expanded significantly in the last few years.

5.21 Recently planted woodlands are less diverse, immature ecosystems, although they can add to the biodiversity of a previously unwooded environment, especially land of low wildlife value. New woodlands established close to existing ancient, semi-natural woodland, and woodlands that follow

closely the natural processes of succession, and those which develop a spatial and structural pattern which mimics nature, have the greatest potential benefit for wildlife conservation. Single trees and hedgerows trees can also make a contribution to biodiversity.

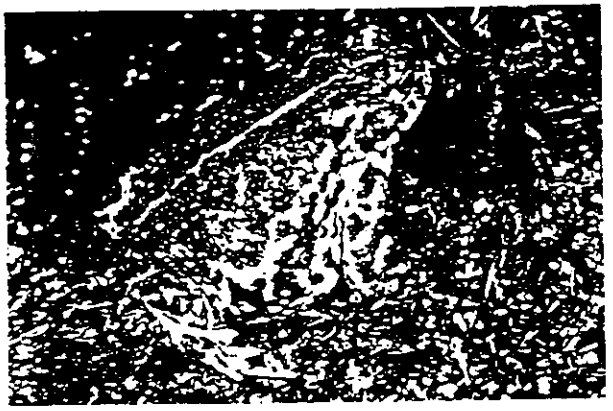
5.22 There are four main issues:-

avoiding any further reduction in the area of ancient and semi-natural woodland, which only amounts to 1.4% of the total woodland area and is greatly fragmented;

the loss of biodiversity through the replacement of habitats of high wildlife value by plantations with less value;

loss of biodiversity through inappropriate woodland management, or lack of management. There are significant areas of woodland whose value for timber production as well as for wildlife is deteriorating; and

failure of woodland regeneration due to over-grazing by sheep, deer and cattle. This is of particular concern in some upland areas, where deer and livestock grazing is causing deterioration of woodland, and a reduction in the diversity of woodland flora, but is also a growing problem in the lowlands where deer populations are increasing.



Natterjack Toad

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Scots Pine Forest

5.43 The conservation measures identified are:-

- **Provide better advice for land managers or others with an interest in the species.**

  Land managers are sometimes unaware of the presence of rare or declining species on their land, or how the land may be managed to benefit the species. Often all that is required is the provision of advice rather than financial support. Provision of advice may also be usefully extended to those with other interests in the species concerned, or the land containing them, for example local conservation groups or land users.

  Undertake ecological research, including distribution and reasons for decline.

  We do not yet know why many species are declining, so several plans call for ecological research on habitat requirements, population dynamics, genetic viability and other factors which may affect the survival of the species. The need for this sort of research is often linked to the following measure.

Determine conservation or taxonomic status.
Where the plans show it is possible that some rare and little known species may be more common than recent records actually suggest, there is a need for systematic surveys to attempt to determine range and population size or the precise taxonomic status of a species.

Provide improved site protection.
Many action plans call for existing habitat sites, additional known sites, or any sites discovered in the future to be given some protection. Site protection is not always the most effective measure required to combat a known threat, but is often an important contributory factor.

Undertake re-introduction.
Rare species would benefit from re-introduction to former sites, or translocation to new ones - once the habitat conditions are right - to ensure their long term survival.

Improve or maintain water quality or quantity.
Most of the freshwater species concerned require good quality water to breed successfully, but some are believed to be suffering from the effects of pollution. Fertiliser run-off leading to nutrient enrichment is a problem. The plans recommend that efforts are made to improve water quality through the achievement of appropriate water quality objectives. Allied to the requirement for good water quality is the need for it to be available in suitable quantities, and for the water table to be maintained. As a result, this conservation measure is often linked with the following.

Undertake wetland or pond restoration.
The loss of wetland, through drainage or water abstraction, is a limiting factor for a number of the plants and animals. Some species require restoration of their wetland habitat if their long term survival in the UK is to be guaranteed.

Improve grassland management.
Many lowland species suffer from too little grazing of their habitat by livestock. Examples of such species are the early gentian, the marsh fritillary and the silver-spotted skipper. Conversely, other species like the skylark, corncrake and brown hare would benefit from extensification of grassland use. This dichotomy highlights one of the difficulties in conserving biodiversity in the natural environment. Some threatened plants and animals would benefit from increased financial support for grassland management, or from changes to the CAP. For other species, advice or encouragement to land managers to permit a level of grazing suitable for the species may suffice.

Enforce existing legislation more rigorously.
A few species, although protected under the WCA 1981, are still threatened by specimen collection and require rigorous enforcement of the law to ensure their survival.

Increase public awareness.
Some species are declining partly because people are not aware either that they are endangered or that certain activities are damaging to them. This applies to special interest groups too, for example, providing appropriate advice and guidance to rock climbers could help to conserve the Derbyshire feather moss and the wild cotoneaster by avoiding the rock faces where they grow.

Improve or encourage management schemes for woodland.
Woodland neglect or inappropriate management are major problems for a few species, in particular those which need either an open woodland floor, or temporary clearings as created through coppice management. Different management techniques are needed for which land managers may need financial assistance.

Review agro-chemical use on farmland; also, combat pesticide and fertiliser drift from adjacent land, and air pollution caused by vehicle emissions.
The causes of the rapid decline of several widespread farmland species such as the skylark, grey partridge, song thrush and pipistrelle bat are not fully understood. Research suggests that numbers may have been affected by the increased use of agro-chemicals. It would be desirable to assess the effect of these chemicals, and to find management procedures that would allow threatened species to recover without unduly lessening the productivity of the land. Airborne chemical pollution has also been identified as a threat to five species. Development of environmentally sensitive products and techniques is a scientific and technological challenge.

Provide more sensitive development planning and control.
Populations, or certain local populations of a small number of species are under either actual or potential threat from activities which could be controlled by local authorities through development planning or control processes. The dormouse is included in this category as road developments disrupt its wildlife corridors. Other species include the Norfolk flapwort (threatened by a road-widening scheme), Shetland pondweed (a housing development), and a fungus (Tulostoma niveum) which could be eliminated by road widening. Although no other species are specifically identified in the action plans as being under such immediate threat, many plans call for the interests of


Yellow Marsh Saxifrage

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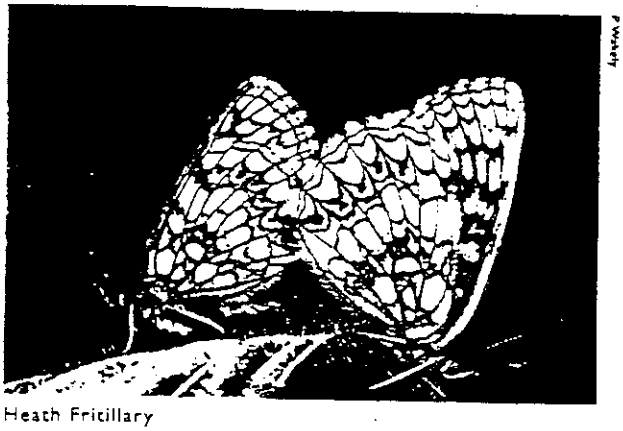
threatened species to be taken into account in local development plans. It should be emphasised that local authorities have a key role to play in the protection of species in their areas. Planning Policy Guidance on Nature Conservation (PPG9) provides comprehensive advice to local authorities in England on how the Government's policies for nature conservation are to be reflected in land-use planning under domestic and international law. Local planning authorities must take PPG9 into account in preparing development plans, and it may be material to decisions on individual planning applications.



Heath Fritillary

Table 4: SPECIES ACTION PLANS: PRINCIPAL COMMON ISSUES

Threats		Conservation measures needed	
Type	**Main causes**	**Measure**	**Action (number of species expected to benefit)**
Habitat loss and fragmentation	Change of grassland to arable Built development Coniferisation of woods Intensification of farming Land drainage and water abstraction	Habitat protection, re-creation and connection Extensification of farming	Protected areas (64) Re-introduction of species (51) Improved or maintained water quality or quantity (32) Improved grassland management (23) Land management schemes for woodland (8) More sensitive development planning and control (5)
Restricted distribution or falling population despite apparent availability of habitat	Largely unknown	Research and survey	Ecological research (75) Determine true status (52)
Natural succession or competition from other native species	Lack of grazing	Improved management of existing sites	Better advice for land managers (78) Improved grassland management (23)
Habitat quality decline	Fertiliser run-off Falling water quality Insecticides affecting birds and bats	Extensification of farming and further control of pollution in freshwater habitats	Improve water quality (32) Review of insecticide use on farmland (11)
Direct human disturbance to species	Specimen collection Public access	Improved species protection	Enforce existing legislation more rigorously (13) Increase public awareness (12) Sensitive development planning and control (5)

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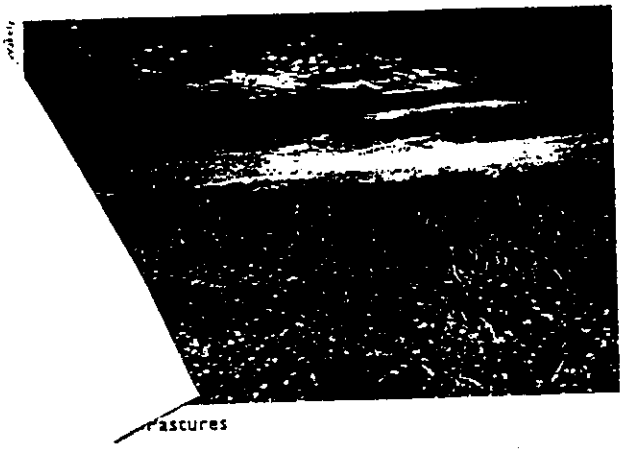
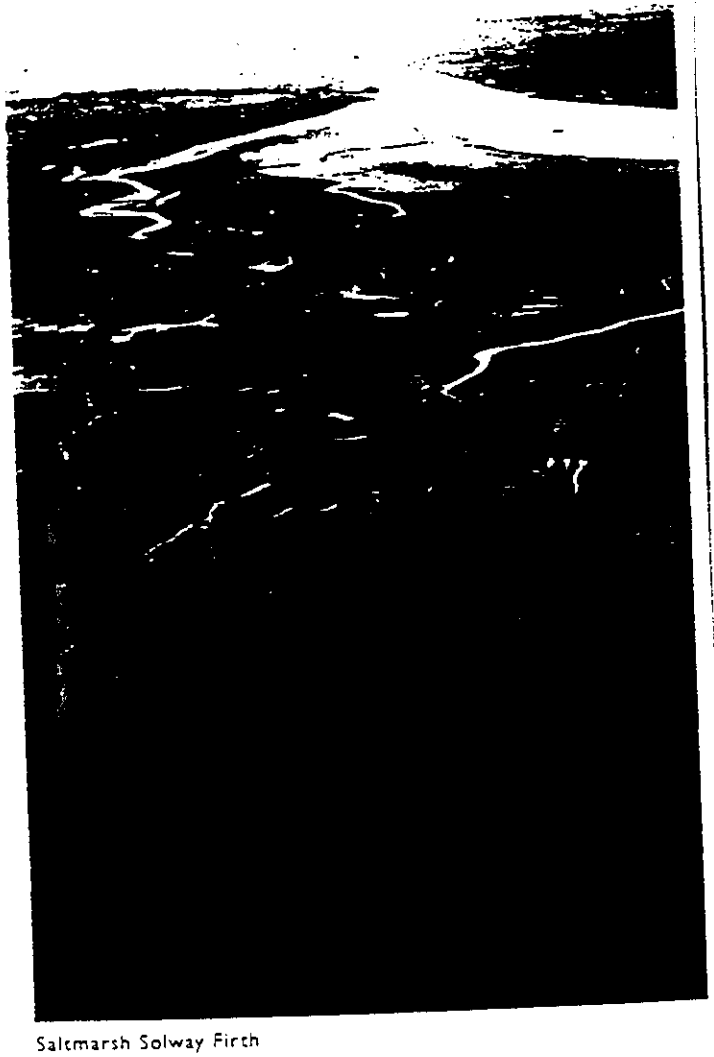
5.48 The following issues and actions apply to **wooded habitats:-**

- further action is called for to encourage coppice management and to control the spread of non-native species; further woodland management guidelines, aimed specifically at the conservation of biodiversity, would be helpful; and
- the poor market in domestic timber products is a problem because it means there is often little profit in managing broadleaved woodlands (this also indirectly encourages the import of tropical hardwoods which may be grown in an unsustainable fashion).



Pastures



Saltmarsh Solway Firth

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UPLAND OAKWOOD
A COSTED HABITAT ACTION PLAN

1. CURRENT STATUS

Upland oakwoods are characterised by a predominance of oak (most commonly sessile, but locally pedunculate) and birch in the canopy, with varying amounts of holly, rowan and hazel as the main understorey species. The amount of birch in the woods tends to increase in north-west Scotland. The range of plants found in the ground layer varies according to the underlying soil type and degree of grazing from bluebell-bramble-fern communities through grass and bracken dominated ones to healthy moss-dominated areas. Most oakwoods also contain areas of more alkaline soils, often along streams or towards the base of slopes where much richer communities occur, with ash and elm in the canopy, more hazel in the understorey and ground plants such as dog's mercury *Mercurialis perennis*, false brome *Brachypodium sylvaticum*, Ramsons *Allium ursinum*, Enchanter's nightshade *Circaea lutetiana*, and tufted hair grass *Deschampsia cespitosa*. Elsewhere small alder stands may occur or peaty hollows covered by bog mosses *Sphagnum* spp. These elements are an important part of the upland oakwood system. The ferns, mosses and liverworts found in the most oceanic of these woods are particularly rich; many also hold very diverse lichen communities and the woods have a distinctive breeding bird assemblage, with redstarts *Phoenicurus phoenicurus*, wood warblers *Phylloscopus sibilatrix*, and pied flycatcher *Ficedula hypoleuca* being associated with them throughout much of their range. In Wales the woods are also the main breeding areas for red kites *Milvus milvus*. The invertebrate communities are not particularly well-studied compared to those in some other woodland types but support a range of notable species including for example the chequered skipper butterfly *Carterocephalus palaemon* in some Scottish sites.

There are no precise figures for the total extent of this woodland type, but it is believed to be between about 70,000 and 100,000 ha in the UK. It is found throughout the north and west of the UK with major concentrations in Argyll and Lochaber, Cumbria, Gwynedd, Devon and Cornwall. Related woodland does occur on the continent, particularly in the more oceanic areas but the British and Irish examples are recognised internationally as important because of their extent and distinctive plant and animal communities. For some of these species Britain and Ireland hold a substantial part of the world/European population.

2. CURRENT FACTORS AFFECTING THE HABITAT

Upland semi-natural woods have declined by about 30-40% in area over the last 59-60 years as a result of replanting, mainly with introduced conifers, clearance for quarries or other developments in some areas, and from conversion to rough grazings. Recent changes have greatly reduced the amount of inappropriate planting in the woods so the current factors affecting the habitat are:

- Over-grazing by sheep and deer throughout much of the range of the woods.
- Invasion by species such as rhododendron *Rhododendron* spp., which shades out the ground layers and eliminates much of the conservation interest.
- Development pressures such as new roads and quarrying.
- Effects of air pollution, especially on lichen and bryophyte communities.
- In some cases, unsympathetic forest management, where felling rates, choice of broadleaf species planted, or methods of working do not yet reflect published guidelines.

3. CURRENT ACTION

3.1 Legal status

National forestry policies include a presumption against the clearance of any broadleaved woodland for conversion to other land uses and seek to maintain the ecological interest of ancient semi-natural woodland. Felling licences will normally be required, if the woods are not managed under plans approved by the Forest Authority. Management of semi-natural woodlands, including upland oakwoods, has to be in accordance with guidelines published by the Forestry Authority to receive felling licences or grant-aid.

Woods in some areas may receive special attention under structure, National Park or local plans, or through the application of Tree Preservation Orders.

In Britain habitat protection is provided by the Wildlife and Countryside Act 1981 and the resulting SSSI network. In Northern Ireland habitat protection is provided by ASSIs which are declared under the Nature Conservation and Amenity Lands Order (NI) 1985. About 20 - 30% of the resource is estimated to have been notified as SSSI/ASSIs. Western acidic oak woodland is also listed on Annex I of the EC Habitats Directive and the UK Government has recently set out its proposals for a number of areas which it considers merit designation as SACs.

3.2 Management, research and guidance

The statutory conservation agencies carry out survey and monitoring programmes which can be used to identify the extent and current condition of the upland oak wood resource. Similar work is also carried out in places by local authorities, NGOs and the Forestry Authority.

In 1994 the Forestry Authority, after consultation and collaboration with the conservation agencies, published a set of guides to the management of semi-natural woodlands, including one for upland woods. These build on and summarise advice previously produced by the agencies and NGOs. Grants for restocking, and various other forms of management are available from Forestry Authority and to a lesser extent from other government agencies.

A series of "woodland initiatives" (e.g. Sylvanus in south-west England, Coed Cymru in Wales, Cumbria Broadleaves and Highland Birchwoods) are promoting the management of these woods at the local level, with support from, and using the grants of, the Forestry Authority and conservation agencies. A recent concordat between the Forestry Authority and the National Parks of England and Wales is aimed at promoting the expansion of native woodland which will be predominantly of upland oakwood in the National Parks, while in Scotland the Millennium Forest proposal will also involve some new upland oakwood creation. Some ESAs include woodland prescriptions and others require the agreement holder to seek management advice.

Research undertaken primarily by universities, the Forestry Authority and the conservation agencies, is underway into ways of managing these woods for a variety of objectives, including investigation of the markets for the products of management.

There is also a wide range of experience and activity among the major land-owners of these types of woodland. Probably about 50-60% of upland oakwoods are owned and managed by private individuals but other major holders include the Forest Enterprise, the National Trust, other NGOs, and the conservation agencies. These contribute a wide range of experience to the management of these woodlands.

4. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

- Maintain the existing area (70,000 to 100,000 ha) of the upland oakwood system and improve its condition, by a mixture of management for timber (predominantly as low intensity high forest), as sheltered grazing, and minimum intervention.
- Avoiding other habitats of high nature conservation value, expand the area of upland oakwood by about 10% on to currently open ground, by some planting but particularly by natural regeneration by 2005.
- Identify and encourage the restoration of a similar area (about 10%) of former upland oak woodland that has been degraded by planting with conifers or invasion by rhododendron.

Upland oakwood has declined in area by clearance, particularly to agriculture, by about 7% since the 1930s and about another 38% has been replanted with non-native species. A target of 10% for expansion will go a long way towards reversing the fragmentation that has occurred through clearance since the 1930s. The initial 10% target is low enough that we can be sure that sufficient suitable stands can be found, and high enough that the total amount created will significantly improve connectivity between isolated blocks of semi-natural woodland and increase the size of other patches.

5. PROPOSED ACTIONS WITH LEAD AGENCIES

5.1 Policy and legislation

- Ensure the "*Guidelines for Sustainable Forestry*" agreed at the 1993 Helsinki Conference, and in subsequent international fora, are being applied in upland oakwoods under existing forestry policies and revise policies as appropriate. (ACTION: DANI, FA)
- Evaluate the success and appropriateness of the Woodland Grant Scheme and other funding mechanisms to achieve the desired management (or minimum intervention) in these woods and seek adjustments to policy or funding as appropriate. Consider the need to establish a new woodland initiative for management of native/semi-natural woodland to reflect the higher conservation and amenity values of such sites and their generally lower timber potential. (ACTION: CCW, EN, FA, SNH, SOAEFD, WOAD)
- Evaluate implications of agricultural policies in the uplands for the management of these woods and seek changes as appropriate. (ACTION: CCW, DANI, DoE(NI), EN, FA, MAFF, SNH, SOAEFD, WOAD)
- Seek to strengthen planning legislation to include a presumption against development including road building within upland oakwoods. (ACTION: DoE)
- Encourage the adoption of policies in local and regional plans and the development of Indicative Forest Strategies promoting the conservation and expansion of upland oakwoods by local authorities, based on the best currently produced by relevant authorities by 2000. (ACTION: DoE, DoE(NI), LAs, SO, WO)
- Discourage re-stocking of conifer plantations adjacent to, or in extant upland oakwoods. (ACTION: CCW, DANI, DoE(NI), EN, FA, SNH)

5.2 Site safeguard and management

- Where significant gaps in the SSSI/ASSI coverage of upland oakwoods are identified the appropriate SSSI/ASSI procedure should be implemented by 2000. (ACTION: CCW, DoE(NI), EN, SNH)
- Examine the value of establishing new "woodland initiatives" such as Coed Cymru in upland oakwood areas not covered by existing schemes. (ACTION: CCW, DANI, DoE(NI), EN, FA, SNH)
- Promote "agreed management plans" for upland oakwoods that cover the various ways in which they may be treated (i.e. including minimum intervention where appropriate). (ACTION: CCW, DANI, DoE(NI), EN, FA, LAs, SNH)
- Promote the management and restoration of upland oakwoods in Forest Design Plans. (ACTION: FA, DANI, FE)
- Encourage groups of owners (particularly public sector and NGOs) to co-operate in the acquisition and management of woods so as to improve the opportunities to reduce oakwood fragmentation and isolation of the species they contain. (ACTION: CCW, DoE(NI), EN, FA, SNH)
- Devise an indicative plan which targets areas for planting/natural regeneration and which identifies where planting/natural regeneration should not be encouraged because of important existing habitats. (ACTION: CCW, EN, FA, SNH)

5.3 Advisory

- Provide advice on and promote the management of deer in areas where they are (or might become) major limitations on the regeneration and spread of upland oakwoods. (ACTION: ADAS, CCW, EN, FA, Red Deer Commission, SNH)
- Continue to promote training courses on the conservation and management of semi-natural woodland including the special features and conditions that apply to upland oakwoods. Develop informal training and networking opportunities at a local level. (ACTION: CC, CCW, EN, FA, NPA, SNH)
- Provide advice on the marketing and use of products from upland oakwoods. (ACTION: FA)

5.4 International

- Encourage the European Environment Agency and the European Centre for Nature Conservation to produce estimates of the extent and distribution of comparable and related woodland, and exchange experience on research and management.(ACTION: CCW, EN, JNCC, SNH)
- Consider expanding links with the European Forestry Institute and proposals to develop a network of near-natural (minimum intervention) forest research sites and include examples of upland oakwoods in such a network. (ACTION: CCW, EN, FA, SNH)
- Seek to develop the current EC concerted action on grazing into a research programme to improve grazing management in these woods. (ACTION: CCW, EN, FA, SNH)

5.5 Future research and monitoring

- Expand the range of sites where long-term monitoring of this woodland system takes place including a range of both managed and minimum intervention sites. (ACTION: CCW, EN, FA, SNH).
- Develop rapid simple monitoring systems for relating the condition of these woods to the current and recent past management. (ACTION: CCW, EN, FA, SNH).
- Research the best ways of restoring sites that have been replanted with non-native species or are heavily invaded by rhododendron. (ACTION: CCW, EN, FA, SNH)
- Research the opportunities, conservation benefits and other implications for developing one or two new large areas of near natural upland woodland stretching from the floodplain to the tree-line. (ACTION: CCW, EN, FA, SNH).

5.6 Communications and publicity

- No action proposed.

COSTINGS

The successful implementation of the action plan will have resource implications for both the private and public sectors. The data in Table 1 below provide a preliminary estimate of the likely resource costs to the public sector in the years 1997, 2000 and 2010, in addition to existing public expenditure commitments in 1995.

There are currently about 20,000ha of western oak woodland under favourable conservation management programmes. In order to meet the target of up to 100,000ha there will be further expenditure required and is estimated in the table below. A further 10,000ha of habitat are assumed to be restored during the action plan and public sector expenditure requirements are also shown below.

The data are based on targets whereby 100,000ha of western oak woodland will be appropriately maintained and improved through to 2010.

HABITAT TYPE: Upland Oak Woodland (£000 per annum)

Area to be maintained and enhanced (Ha)	1997	2000	2010
100,000	1,400	2,800	5,600
Area to be restored (Ha)			
10,000	2,000	4,000	6,000

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NATIVE PINE WOODLANDS COSTED HABITAT ACTION PLAN

1. CURRENT STATUS

Native pine woodlands are relict indigenous forests dominated by self-sown Scots pine *Pinus sylvestris* which occur throughout the central and north-eastern Grampians and in the northern and western Highlands of Scotland. They are an important western representative of the European boreal forests in which structure and succession was probably determined naturally by storms and natural fires caused by lightning.

Native pinewoods occur on infertile, strongly leached, podsolic soils. They do not support a large diversity of plants and animals compared with some more fertile habitats. However, there is a characteristic plant and animal community which includes many rare and uncommon species. The main tree species is Scots pine although birches *Betula spp.*, rowan *Sorbus aucuparia*, alder *Alnus glutinosa*, willows *Salix spp.*, bird cherry *Prunus padus* are also found. Sessile oak *Quercus petraea* also occurs infrequently, mainly in the north-east of Scotland. A shrub understorey, where browsing levels are low, includes common juniper *Juniperus communis*, aspen *Populus tremula*, holly *Ilex aquifolium* and hazel *Corylus avellana*. Old or dead trees and rotting wood supports significant beetle and bryophyte communities. The field layer is characterised by acid tolerant plants like bell heather *Erica cinerea*, blaeberry *Vaccinium myrtillus* and crowberry *Empetrum nigrum*. Many uncommon and rare species are found in this habitat including the specialist hoverfly *Callicera rufa* and the distinctive bird species capercaillie *Tetrao urogallus*. Britain's only endemic bird species the Scottish crossbill *Loxia scotica*, and rare species such as twinflower *Linnaea borealis* and one-flowered wintergreen *Moneses uniflora* are also found mainly in the native pinewoods.

In pre-historic times native mixed forests dominated by pine may have covered over 1.5 million ha in the Scottish Highlands about 4,000 years ago. Now they occupy around 1% of this former range, some 16,000 hectares, which is spread over 77 separate areas across the Highlands. Much of the areas are sparsely wooded, and regeneration is being prevented in many areas by heavy browsing by deer and sheep. However, recent regeneration schemes have started to increase the area again. Genetically distinct populations have been identified in different regions, particularly in the north-western and south-western Highlands.

2. CURRENT FACTORS AFFECTING THE HABITAT

The primary factors influencing native pinewoods as wildlife habitats are:

- Poor natural regeneration and reduced diversity due to browsing by deer and sheep.
- Fragmentation and isolation of individual woods with consequent loss of wildlife interest and possibly loss of genetic variation.
- Limited diversity of structure in many woods related to historical exploitation and overgrazing.

Past threats which have now ceased include:

- Underplanting with non-native conifer species.
- Active conversion to other land uses.

Expansion of the area of native pinewoods is underway by regenerating the remnant semi-natural woods and planting new native pinewoods of a natural character.

3. CURRENT ACTION

3.1 Legal status

Forestry policy prevents the clearfelling of native pinewood for conversion to other land uses and aims to:

- maintain and restore the natural ecological diversity and aesthetic values of native pinewoods;
- maintain the genetic integrity of populations of native pine, including the identified sub-populations, and of associated trees and shrubs;
- expand remnant native pinewoods and also create new native pinewoods on suitable sites within their natural range;

as well as to take suitable opportunities to produce usable wood.

Felling licences or grant aid from the Forestry Authority will be conditional upon management achieving these aims in accordance with guidance published by the Forestry Authority. 33 native pinewoods are designated whole or in part as SSSIs under the Wildlife and Countryside Act 1981, and some of these have recently been proposed as SACs in response to the EC Habitats Directive.

Native (Caledonian) pinewoods are included as priority habitats in the Habitats Directive.

Over 3,000 hectares in 24 of the 77 remaining native pinewoods are owned by the Forestry Commission.

3.2 Management, research and guidance

In 1994 the Forestry Authority completed an inventory of the Caledonian pinewoods which registers the locations of native pinewoods, the extent of the woodland and possible regeneration and buffer zones.

The Forestry Authority published a Guide to the Management of Native Pinewoods in May 1994 which describes policies and guidance for the management of existing native pinewoods. This was based upon previous guidelines from 1989 together with the results of wide consultation with conservation agencies and NGOs.

The location, design and establishment of new native pinewoods is described by the Forestry Commission's Bulletin 112 and a guidance leaflet for the Woodland Grant Scheme. This scheme provides grants for regenerating and planting native pine and associated native species in both existing and new native pinewoods. Since 1988 when native pinewood grants were introduced, proposals for over 3,000 ha of regeneration of existing woods and the creation of over 11,000 hectares of new native pinewoods have been accepted by the FA and are underway.

The Forestry Commission-owned sites are designated and managed by Forest Enterprise as Caledonian Forest Reserves.

A programme of restoration by removal of underplanted trees and reduction of browsing pressures to encourage regeneration is underway in order eventually to double the 3,000 ha currently covered with native trees and increase the total pine forest area to 12,000 ha.

FE promotes recreational and educational uses as part of the restoration programme.

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SNH, the RSPB and the National Trust for Scotland all manage major native pine forests with nature conservation as a major aim.

Scottish Natural Heritage and Forestry Authority staff are working together to develop native woodland inventory methods and databases which can be widely shared and accessed. This work is partly funded by the EU LIFE programme, which also contributes to restoration of FE pinewoods at Affric and several other projects. SNH, FC, Highland Regional Council and Highlands and Islands Enterprise are partners in the LIFE project.

The Forestry Authority has compiled a Caledonian Pinewoods Inventory of genuinely native pinewoods where the trees are believed to be direct descendants of the original post-glacial tree cover. The FA also maintains a Register of Native Scots Pine Seed Collection Areas, where native Scots pine is considered suitable for seed collection within seven seed collection zones, based on genetic differences between populations.

The Cairngorms Partnership are developing proposals for the expansion of major pinewood remnants to form the core of two large mainly native forests in Strathspey and Mar.

The Millennium Fund has awarded nearly £6 million to a group of native woodland projects, including restoration and expansion of native pinewoods.

The Forestry Authority and Scottish Natural Heritage are jointly producing a handbook on pinewood management. This follows a conference organised by the FC, SNH and RSPB in 1994 entitled 'Our Pinewood Heritage' which explored current knowledge of the history, ecology and management of native pinewoods.

The RSPB published a policy advisory booklet Time for Pine: A future for Caledonian Pinewoods in 1993.

4. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

- Maintain remnant native pinewood areas listed on the Caledonian Pinewood Inventory and restore their natural diversity of composition and structure.
- Regenerate and expand a total of 35% of the current wooded area of remnant native pinewoods (16,046 ha) by 2005, predominantly by natural regeneration within the core and regeneration zones.
- Create the conditions by 2005 for a further 35% of the current area to be naturally regenerated over the following 20 years, mainly by the removal of non-native planted species and/or genotypes and the control of browsing levels.
- Establish new native pinewood over a cumulative total area of 25,000 hectares by 2005 (equivalent to 155% of the existing remnant pinewood area). They should be planted, or naturally colonised where possible, on suitable sites within the natural range of native pinewood.

5. PROPOSED ACTION WITH LEAD AGENCIES

5.1 Policy and legislation

- Continue to review forestry policies for native pinewood with respect to the Guidelines for forestry agreed at the 1993 Helsinki Conference. (ACTION: FC)
- Evaluate the efficiency and suitability of the Woodland Grant Scheme and other funding mechanisms in achieving the desired management of native pinewood and consider adjustments as necessary. (ACTION: FA, SNH)
- Evaluate the implications of upland land use policies for the management and expansion of native pinewood and seek changes as appropriate. (ACTION: SO, SNH, FC)
- Consider the need to strengthen planning legislation to include a presumption against certain developments within native pinewood. (ACTION: SO)
- Encourage the adoption by 2000 of policies in local and regional plans promoting the conservation, restoration and expansion of native pinewood. (ACTION: SO)
- Encourage the development of management plans for native pinewood, building upon outline format described in the FA's 'Guide to the Management of Native Pinewood' Encourage co-operation between owners to produce integrated plans for the management and expansion of pinewood as part of a local land-use strategy. (ACTION: FA, FE, SNH, LAs)
- Continue to restore and expand native pinewood owned by the Forestry Commission by including them within Caledonian Forest Reserves and Forest Design Plans. Create conditions suitable for natural regeneration of an extra 3,000 hectares of native pine and associated broadleaves by 2000 by removing planted non-native species and/or genotypes and reducing browsing levels. (ACTION: FE)
- Devise an indicative plan which identifies the areas most suitable for expansion of native pinewood in terms of gains and losses of biodiversity. (ACTION: SNH, FA)
- Seek to develop ways of identifying suitable opportunities for native pinewood expansion in Indicative Forestry Strategies taking account of landscape-scale ecological objectives including the strengthening of linkages between individual woods and to other types of semi-natural woods. (ACTION: LAs, SO, SNH, FA)

5.2 Site safeguard and management

- Seek to bring all pinewood in the Caledonian Pinewood Inventory into favourable management by 2000. (ACTION: FA, SNH)
- Review the coverage of native pinewood within SSSIs and proposed SACs and fill any significant gaps in coverage by notifying new sites by 2000. (ACTION: SNH)

- Identify and prioritise by 1997 areas where the ecological diversity or genetic integrity of native pinewood is currently under threat from previous underplanting with non-native species in genotypes of pine, and where their removal would be cost-effective. (ACTION: SNH, FA, FE)

5.3 Advisory

- Continue to provide advice on the status and management of native pinewood at site and general levels. (ACTION: FA, SNH)
- Continue to provide and promote training in the ecology and management of native pinewood including the design and establishment of new native pinewoods. Develop informal training and networking opportunities locally. (ACTION: FA, SNH, FE)
- Provide advice on silvicultural methods to obtain wood products from native pinewood and on marketing and utilisation. (ACTION: FC, Scottish Enterprise)
- Co-ordinate advice training and financial assistance on the management of deer in areas where they are a major constraint upon the diversity or regeneration of pinewood. (ACTION: FC, Red Deer Commission, SNH)

5.4 International

- Encourage the collation by 1998 of information on the status, ecology and management of native pinewood with that of other semi-natural woods on similar and related sites in Scandinavia and other north temperate/boreal regions. (ACTION: FA, SNH, JNCC)
- Consider in liaison with the European Forestry Institute and others the benefits of developing a network of near natural (minimum intervention) forest research sites throughout Europe and including native pinewood sites in such a network. (ACTION: FC, SNH)

5.5 Future research and monitoring

- Expand the range of sites where long-term monitoring of this woodland type occurs including a range of both managed and minimum intervention sites. (ACTION: FC, SNH)
- Update the Caledonian Pinewood Inventory to incorporate changes to the pinewood resource, including new native pinewood. (ACTION: FA, FE)
- Maintain the Register of Native Scots Pine Seed Collection Areas in an up to date condition. (ACTION: FA)
- Co-ordinate development of survey and monitoring methods for native pinewood and other native woods and seek to make data widely accessible. Monitoring methods should enable management outcomes to be compared with national policy aims and with local objectives of management. (ACTION: FA, SNH, FE)
- Research the rate of colonisation of native trees and shrubs and selected associated species into the regeneration and buffer zones and into isolated new native woodlands. (ACTION: FC, SNH)
- Research the opportunities, conservation benefits and other implications of developing some large areas of mainly or entirely native forest including pinewood, and of developing connectivity between areas of native woodland. (ACTION: FC, SNH)
- Research the potential for combining native pinewood with more commercial planted forests so that pinewood species can benefit from the larger combined forest areas which results. (ACTION: FC, SNH)

5.6 Communication and Publicity

- Continue to inform the public on native pinewood issues and seek public support and participation in shaping policies and programmes. (ACTION: SNH, FC, SO)

COSTINGS

The successful implementation of this action plan will have resource implications for both private and public sectors. The additional cost to the public sector of the proposals compared to current (1995) public expenditure are estimated below. The major part will be in FA grants for additional programmes of natural regeneration within and adjacent to remnant pinewood of 200 ha/yr from 1997 to 2005. Bringing remaining remnants into favourable management will also add some extra costs in the form of Management Grants under WGS.

Habitat Type Native Pinewood (£000 per annum)

Total Area to be maintained	1997	2000	2010
16,000Ha	100	100	100
Total Area to be regenerated/ expanded*			
36,000Ha	250	250	160

* Total cumulative area assumed to be established or prepared for regeneration by 2005 under the WGS since 1989.

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BROADLEAVED AND YEW WOODLAND HABITAT STATEMENT

1. CURRENT STATUS

Britain is one of the least well-wooded countries within Europe. An estimate from the last Forestry Commission census (1985) shows that broadleaved woodland of both native and non-native species, covers approximately 752,000 ha of Britain. The total area is now greater than this because of planting and natural colonisation and is now estimated to be nearer 800,000 ha. Ancient semi-natural broadleaved and yew woodland covers about 1% of the land surface of Britain (302,000 ha).

Broadleaved and yew woodlands can be split into ancient semi-natural woodlands, ancient plantations, recent semi-natural woodland and recent plantations, according to their origins. The plantations and much recent woodland tend to have a high forest structure. That of ancient semi-natural woodland is more varied depending on its past treatment and includes high forest, coppice, wood pasture and parkland. Wood pasture and parkland are covered in a separate Habitat Statement.

The varied climate and geology of Britain combined with their past treatment to produce broadleaved woods which, despite their small size in relation to European counterparts, are structurally complex and support a wide variety of plants and animals. In the UK most native broadleaved woods comprise a mixture of broadleaved species such as ash *Fraxinus excelsior*, hazel *Corylus avellana*, sessile oak *Quercus petraea*, pedunculate oak *Quercus robur*, field maple *Acer campestre*, while in southern Britain beech *Fagus sylvatica*, small-leaved lime *Tilia cordata* and hornbeam *Carpinus betulus* are found. One of three species of conifer which are native to Britain, the yew *Taxus baccata* is generally associated with broadleaved woodlands so is included in this Statement. The conservation of native pine woodland is covered in a separate Habitat Statement. Common juniper *Juniperus communis* is a frequent component of pinewoods. Elsewhere it forms part of scrub associated with a range of different habitat patches.

Broadleaved woodlands are often noted for the wide variety of plants in the ground layer. In particular the UK is part of the Atlantic fringe of Europe and the moist, humid conditions, particularly in western parts of the country, provide ideal conditions for the growth of internationally important communities of bryophytes, lichens, ferns and saproxylic fungi and invertebrates. Another characteristic feature are the spring carpets of bluebell *Hyacinthoides non-scripta* which are unusual to Britain.

Many animal species are also found in broadleaved woodlands. Some of these including the dormouse *Muscardinus avellanarius*, nightingale *Luscinia megarhynchos* and terrestrial invertebrates including rare butterflies such as the heath fritillary *Mellicta athalia*, purple emperor *Apatura iris* and chequered skipper *Carterocephalus palaemon* are both restricted in their range in the UK and on the edge of their distribution in Europe.

2. CURRENT FACTORS AFFECTING THE HABITAT

Broadleaved and yew woodlands are affected by:

- Conversion to other land uses through clearance for localised developments including roads and mineral extraction.
- Inappropriate woodland management, such as the removal of large old trees and uncontrolled grazing of deer and sheep, which leads to a decrease in the structural diversity and reduction in natural regeneration.
- Replacement of native stands by non-native trees.
- Invasion by non-native species such as rhododendron *Rhododendron* spp.
- Excessive disruption through large scale harvesting and other insensitive changes in management regime.
- Reduction of hardwood based industries and demand for wood products through product substitution and loss of traditional markets resulting in loss of species through neglect or unsympathetic management of woodlands.
- Acid deposition, which threatens individual trees within the ecosystem and associated fungi.

3. CURRENT ACTION

3.1 Legal status

Broadleaved and yew woodland receives protection through the SSSI/ASSI series and a number of sites are NNRs. Through these networks of sites representative examples of broadleaved woodland types, throughout their geographical range, are afforded protection. EN, SNH and CCW maintain ancient woodland inventories which detail the occurrence of both designated and non-designated sites.

The international importance of broadleaved woodland is recognised through the EC Habitats Directive with seven broadleaved woodland types and one yew woodland type listed under Annex I of the Directive. The UK Government has proposed that a number of broadleaved woodland sites corresponding to the types listed in Annex I merit consideration as SACs.

National policies set out in the 1985 *Guidelines to the Management of Broadleaved Woodland*, give a presumption against clearance of broadleaved woodland for conversion to another land use. The expansion of broadleaved woodland has been substantial in recent years and the majority of planted broadleaves are of native species.

The UK signed the *Resolution for the Conservation of Biodiversity of European Forests* as agreed in Helsinki (1993). This resolution provides for the enhancement of biodiversity as part of a sustainable forest management programme by integrating the requirements of native, natural and managed woodlands.

3.2 Management, research and guidance

Ancient woodland, especially ancient semi-natural woodland, may receive policy protection in Structure and Local plans. Both ancient and ancient semi-natural woodland must be managed to maintain their special features of environmental and cultural value. The Forestry Authority has produced a series of eight advisory guides on the management of ancient semi-natural woodlands throughout Britain. The advice is intended to help owners and managers to achieve the best practice to secure the woodland's future. The Forestry Authority assesses planting and management schemes (notably Woodland Grant Scheme) against these guidelines.

Important woodland sites may be recognised by Local Authorities as Wildlife Sites and protected by relevant local planning policies which safeguard them from the effects of inappropriate development. In Wales, the broadleaved woodland element of the Habitat Scheme aims to encourage natural regeneration of native woodlands by excluding livestock.

Agricultural Departments encourage the planting of woodland on agricultural land through the Farm Woodland Premium Scheme which offers annual payments (over 15 years, for plantings with over 50% of broadleaved trees) to compensate for income loss. They also offer initial free advice to farmers considering establishing woodlands. Initiatives to create major new mainly broadleaved forests in the UK include the new National Forest, Central Scotland Forest, the Millennium Forest (Scotland) and Community forests around a number of towns and cities. These woodlands are expected to include a high proportion of native species.

Initiatives to restore local wood-based industries include the woodnet project in the Weald, linking wood producers to wood users, and a number of projects to reinvigorate the British-based charcoal industry, such as Cumbrian broadleaves. Small woods projects, designed to reinstate traditional woodland management in neglected broadleaved woodland are also in place. Many of these such as Sylvanus, Esus, Coed Cymru, Anglian Woodlands, Scottish Native Woods and Highland Birchwoods, are joint initiatives between the Forestry Authority and a variety of other statutory agencies.

Many woods are also retained and new areas planted due to landowners interest in game shooting or other sporting and recreation activities.

Felling licences are required for the felling of more than 5 cubic metres of timber in any one quarter. In addition broadleaved woodlands may be covered by Tree Preservation Orders, which are designed to protect individual trees and wooded areas. The Timber Industries are actively promoting the use of home-grown wood in building etc.

EN, CCW and SNH support research into management methods which will restore the conservation value of woodland, as well as more general programmes of survey and monitoring. The Forestry Commission also has a considerable research programme into silviculture and the ecology of broadleaved woods.

4. CONSERVATION DIRECTION

Maintain the extent and habitat quality, especially of ancient and semi-natural broadleaved woodland, and expand broadleaved woods, particularly with new native woodland which is linked to ancient and semi-natural woods.

Measures to be considered further include:

- Develop a strategy to implement the *Resolution for the Conservation of Biodiversity of European Forests* as agreed in Helsinki (1993).
- Restore selected ancient woodland sites that have been replanted by converting them back to semi-natural condition.
- Restrict new woodland planting on sites where this would adversely affect the existing conservation value.
- Produce advice on conservation and sustainable broadleaved woodland management for woodland managers and policy makers.
- Encourage research into the effects of natural processes of woodland disturbance and succession and the interactions between herbivores and woodland plant communities.

PLANTED CONIFEROUS WOODLAND HABITAT STATEMENT

1. CURRENT STATUS

Many woods composed wholly or mainly of conifer species, both native and introduced, have been planted on habitats which had significant biodiversity value as open grounds. Habitat Statements for other habitats such as broadleaved and yew woodland, heath, moor and bog recommend a programme of clearance of plantation woodland to allow recreation of the former habitat. This Statement considers the existing or potential importance for biodiversity of large UK plantations where wholesale restoration is not the main conservation need. It should be considered in conjunction with Statements for other habitats.

Approximately 7% (1,516,000 ha) of Great Britain is covered by conifer woodlands. The stands are usually of a single species, with approximately 40% being sitka spruce. however, at the forest scale species composition is normally mixed: in thinned older stands and at edges and glades, a variety of native trees and shrubs develop as an understorey.. 775,000 ha are managed by Forest Enterprise and 741,000 ha are privately owned.

Many first rotation forests are reaching harvestable age. This provides opportunities to restructure the habitat which will lead to diversification of the plant and animal communities they contain. Second rotation forests are more likely to be planned to take account of nature conservation needs through creating internal forest diversity, in tree and stand age. Many forests also have a number of associated features and habitats that are important for wildlife. Woodland rides and glades for example can be important for vascular plants and invertebrates. They could also provide areas for targeting limited restoration of semi-natural habitat in conifer plantations. Old stands with dead and dying trees, understorey vegetation and open canopies are also important for a variety of species.

A number of G8 Red Data Book bird species may occur in plantations. These include goshawk *Accipiter gentilis*, Scottish crossbill *Loxia scotica* and firecrest *Regulus ignicapillus* and in clear-felled or early growth stages nightjar *Caprimulgus europaeus* and woodlark *Lullula arborea*.

2. CURRENT FACTORS AFFECTING THE HABITAT

There is no particular threat to the conifer resource as a whole. However, some factors could either reduce the existing wildlife interest of plantations or mean that potential improvements are not realised. These include:

- Decreases in the structural diversity of stands and forests through insensitive management.
- Clear-felling and replanting that disrupts other elements of the forest ecosystem, for example through erosion or effects on water bodies.

3. CURRENT ACTION

3.1 Legal status

The overall UK policy aims are set out in *Sustainable Forestry: The UK Programme* (1994) and *Biodiversity in Britain's Forests* (1993). An expansion of planted conifer woodland is envisaged, which will increase the diverse benefits that forests can provide. The UK also signed the *Resolution for the Conservation of Biodiversity of European Forests* as agreed in Helsinki (1993). This resolution provides for the enhancement of biodiversity as part of a sustainable forest management programme by integrating the requirements of native, nature and managed woodlands.

In 1986 the Countryside Commission for Scotland propose that all Local Authorities should undertake the preparatic of Indicative Forestry Strategies and in 1987 the Convention of Local Authorities recommended that all Regional Counci should prepare such strategies. These have been produce and are being reviewed. Essentially, Local Authorities dra up maps which direct afforestation onto areas which ar known to have a low conservation interest. In England an Wales County Councils have started the process of producin Indicative Forestry Strategies.

There is a strong emphasis on wildlife conservation an management in licences and grants administered by th Forestry Authority. The Forestry Commission, through it Regional Advisory Committees and Environmental Panel consults conservation specialists on its activities.

3.2 Management, research and guidance

Forest Enterprise is preparing Forest Design Plans with loc conservation experts which are subject to Forestry Authorit approval. The Forest Design Plans are the major means c delivering biodiversity gains in FE forests through promotin structural diversity and populations of key species.

The Forestry Commission has also produced document *Forest and Water Guidelines* (1993), *Nature Conservatio Guidelines* (1990) and *Landscape Guidelines* (1989) which the use as the basis for prescribing management for wildlif conservation. The Forestry Commission is currently drawin together these, and other environmental guidelines, t produce standards for enhancing the biodiversity of plante forests. These standards will reflect the structural an functional elements of the forest as well as the specie interest.

Other practical examples of multi-purpose fores development exist in the National Forest and Communit Forest initiatives, and in Woodland Parks, Communit Woodlands and Forest Parks.

Some conifer plantations have been notified as SSSI for the bird interest and many others fall within SSSIs notified fc other reasons.

Forest Enterprise has initiated a number of restoratic schemes, removing trees from heathland, restructurir forests and working to restore native woodlands.

4. CONSERVATION DIRECTION

Maintain and enhance the wildlife potential of the existir conifer resource through continued restructuring ar diversification.

Measures to be considered further include:

- Develop a strategy to implement the *Resolution for the Conservation of Biodiversity of European Forests* as agreed in Helsinki (1993)
- Continue to direct the expansion of planted conifers to land of low conservation value (such as derelict industrial and low grade arable land) ensuring habitats of a high nature conservation value are not further threatened - using Indicative Forest Strategies where

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available.

- Promote forestry management which enhances conservation value through restructuring and diversification.
- Develop systems of monitoring the biodiversity conservation value of planted conifer woodlands, for example by assessing critical habitat features and selected key or indicator species.

NATIVE PINE WOODLAND HABITAT STATEMENT

1. CURRENT STATUS

Native pinewoods are relict indigenous forests of Scots pine *Pinus sylvestris var scotica*, which occur throughout the central and north-eastern Grampians and in the northern and western Highlands of Scotland. They are an important western representative of the European boreal forests in which structure and succession is determined mainly by natural fires caused by lightning. In the past native pine forests may have covered more than 1.5 million ha, however, less than 1% of the former range now remains. The remaining extent of habitat is approximately 16,000 ha.

Native pinewoods occur on infertile, strongly leached, podsolic soils. They do not support a large diversity of plants and animals compared with some more fertile habitats. However, there is a characteristic plant and animal community which includes many rare and uncommon species. The main tree species is Scots pine although birch *Betula* spp., rowan *Sorbus aucuparia*, sessile oak *Quercus petraea*, willows *Salix* spp., and bird cherry *Prunus padus* are also found. Oak occurs mainly in the north-east of Scotland. There is a rich understorey of shrubs including common juniper *Juniperus communis*, aspen *Populus tremula*, holly *Ilex aquifolium* and hazel *Corylus avellana*. Dead rotting wood supports significant bryophyte communities. The field layer is characterised by acid tolerant plants like bell heather *Erica cinerea*, bilberry *Vaccinium myrtillus* and crowberry *Empetrum nigrum*. Many uncommon and rare species are found in this habitat including the specialist hoverfly *Callicera rufa* and the distinctive bird species capercaillie *Tetrao urogallus*. Britain's only endemic bird the Scottish crossbill *Loxia scotica* and rare plants such as twinflower *Linnaea borealis* and one-flowered wintergreen *Moneses uniflora* are also found mainly in the native pinewoods.

2. CURRENT FACTORS AFFECTING THE HABITAT

The primary factor influencing native pinewoods is:

- Lack of natural regeneration due to high grazing levels.

Past threats which must continue to be avoided include:

- Inappropriate forestry management, in particular underplanting with non-native conifer species and clear felling.
- Conversion to other land uses resulting in increased fragmentation and isolation of native pine woods and the associated loss of wildlife interest.

3. CURRENT ACTION

3.1 Legal status

Many of the most important areas of native pinewoods have been notified as SSSIs. Exceptional examples of these were recently proposed by the UK Government as areas that merit designation as SACs under the EC Habitats Directive.

3.2 Management, research and guidance

In 1994 the Forestry Authority completed an inventory of the Caledonian pinewoods which registers the location of native pinewoods, the extent of the woodland and possible regeneration zones. The Report from the Cairngorms Working Party also made strong recommendations for the expansion of remnants of native pinewoods, especially in two areas - Forests of Mar and Strathspey.

A number of Forestry Authority initiatives contribute to the management and recreation of native pinewoods. These include grant aid offered under the Woodland Grant Scheme for regeneration and also for the planting of new native pinewoods within the former natural range of pinewoods. Scots pine of local origin is used for replanting and the Forestry Authority maintains a register of seed sources for use in this scheme. Forest Enterprise also runs a programme of restoration and expansion of native pinewoods and promotes recreational facilities and educational uses through this programme.

The Forestry Authority and SNH are working closely to produce a handbook on pinewood management. The Forestry Authority has also produced a set of advisory guides on the management of ancient semi-natural woodlands throughout Britain, one of which provides advice on the management of native pinewoods.

EC LIFE (Nature) programme funding has been received to assess the resource of native pinewood in Scotland, evaluate the impact of deer grazing and to carry out emergency restoration activities at Glen Affric Forest reserve. This work builds on the Forestry Authority Native Pinewoods Register completed in 1994.

4. CONSERVATION DIRECTION

Maintain and enhance the structure and wildlife interest of native pinewoods and encourage natural regeneration in core areas aiming to restore degenerated areas and to bring them into appropriate management.

Measures to be considered further include:

- Promote the expansion of existing areas of native pinewoods.
- Encourage the protection of small pinewood remnants from grazing pressure and encourage expansion, thereby addressing the historic fragmentation and isolation of pinewoods.
- Restore underplanted pinewoods.
- Follow current guidelines to conserve the genetic integrity of populations of native pinewoods species.
- Take opportunities to produce useable wood.

LOWLAND WOOD PASTURES AND PARKLAND HABITAT STATEMENT

1. CURRENT STATUS

Working lowland wood pastures and parks are those where grazing is still practised at a level that sustains the special features associated with open ground. It is estimated that less than 10,000-20,000 ha of the resource remains in such a working condition. A greater amount of relict wood pastures and parklands exists, however, in either an unmanaged state or as scattered trees with arable or improved pasture around them.

Wood pastures and parklands are believed to have been widespread in lowland landscapes through the mediaeval age and up until the early 19th century, and as such are important for their landscape history and archaeological features. During the 20th century there has been a decline in sites that had survived legal enclosure. The decline is principally due to dereliction and succession to secondary woodland, or conversion to more intensive agricultural or forestry uses. The decline in lowland wood pastures and parks has occurred throughout the lowlands of western Europe. The greatest extent of this habitat in western Europe probably survives in southern England.

Wood pasture and parkland contain large numbers of very old trees particularly ancient pedunculate oak *Quercus robur* and beech *Fagus sylvatica*. They are internationally important for the rare saproxylic invertebrates such as the violet click beetle *Limoniscus violaceus* whose larvae is found inside rotten standing trunks, lichens such as *Lobaria*, *Lecanactis* or *Sticta* species and fungi such as the hedgehog fungus *Creiophus cirrhatus* and the giant hoof-shaped bracket fungi *Phellinus robustus*, which are associated with the mature bark and dead wood. Acid or neutral grassland also occurs and is an important feature of this habitat.

2. CURRENT FACTORS AFFECTING THE HABITAT

- Changes in rural economies have led to withdrawal of grazing from commons, former Royal Forests and parks.
- Intensification of agricultural management has destroyed the open ground interests on many sites.
- Large old trees are felled and removed from sites: cessation of pollarding may also have reduced the long term survival potential of many old trees.
- Improved recreational access often leads to the clearance, or modification, of ancient trees to make the areas safe as public places. This can also lead to severe erosion of soils and vegetation at key sites.
- On most sites there is a large "generation gap" (very old and young trees present, but few of intermediate age) which leads to a loss of habitat continuity.

3. CURRENT ACTION

3.1 Legal status

Many important wood pastures and parks have been identified as SSSI/ASSIs. Other sites are identified as Wildlife Sites. The UK Government has also set out its commitment to designating some parklands as SPAs and SACs under the EC Birds Directive and the EC Habitats Directive respectively.

3.2 Management, research and guidance

Forest Enterprise is reviewing its management of working wood pastures of the New Forest. This wood pasture system represents the majority of the actively worked resource in the UK and the most extensive area with old oak beech populations in NW Europe.

Grazing regimes are being reinstated at a number of sites including Burnham Beeches (Corporation of the City of London) and Pamber Forest (Hampshire). Plans are well advanced to reinstate grazing in other sites such as Greenham Common (Berkshire), Odiham Common (Hampshire) and Ebernoe Common (West Sussex). Tree management such as pollarding, is being reinstated at some sites, including Burnham Beeches.

Providing guidance on the conservation of parkland and wood pastures is an important element of the statutory agencies' work. The Invertebrate Site Register Habitats Association Module is a key source of data on which advice is based.

EN has established a Veteran Tree Initiative through which they form working partnerships with others involved in parkland management, ensuring that conservation objectives are taken into account. A pilot inventory of the parkland resource for two counties in England has been prepared.

CCW has initiated an inventory project of all parklands in Wales. The project aims to identify parkland sites important in a national, regional or local context for their invertebrate and lichen communities. Survey work in 1994 recorded 25 invertebrate species new to Wales including the beetles *Aeletes atomarius*, *Panella limbata*, *Cryptophagus labilis* and *Scraptia testacea*.

4. CONSERVATION DIRECTION

Maintain the extent of functioning wood pastures and parks ensuring that the management of important sites takes account of their biological interest. Restore, where appropriate, modified wood pasture and parkland.

Measures to be considered further include:

- Restore management regimes to selected areas of wood pasture and parkland modified by plantation forestry, scrub colonisation, or unsustainable agricultural use such as grazing.
- Protecting wood pasture from inappropriate use, including unsustainable recreation.
- Establish, where restoration of grazing is not appropriate, other systems for maintaining and enhancing the features and species associated with former wood pasture and parkland.
- Compile a UK inventory of the remaining resource of wood pasture and parklands and their associated characteristic plant and animal communities.

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