Executive Summary, Framework Document
Circumpolar Biodiversity Monitoring Program

CAFF Request for Ministerial Endorsement

The Circumpolar Biodiversity Monitoring Program (CBMP) has evolved in response to the mandate of the Conservation of Arctic Flora and Fauna (CAFF). The program is rooted in the Co-operative Strategy for the Conservation of Biological Diversity in the Arctic Region (1997), which was endorsed by the Arctic Council Ministers. More recently in the Inari Declaration of 2002, the Arctic Council Ministers endorsed the Arctic Flora and Fauna Recommendations for Conservation and directed CAFF to develop the CBMP. In 2002, the Arctic Council Ministers also referred to cooperative efforts for monitoring between CAFF and Arctic Monitoring Assessment Program (AMAP). Lastly this program responds to the scientific recommendations under the Arctic Climate Impact Assessment (ACIA) Scientific Report (2004).

The CBMP relates to the conservation and management of Arctic biodiversity, and the sustainable use of its natural resources. The CBMP makes available existing data, facilitates analyses, and other relevant research related to biodiversity monitoring, to decision makers in the AC Member States, Permanent Participants and other stakeholders, and thus enables informed decision-making.

CAFF requests that the Senior Arctic Officials and the Arctic Council Ministers endorse the CBMP. This is more fully described in the Framework Document and its supporting documents. CAFF intends to provide detailed reporting for the 2006 Ministerial meeting, including an overview of status and trends for selected Arctic biodiversity.

International Dimensions

The CBMP is consistent with global trends in biodiversity conservation and monitoring, having its goal nested in results from the World Summit on Sustainable Development (WSSD) in Johannesburg 2002:

> "The comprehensive integrated management of human activities based on best available scientific knowledge about the ecosystem and its dynamics, in order to identify and take action on influences, which are critical to the health of the ecosystems, thereby achieving sustainable use of ecosystem goods and services and maintenance of ecosystem integrity."

The 2002 WSSD furthermore committed the world's countries to achieving a significant reduction in the rate of loss of biodiversity by 2010. The CBMP is also consistent with the Precautionary Principle of the 1992 Rio Declaration on the Environment and Development, as implemented in subsequent international conventions and national legislations.

The Convention on Biological Diversity (CBD) defines biodiversity as:

> "The variability among living organisms from all sources, *inter alia* terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems".

The CBD itself, the outcome from the convention of the parties in 2004 and the targets for 2006, illustrate the consistency between global approaches for biodiversity conservation and monitoring and the Arctic Council's regional approach. All AC Member States are signatories

to the CBD, which was ratified by Canada, Finland, Greenland, Iceland, Norway, Russia and Sweden.

In the 2004 Kuala Lumpur Declaration of Ministers, there was a commitment by governments to integrate biodiversity conservation and sustainable use into socio-economic developments, to establish networks of marine and terrestrial protected areas, to develop indicators and incentives to meet the 2010 target to reduce biodiversity loss, while reaffirming the significant role of indigenous and local communities in the conservation and sustainable use of biological resources. The meeting also adopted the Global Indicators to Assess Progress to the 2010 Targets, the publication of a second edition of a Global Biodiversity Outlook for 2006, a Global Plant Conservation Strategy , information requirements for coastal and marine protected areas for assessments, and the commitment to develop the World Database on Protected Areas.

The Global Indicators are particularly relevant to Arctic conservation. These indicators are consistent with the CBMP as they include trends in abundance and distribution of selected species, trends in the extent of selected habitats and ecosystems, coverage of protected areas, and traditional knowledge.

As a regional approach, the CBMP is consistent with other international frmework conventions and approaches. This program will assist the AC Member States, who are party to these conventions and approaches to fulfill them, and include the Berne Convention, the Convention on Migratory Species (Bonn Convention), the Council of Europe Emerald Network, the European Community Natura 2000, the OSPAR Convention, and the Ramsar Convention on Wetlands.

The Circumpolar Biodiversity Monitoring Program

Much monitoring for arctic biodiversity is already being carried out nationally and locally in the Arctic countries. However until now, there has been limited circumpolar coordination, which would lead to better understanding of many pressing issues, and better use of existing information and the available resources. Many special features of arctic biodiversity require coordinated efforts rather than national approaches alone.

The Arctic is a relatively pristine environment, with limited species but high genetic diversity. Many migratory species breed in the arctic but spend the non-breeding season at more southerly latitudes. As a polar region, greater impacts are expected in the Arctic from climate change, and consequently Arctic biodiversity is experiencing both earlier and greater impacts than many other parts of the globe. These features, vulnerability and impacts are documented in the 2001 Arctic Flora and Fauna: Status and Conservation, and the 2004 ACIA Scientific Report.

There are both needs and opportunities for conservation and management to monitor Arctic biodiversity and the impacts upon it, also to understand the impacts of climate change and other environmental factors, and in order to seek sustainable use of the natural resources. There is a unique opportunity to measure biodiversity and climate change impacts, which will be useful globally, due to the pristine nature and comparatively restricted human impacts in the Arctic.

The CBMP will enhance sharing of information and the overall cooperation between the AC Member States, Permanent Participants, AC Working Groups, Observers, as well as with the academic and scientific communities within and beyond the Arctic. The CBMP encourages cooperation between CAFF and other AC Working Groups. In particular, it forms the basis for shared monitoring efforts with the Arctic Monitoring and Assessment Program (AMAP)

Working Group, although the scope of the CBMP program is much broader than these shared efforts.

The CBMP has the following objectives:

- Detect changes and causes of change in arctic biodiversity.
- Provide an early warning system, which could trigger more specific research and conservation measures.
- Contribute to the development and evaluation of national and circumpolar conservation programs, policies, and measures.
- Support the sustainable use of arctic resources.
- Provide for the timely and cost effective sharing of existing information.
- Increase the understanding of arctic biodiversity, and its interaction with regional and global processes.
- Cooperate with other AC Working Groups and other parties within and outside the Arctic.
- Support shared monitoring efforts between CAFF and AMAP.

CBMP Implementation Strategy

The implementation strategy for the CBMP has the following key components: (1) networks, (2) existing and future information handling and needs, (3) data management and communications, and (4) cooperation, partnership and capacity building. The implementation occurs through well defined goals, which will be further elaborated in CAFF's biennial work plans.

(1) Networks

Individual networks aim to integrate biodiversity monitoring efforts of selected species, habitats, and ecosystem networks across the circumpolar region or beyond as needed. The Arctic Flora and Fauna: Status of Conservation (2001) assessment highlighted the need to integrate information on population trends and distribution changes in circumpolar species and to identify deficiencies. Expert networks have already been established for arctic char, caribou/reindeer, geese, selected plant species (re the International Tundra Experiment, ITEX), polar bear, ringed seal, seabirds (Circumpolar Seabird Monitoring Network), and shorebirds/waders (Committee for Holarctic Shorebird Monitoring, CHASM).

Site-based monitoring and research networks provide long-term observations and biodiversity monitoring. ITEX is an example of a site-based network to describe and quantify impacts of climatic warming on vegetation. The CAFF Circumpolar Protected Areas Network (CPAN) aims to link protected areas throughout the arctic, ensure sufficient representation of habitats and ecosystems, and adequate management of these. Therefore the CPAN Strategy and Action Plan, based on national and other efforts, provides for biodiversity inventories and monitoring systems in support of protected areas.

Existing and future networks focuses on selected arctic habitats and ecosystems, which are vulnerable to climate change, such as ice edges, permafrost areas, coastal regions, wetlands, and boreal forest and tundra interactions. Cooperation will be sought with other networks, such as the Arctic Coastal Dynamics.

Community-based monitoring can be a separate network, or an integral part of all networks. This allows for data collection over wide and sparsely populated regions, and encourages local education, participation and capacity building. This monitoring participation will be developed in cooperation with the Permanent Participants and the Indigenous Peoples Secretariat.

(2) Existing and Future Information Handling and Needs

There is already a considerable body of information on arctic biodiversity. Government-sponsored research in the AC Member States is the primary source of this information, while AC Observers and individual researchers, both within and outside the Arctic countries, also possess much relevant information. For instance, AMAP has collected data on contaminants; the International Arctic Science Committee (IASC) keeps web-searchable summaries of arctic research; and France, Germany, Netherlands, Poland, and the United Kingdom have significant repositories of arctic biodiversity research and monitoring information;Terrestrial and marine research stations and platforms, and their associated networks, have summaries of research at their facilities.

Despite appreciable existing monitoring information, it is recognized that there are deficiencies and gaps in arctic biodiversity monitoring. Some species have not been subject to research and monitoring. There are also deficiencies in the geographical scope, genetic diversity and other coverage for current species studies. The ACIA report indicates that studies are limited for biological impacts of climate change and other environmental as well as human factors on biodiversity. Gap analyses are necessary to determine information needs and to propose means to address these deficiencies.

The CBMP intends to facilitate a circumpolar understanding of the current and future status and trends of arctic biodiversity. In order to make full use ofexisting and future information, it may be helpful if, in the future, the CBMP facilitates common approaches or protocols for data collection and research, complimentary to that available for the Antarctic. The CBMP also facilitates circumpolar or regional analyses, in order to understand better changes in arctic biodiversity and required conservation measures. Such an assessment has already taken place for climate change in the ACIA Scientific Report. Future efforts in this regard should include modeling responses in species, habitat and ecosystem related to climate change and other regional and global processes, both natural and human-related. A first step is an overview of the present knowledge of the status and trends for arctic biodiversity.

(3) Data Management and Communication

The CBMP works towards creating a distributed and decentralized web-based portal for communications and data exchange between the AC Member States, Permanent Participants, networks, researchers, and other stakeholders. This approach allows for integration of monitoring data with information on protected areas, habitat changes (including satellite imagery), and various other environmental data (i.e., weather, ice conditions, plankton distributions). This approach allows for inputs into global and regional assessment reports (i.e. the Millenium Assessment, the Global Biodiversity Outlook), and existing and future AC assessments, including the Arctic Human Development Report. If desired, information could be assembled to assist Arctic Member States, Observers, and others, in monitoring their progress towards and reporting for national, regional and global targets.

(4) Cooperation, Partnership and Capacity development

Through the CBMP, CAFF will cooperate, establish partnerships, and build capacity for biodiversity monitoring between AC Member States, Permanent Participants, Observers, other AC Working Groups and other stakeholders. Due to its cooperative and partnership approach, the CBMP aims for capacity building for biodiversity monitoring within and external to the Arctic. CAFF will facilitate active participation in the implementation of the program by all stakeholders.

With the assistance of Permanent Participants and the Indigenous Peoples Secretariat (IPS), CAFF will develop approaches to community-based biodiversity monitoring, and the means to include traditional knowledge and the participation of indigenous peoples and local communities into biodiversity monitoring.

CAFF will cooperate with other AC Working Groups in the implementation of CBMP, by developing shared monitoring efforts for relevant aspects of CBMP, such as with AMAP.

CAFF will establish partnerships with countries and organizations who can provide access to biodiversity monitoring data. Such bodies include among France, Germany, Netherlands, Poland, United Kingdom, BirdLife International, , IASC, the World Conservation Union (IUCN), UNEP World Conservation Monitoring Centre (WCMC), Wetlands International, and World Wildlife Fund (WWF).

In cooperation with relevant partners, CAFF will include within the program monitoring stations and research platforms, such as CEON, Envinet, Scannet, and Arctic Coastal Dynamics; and earth observation efforts including satellite imagery and remote sensing through European Space Agency, GOOS, GTOS, Northern View, and UNEP GRID-Arendal.

Conclusions

In short, the CBMP responds to jurisdictions and responsibilities of the Arctic Council Member States for the conservation and mangagement of species, habitats, and ecosystems, and to their international commitments. It provides the appropriate information to address impacts of climate change and other environmental factors, conservation measures, management and sustainable use of natural resources. In part, the program accomplishes this through covering biological processes such as food webs, reproduction, survival, and migrations. In so doing, it recognizes and supports the ecological, economic and socio-cultural importance of biodiversity, promotes the accessibility of existing information on a circumpolar basis, and provides Arctic views to global conservation and management efforts and policies.

The CBMP relates to the conservation and management of Arctic biodiversity, and the sustainable use of its resources. The CBMP makes available existing data, facilitates analyses, and other relevant research related to biodiversity monitoring, to decision makers in the AC Member States, Permanent Participants and other stakeholders, and thus enables informed decision-making.

CAFF requests from the Senior Arctic Officials and the Arctic Council Ministers the following endorsement:

- The further development of the CBMP, its goals and objectives.
- The production of an overview of the status and trends of Arctic biodiversity for selected species, ecosystems and sites by the 2006 Arctic Council Ministerial.
- The development of a discussion paper on community-based monitoring, in cooperation with the Permanent Participants and the Indigenous Peoples Secretariat, by the 2006 Arctic Council Ministerial.
- The development of a discussion paper on a distributed and decentralized web-based portal for communications and data exchange by the 2006 Arctic Council Ministerial.
- The development of a discussion paper on the relationship of the Circumpolar Biodiversity Monitoring Program (CBMP) with other regional and global programs and observation platforms for the 2006 Arctic Council Ministerial.
- The objectives of the shared monitoring efforts of CAFF and AMAP.