Box 11. International Treaties and Agreements (CONTINUED FROM PAGE 48)

- The Man and the Biosphere Program (MAB) of the United Nations Educational, Scientific, and Cultural Organization: Bulgaria is a participating nation, but has been less active since 1985 due to lack of funds.

- The Convention Concerning Fishing in the Waters of the Danube of 1958: signed, ratified, and published.

- The Convention Concerning Fishing in the Black Sea of 1959: signed, ratified, and published. A new fisheries convention on the Black Sea, applying a basin-wide common fisheries policy, is being prepared.

- The Convention on the Protection of the Black Sea from Pollution: signed in 1992, ratified by Bulgaria in 1993, published. Six countries (Bulgaria, Romania, Russia, Ukraine, Georgia, and Turkey) signed the convention; of these six, only the Ukraine has not yet ratified it.

The most important European-level agreement involving the conservation of biological diversity to which Bulgaria is a signatory is the 1979 Berne Convention on the Conservation of European Wildlife and Natural Habitats. The Berne Convention obligates parties to maintain wildlife populations at levels that meet ecological and cultural needs and to promote *in situ* conservation of wildlife and habitats. It has been ratified but not yet published in Bulgaria. Other European-level accords, including the European Community's 1992 Habitat and Wildlife Directive (which implements many of the provisions of the Berne Convention) and the European Community's "Birds Directive" of 1979, are not technically in force in Bulgaria, but are important in determining the context for developing new domestic law.

Bulgaria has implemented many of these agreements, at least in part, through domestic legislation. However, many of their provisions lack supporting legislation. Moreover, the existing laws are often ineffective due to an indefinite division of enforcement responsibilities, confusion between new and older laws, weak penalty provisions, lack of clear criteria to guide decision making, failure to provide for public participation, and other defects. (More detailed discussion of the provisions, general status, and status in Bulgaria of these agreements can be found in several of the published papers from the NBDCS workshop.)

ten in general terms, more detailed domestic laws are required to implement them fully.

Regional agreements and treaties also are important to the future of biological diversity in Bulgaria and the Balkan Peninsula. Cooperative conservation measures are necessary to protect the region's many endemic species, many of which are threatened with extinction. Moreover, many of the threats to biological diversity in Bulgaria and neighboring states are transboundary in their origins and impacts. Regional cooperation has become even more critical in light of the conflicts in and among the former Yugoslavian states. Cooperative conservation programs may serve as building blocks in the restoration not only of the region's ecosystems, but also of its social and political stability.

The most critical legislative reforms, however, must take place domestically. Bulgaria, along with the other emerging democracies of Central and Eastern Europe, has already begun shifting toward a legal system that is more responsive to the will of the people. This includes the creation of more effective environmental laws and the strengthening of the institutions that enforce them. Meanwhile, existing environmental laws require reevaluation in light of new sci-

entific information, changing conservation priorities, and evolving social attitudes.

Recommendations

Successful implementation of the strategy will require action on many specific legislative items. Bulgarian legal experts have already initiated this process, with the assistance of non-Bulgarian legal advisers. In this dynamic period, it is important to recognize and emphasize several general legal principles that should be incorporated into all laws as they are formulated. As lawmakers move forward, they should

- Clarify which governmental authority has control over which territories and activities, delegating exclusive control of specific areas to specific government departments and levels of government (i.e., national, regional, or municipal);
- Clarify the relationship of old and new environmental laws, explicitly repealing the provisions of older laws where necessary to resolve inconsistencies;
- Establish clear criteria for making decisions that affect biological diversity;
- Include mechanisms for periodically reevaluating standards and rules as scientific knowledge advances;
- Provide (through reference to administrative law or otherwise) procedures for independent, impartial review of government decisions affecting biological diversity;
- Provide procedures for public participation in policy formation as well as specific project and management decisions; and
- Strengthen enforcement of standards and rules by giving specific government agencies clear authority, granting citizens the right to file suit over violations, and ensuring that proper procedures are followed in the courts.

These are basic principles that are fundamental to human rights, democracy, and sustainable development, as reflected in trends in international law and the laws of an increasing number of countries around the world. At the same time, they can and must be adapted to the unique cultural, socioeconomic, and environmental conditions in each country and region. In Bulgaria, they form the conceptual framework for the legislative reforms that must be undertaken to conserve biological diversity.

As specific legislation to protect and manage biological diversity is drafted, lawmakers should create laws that are well coordinated, consistent, and enforceable, and that anticipate advances in scientific knowledge and changing social conditions. The involvement of NGOs in the lawmaking process is especially useful and important in ensuring that scientific expertise and the full range of viewpoints among conservationists and the public at large are reflected accurately. In the near future, lawmakers should

- Develop an integrated framework law to protect biological diversity, plus a package of related laws and regulations pertaining to the management of biological resources. These laws should include provisions to
  - protect all elements of Bulgaria's native biological diversity, restore lost elements, and prevent degradation of unique, threatened, and critical habitats (e.g., riparian zones and caves);
  - control overexploitation of economically important biological resources, including edible fungi, medicinal plants, timber trees, Black Sea and freshwater fish, game, and other forms of exploited wildlife;
  - promote new means of sustainable management of these biological resources;

- strengthen existing regulations, prohibitions, enforcement provisions, and penalties relating to habitat degradation, especially in protected areas; and

- ensure public participation in government actions affecting the management of protected areas as well as conservation on nonreserved lands.

- Incorporate and integrate biodiversity conservation provisions into other legal initiatives (i.e., laws other than environmental laws) as they are developed, especially laws relating to infrastructure development and the restitution of private lands.

Many of these recommendations are already being implemented. New laws are being drafted, including a framework biodiversity law; a protected areas act; laws on forestry, fisheries, game, and medicinal plants; and legislation implementing the Convention on International Trade in Endangered Species (CITES). As this work continues, it should incorporate and reflect the findings and recommendations in other parts of the strategy, and should also aim to:

- Develop the expertise and resources to carry out the environmental impact assessment provisions of the 1991 Bulgarian Environmental Protection Act.

- Provide for disseminating, through a public information service, information on relevant conservation and environmental protection laws and the texts of international agreements.

- Bring Bulgarian law into concordance with European and other international agreements regarding the conservation of biological diversity (this should specifically include publication of the Berne Convention and adoption of implementing legislation).

- Intensify efforts to reach international agreements on pollution control and fisheries management within the Black Sea basin and the Danube River watershed.

Conservation Administration and Policy

The formulation of effective conservation policies and the execution of laws affecting biological diversity require a solid administrative structure. As new and revised laws are enacted, the existing administrative structure will evolve to reflect new needs and responsibilities. This is a complex process, and could not be fully addressed or resolved within the context of the NBDCS workshop. Nonetheless, participants agreed that a critical goal of any national strategy must be to secure a stronger administrative structure to conserve biodiversity *both within and beyond protected areas.*

The government's role in conserving biological diversity entails many activities, including: development, management, and oversight of the network of protected areas; research, monitoring, and restoration programs; public education and information dissemination; development of legislation and policy affecting biodiversity; international negotiations and agreements related to biological diversity; and coordination and communications between agencies and with NGOs. These functions are shared among many government entities (see Box 1), which is not surprising, given the wide range of government actions that affect biological diversity. The key question is whether these responsibilities can be more effectively coordinated, and the capacities of the respective agencies strengthened, to advance toward common goals.

As steps are taken to develop and implement the conservation strategy, changes in the existing administrative structure will need to occur. Although the specific nature of these changes cannot be prescribed here, several principles and goals can be identified:

- Agency jurisdictions, responsibilities, and relationships should be clarified, and clear authority over interagency functions established;

- Resource management activities of the different agencies should be coordinated and integrated to ensure the protection of biological diversity;

- Conflicting policies should be avoided to the greatest degree possible, and clear mechanisms established for resolving conflicts when they do occur;

- Protection and management of resources should be refocused and decentralized to place greater responsibility at the regional and municipal levels; and

- The role of local governments, nongovernmental organizations, and the general public should be increased, and the functions of state agencies more fully integrated with local communities.

The many questions surrounding the administration of the protected areas deserve special attention. Ineffective management and administration of the protected areas is one of the principal threats to Bulgaria's biological diversity. While the MOE, COF, and local municipalities currently administer the protected areas, there are discrepancies between their functions as established by law and the available resources and personnel for carrying out these functions. High priority must be given to strengthening all aspects of protected area administration, including research and monitoring, training of personnel, land management, law enforcement, education, buffer zone management, and tourism and recreation planning.

A number of workshop participants recommended that a new independent agency be created that would be solely responsible for managing biological diversity in Bulgaria, including the administration of the protected areas. Some suggested that this agency be associated with, but placed outside, the MOE; others proposed that it be a strengthened administrative body within the MOE. Proponents argued that the creation of such an agency would unify the authority over protected areas; improve local coordination of conservation policies and activities; ensure a more prominent role for conservation within the Council of Ministers; clearly distinguish the governmental responsibilities for biodiversity protection and economic development of resources; provide increased funding support; and allow better oversight provisions. Opponents argued that such an agency would be beyond the control of the ministries; that similar structures already exist within the MOE and as departments within the COF; and that existing conservation programs within the COF are self-financing through its economic activities.

With the creation of the new National Nature Protection Service in the MOE, many of these issues are moving toward resolution. The NNPS has been established to lead the MOE's activities in the management, control, and protection of biological diversity, protected natural sites, and natural ecosystems (see Box 1). As the structure and functions of the NNPS become more fully defined, it is especially important that the protected areas be seen within a landscape context, and managed accordingly. This implies that administrative actions should be based on sound scientific knowledge of biodiversity and ecological processes, interagency cooperation, and the involvement of local land owners, municipalities, and NGOs in the planning and implementation process.

A variety of models exist on which the Bulgarian Ministry of Environment, the Committee of Forests, other government agencies, and NGOs can base the management of Bulgaria's protected areas, including areas not within forests. These include, for example, interagency management programs, public-private partnerships, involving local citizens and NGOs, and ecosystem-level planning. *As a high priority, the agencies should examine different modes of collaboration to determine which fits existing needs and emerging mandates. Further discussion of the benefits and drawbacks of various administrative arrangements should be encouraged and supported.* At present, it is most important that all parties examine candidly their

scientific and administrative needs and come to some working agreement that protects the lands at issue.

Administrative Recommendations

As agency functions evolve to reflect greater attention to the conservation of biological diversity, the following recommendations should serve as general guidelines for reform:

- Encourage better interagency and interdisciplinary cooperation on all resource management and ecosystem protection activities.
- Require the development and implementation of effective management plans for all parks and other protected areas (especially the smaller protected areas), and for selected habitats and species, with the aim of conserving their biological diversity.
- Strengthen the ability of agencies to enforce biodiversity legislation, especially the authority to penalize violators.
- Strengthen, through enabling legislation and other means, agency capacities for research, establishment of data banks, educational programs, and partnerships.
- Develop and maintain a highly professional work force of land and resource managers. In particular, the administration of protected areas should be strengthened by developing training courses for both professional managers and volunteers.
- Build strong, constructive, cooperative relationships with local citizens and nongovernmental organizations, especially through involvement in the planning process.
- Support biodiversity protection, management, and education projects through the establishment of a nature protection fund.

Policy Recommendations

As part of the general effort to better coordinate and implement conservation policy at the national level, especially as reorganization plans are discussed, opportunities to introduce broader policy reforms should be sought. Important policy initiatives relevant to biodiversity conservation have already been undertaken. For example, the Ministerial Declaration on the Protection of the Black Sea was issued in 1993. Such measures, it should be noted, are not limited to the conservation agencies, but involve related changes in economic, social, and development policy. As new policies are defined and implemented, they should

- Promote, as a general principle, the science-based management of resources and ecosystems, in part through establishment of an independent scientific advisory board.
- Require consideration of biodiversity conservation within regional and municipal planning processes.
- Analyze the current incentive structure within Bulgaria and remove incentives that encourage activities harmful to biological diversity.
- Provide positive incentives (e.g., low-interest loans and other credit mechanisms, taxes, compensation, and subsidies) to individuals, new landowners, and municipalities to promote the conservation of biological diversity and environmental protection.
- Employ disincentives to discourage construction activities, agricultural practices, and other land uses that harm important habitats and ecological processes.
- Revise and strengthen the enforcement provisions of resource use policies (including harvesting regulations, take limits, export

restrictions, licensing provisions, and fines) to encourage the protection and sustainable management of economically important timber, game, freshwater and Black Sea fish, edible fungi, and medicinal plant species.

- Adopt modified economic analyses that attempt to internalize the costs of biodiversity loss and the benefits of conservation.

Research and Technical Support

Scientific information on Bulgaria's biological diversity and its conservation is the foundation on which this strategy is built. Fortunately, the body of existing knowledge about Bulgaria's biodiversity is relatively extensive and detailed. This reflects a rich heritage of research in the natural sciences, dating to the 1800s. Bulgarian scientists have been able to maintain strong national institutions, intellectual traditions, and academic programs despite political and economic circumstances that have often constrained both their work within Bulgaria and their ability to communicate with foreign experts and other colleagues.

As noted previously, biodiversity conservation is hindered by gaps in knowledge and technical constraints. The following recommendations are intended to provide a stronger scientific and technical basis for conservation policy and action.

Recommendations

- Encourage and support collaborative interdisciplinary studies of biological diversity and its conservation within state agencies, universities, the Higher Institute of Forestry, the Bulgarian Academy of Agriculture, and the institutes of the Bulgarian Academy of Sciences.

- Establish goals and standards for a national program of biodiversity data collection, storage, and analysis.

- Support additional taxonomic research to close existing gaps.

- Expand research on species composition, distribution, status, and population trends for all taxa, but especially for rare and threatened species and for invertebrates, fungi, and other less-studied taxa.

- Update the *Red Data Books*, create new ones as needed, and bring their categories of conservation status into accordance with international categories.

- Evaluate natural areas for potential inclusion in an expanded national network of protected areas.

- Establish a biomonitoring program for the protected areas network.

- Support cooperative research on maps, red book development, and conservation biology with other Balkan and European scientists.

- Undertake long-term ecological research projects, with special attention to the changing distribution and populations of species and changing habitat conditions.

- Initiate research on restoration ecology in several key degraded ecosystems.

- Expand research on the cultivation of medicinal plants and other species currently collected from the wild.

- Develop a coordinated plan for conserving national plant genetic resources that involves, among other measures, establishment of a national council; strengthening of the national seed repository at Sodovo; support for further studies of *in situ* genetic resources; and a program to involve farmers, nongovernmental organizations, and conservationists in the propagation of local plant varieties.

- Expand training opportunities for using and applying geographical information system technology in conservation planning and implementation (see Box 5).

Environmental Education

Education involving the values, status, and conservation of biological diversity is a fundamental part of the national conservation strategy. Simply put, this strategy will not succeed without strong public understanding and support. These, in turn, can only be fostered by communicating information about biological diversity throughout the public school curriculum, in universities, in professional training and development programs, and in various public forums (including museums, zoos, national parks, information and visitors' centers, and the mass media).

Bulgaria lacks a unified plan for biodiversity education, or even a process for designing such a plan. As a result, teachers have little experience in or exposure to current concepts in conservation, and little access to programs or materials useful in the Bulgarian context. The legal basis for improving education on biological diversity does exist. Article 11 of the Bulgarian Environmental Protection Act of 1991 requires authorities to publicize information on the environment through the mass media and other means, although it does not specifically mention biological diversity. The Convention on Biological Diversity obligates countries to promote and encourage understanding of biodiversity through the media and through public education. In effect, the development of this strategy has served as a first step in following through on these directives.

In moving forward on this component of the strategy, scientists, conservationists, officials, and educators need to maintain a broad approach. As a general guiding principle, education on biological diversity should not be seen as a discrete, "one-time" effort, but as a long-term, continuing process through which critical thinking about conservation issues and values can be introduced and encouraged. The aims of a fully developed conservation education program should be to increase public awareness of biodiversity issues, to stimulate pride in and enjoyment of the country's unique biota, to communicate existing and emerging scientific information, to convey new concepts in conservation, to foster constructive debate over conservation strategies, and to meet changing conservation needs. Finally, development of the educational component of the biodiversity conservation strategy should not be undertaken in isolation, but as part of a yet broader national environmental education program that will address additional environmental concerns.

Recommendations

- As the national conservation strategy process continues, a parallel national environmental education initiative should be developed. This comprehensive plan for improved environmental education should provide guidance and support for educators at all levels. It should be developed by the Ministry of Environment in partnership with the Ministry of Education, the Bulgarian Academy of Sciences, conservation groups and nongovernmental organizations, and other organizations and agencies.

- Public education programs and information campaigns should be instituted to disseminate information on conservation and biodiversity values, the principles of sustainable economics and development, current laws, and legislative initiatives. As part of this effort, information about this strategy and its findings should be made available in an appropriate popular form.

- Biodiversity education projects should, as a fundamental principle, draw on diverse approaches and ideas based on local educational opportunities outside the classroom, including both natural settings as well as zoos, botanical gardens, and other facilities.

Programs should build on and reflect these local resources. Creative activities (e.g., photography or poetry contests), direct contact, and hands-on projects (e.g., planting trees and stream-sampling) should be encouraged at every opportunity.

- Nongovernmental organizations can and should play an active role in designing and supporting biodiversity education programs at the local level.

- The Ministry of Environment, the Ministry of Education, the Bulgarian Academy of Sciences, universities, and other organizations should work together to offer teacher training courses and workshops and to develop teaching materials for classroom and extracurricular use. Formal training in environmental education should be made available through the universities.

- Special attention should be devoted to developing educational programs, projects, and materials for landowners who are acquiring land through the process of restitution. The objective should be to equip landholders with information on biodiversity values, conservation techniques, and environmentally sensitive agricultural practices. Specific activities that should be considered include

  - Easily readable publications on land restitution laws;

  - Nongovernmental-organization-assisted educational projects at the local level, including preparation of handouts, arrangement of meetings, and organization of cooperative programs;

  - A national system of extension services to offer comprehensive land use information and to provide communication between landowners and researchers;

  - Interim efforts to explain and promote conservation, the environmental impacts of land use practices, and sustainable agriculture techniques through the mass media;

  - Conservation-related short courses and workshops for farmers and other landholders through existing educational facilities, agricultural and biological research stations, and other institutions;

  - Open visitor and demonstration days in agricultural institutes and on farms employing sustainable agriculture practices; and

  - A national speakers' bureau to provide expert information on biodiversity conservation and land use.

Ecotourism

Ecotourism opportunities, if developed in an appropriate manner, can make important contributions to biodiversity conservation. Hiking, climbing, touring, bird watching, and other activities depend on a high-quality environment and thus encourage broad interest in protecting and restoring biological diversity. They can also provide economic returns for conservation at the local level.

Bulgaria, with its many mountain ranges, national parks and other protected areas, Black Sea coast, wine-producing regions, monasteries, and other cultural and historical sites, presents abundant ecotourism opportunities. In addition, the country's central location, the high level of education among its people, and the affordability of its goods and services place it in an advantageous position. At the same time, Bulgaria has weaknesses, such as poor safety and hygiene standards and inferior infrastructure, that impede its ability to benefit from these advantages.

Ecotourism is not an entirely new idea in Bulgaria. Bulgarian ornithologists and the Royal English Society for the Protection of Birds have

been cooperating since 1983, when the first bird-watching tours, led by Bulgarian specialists, were established. The contacts nurtured on these tours turned out to be fruitful on both ends. The Bulgarian Society for Bird Protection has assisted in organizing bird-watching trips for visitors from throughout Europe. Groups follow a basic route through the Rhodope Mountains to the Black Sea coast, the Srebarna Lake Reserve, and part of the Danube River basin. The rich variety of breeding and migratory birds, the competent ornithologist guides, and the good hotel accommodations have allowed this form of ecotourism to succeed, and it can serve as a useful model in identifying and developing additional opportunities. In the future, it is likely that bird-watching tours will be expanded to include other parts of the country.

With the democratization of Bulgaria and the opening of the country to visitors, conditions now exist for the fuller development of ecotourism sites. At the same time, Bulgarians recognize the need to proceed with caution and sound planning. To help ensure that such development occurs in a sensitive and conservative manner, a Sustainable Tourism Workshop was held in October 1992 at Bansko, following a request by the Bulgarian Ministry of Environment for support under the British Environment Know-How Fund. The *Tourism Development Strategy for Bulgaria* was prepared based on the many discussions and suggestions from the workshop. This document recommended medium-term measures for improvement in several key areas: transportation and communications, pollution control and treatment, land use planning, and the quality of the natural and built environment. Follow-up projects have begun to develop more specific ecotourism plans for the Black Sea coast and for the Rila, Pirin, Central Balkan, and Vitosha National Parks and surrounding areas. Steps are now being taken by the MOE, the COF, the Committee on Tourism, several NGOs, and local municipalities to implement these plans.

To take greater advantage of the potential benefits of ecotourism, government agencies, scientists, municipal and local officials, and NGOs should focus on the following needs.

Recommendations

- Develop a clear national policy on ecotourism and an action plan for its implementation.
- Assess existing environmental and cultural resources in terms of ecotourism opportunities.
- Identify key sensitive areas, including national parks, buffer zones, and areas of high aesthetic value.
- Identify the potential "pressure areas" within Bulgaria and consider the environmental impacts, including pollution, of varying degrees of tourism activity.
- Analyze existing methods of land conservation and municipal planning.
- Integrate ecotourism plans and projects into the regional planning process.
- Link private tour operators with other key parties, including conservation groups and educators.
- Include environmental education as a primary goal in developing ecotourism sites and programs.

Collaborative Partnerships

Experience in many countries has shown that collaborative partnerships can contribute significantly to the long-term success of biodiversity conservation projects. Such partnerships may involve a wide range of individuals and organizations, including the municipal and national government agencies; visitors and tourists; private landowners, volunteers, and benefactors; professional organizations; corporations and local businesses; schools and uni-

versities; conservation groups, historical societies, and other NGOs; and park "friends" groups. Partnerships can be formed to support a wide range of necessary activities, including park and trail maintenance, education and interpretation programs, biological inventory and monitoring, and fund raising. While many partnerships have focused on maintaining protected areas, they have potential application in conservation work on other lands as well.

Successful partnerships confer many benefits. They can reduce the costs of maintenance and management while increasing the cultural and economic value of rare and otherwise special biological and historical features. Such partnerships are especially important when economic resources are limited, and when conservation projects require the presence of a strong and committed local community. At the same time, partnerships can provide economic returns to communities through employment and training opportunities and through increased tourism and business investments. By involving citizens at the local level, partnerships encourage pride, expertise, and environmental stewardship where it most counts, and give local people a greater stake in areas of national and even international importance. Partnerships almost invariably offer opportunities for education, both formal and informal. In this way, partnerships contribute to broader public understanding of conservation issues and to the building of a national environmental ethic.

In Bulgaria, innovative conservation partnerships of the kind described here are still relatively uncommon. In the past, such groups as the Union of Hunters and Fishermen and the Hiker's Union have volunteered in outdoor education and resource management. Until 1990, however, most volunteer work was organized by the centralized management agencies and through officially supported conservation groups. With the emergence of the new conservation-oriented NGOs in the late 1980s and early 1990s, the potential for creative partnerships has increased greatly. Many of these groups (including all of those attending the NBDCS workshop) are already active in environmental education, habitat protection and monitoring, and other activities. These groups should be supported as they seek to expand their involvement.

It is not always easy to establish and maintain effective partnerships. They often require commitment among parties that have rarely cooperated in the past, and that in fact may have been in conflict with one another. Furthermore, partnerships are often hindered by a lack of legal authority and administrative support. Despite these deterrents, partnerships have proved successful under many different circumstances. A wide range of models can be adapted to local needs and opportunities in Bulgaria. As a country rich in human skills, knowledge, and commitment, Bulgaria has the ingredients most essential in building successful partnerships.

Recommendations

- Adopt the principle of partnerships in order to enlist the widest possible support for conservation programs.

- Take advantage of the experience and traditions of local people by working with them at the outset in the development of conservation plans.

- Seek enabling legislation as necessary to eliminate roadblocks and to support the formation of partnerships.

- Require all proposals for protected area designation and management, as well as for other conservation and environmental protection projects, to have a strong educational component with partnerships involving local schools.

Implementing the Conservation Program

The conservation program outlined above provides a framework of actions needed to ad-

vance the safeguarding of biological diversity in Bulgaria. It describes several key areas in which Bulgarian citizens, scientists, and officials need to act, and in which they *can* act under existing social and economic circumstances. The measure of this plan's success will be the degree to which it motivates and enables the citizens and elected officials of Bulgaria to take action.

As such, this plan should be seen as only the initial attempt to define what must be a continually evolving conservation program. The framework needs to be filled in. The various components must be developed in greater detail, and other relevant areas not touched upon here need to be included. Each of the components will require constant public involvement and feedback; all will need to evolve as they are implemented and as new opportunities and constraints arise. Successful implementation will require many different actions at the international, regional (European and Balkan), national, municipal, and local levels. None of these levels can be neglected. If properly coordinated, activities at all levels can reinforce one another.

Ultimately, however, the fate of the National Biological Diversity Conservation Strategy will depend on the degree of public support it gains within Bulgaria. It has evolved to this point due to the participation and dedication of hundreds of Bulgarian citizens. That process must not only continue, but expand. Putting the strategy into practice -- through policy reform, education, research, community development, and a wide range of on-the-ground conservation practices -- will require broad-based commitment to the common good, to Bulgaria's biotic inheritance, and to future generations.

Box 12. Debt-for-Nature Agreements: The Potential in Bulgaria

The recommendations in this conservation strategy emphasize actions that can be undertaken with existing resources, including financial resources. As these recommendations are implemented, and as further conservation needs arise, innovative methods to support them will be needed. Bulgaria, like many countries, faces significant economic difficulties and a large burden of foreign debt, even as it tries to address its urgent environmental needs. Under similar circumstances, other heavily indebted countries -- Costa Rica, Mexico, Madagascar, and the Philippines, to name a few -- have initiated successful debt-for-nature programs.

Debt-for-nature swaps are financial agreements through which portions of a country's foreign debt can be traded for investments in conservation. Debts are purchased on the international debt market, at a discount and with hard currency, by an intermediary. In practice, this role has usually been assumed by private conservation groups. The intermediary then presents the debt to the central bank of the indebted country for cancellation. In return, the indebted country agrees to provide funds for in-country conservation projects.

Such agreements do not seek to transfer ownership of lands or to redirect capital to foreign investors, but to provide support for conservation activities (most often improvements in park and reserve management and infrastructure). Debt-for-nature swaps cannot by themselves relieve either the participating country's foreign debt problems or the pressures on biological diversity. However, they can serve to reduce debt, leverage additional investments, stimulate local economic development, generate foreign exchange, support needed conservation projects, promote public interest in biological diversity, and assist participating government agencies and NGOS.

As yet, only a few debt-for-nature swaps have been proposed or implemented in the countries of Central and Eastern Europe and the former Soviet Union. Poland entered into two such agreements in 1990.

Many opportunities exist for debt-for-nature agreements in Bulgaria. Bulgaria faces a combined foreign debt of $12.3 billion, more than half of which is owed to banks in Germany, Japan, and Austria. It is currently negotiating with its commercial creditors in an effort to restructure its debt load and to design a realistic repayment schedule in light of its weak domestic economy and foreign exchange situation. As part of this general restructuring, debt-for-nature swaps could be included to the advantage of all parties. The government of Bulgaria, through the MOE, has already expressed interest in the potential of debt-for-nature swaps, and has taken initial steps in consideration of such agreements.

Several obstacles must be overcome before debt-for-nature agreements can be arranged and made to work in Bulgaria. Some of these obstacles are addressed in other portions of this strategy: ambiguity surrounding the jurisdiction and administrative responsibilities of the different government agencies; inadequate cooperation among different government departments and between the government and the NGOs; and lack of experience in building successful partnerships. As efforts to surmount these obstacles progress, debt-for-nature agreements hold great potential as one method of meeting the goals of the NBDCS. (For further information, see *Bulgaria: Debt-for-Nature Swaps -- Potential and Opportunity,* a report of the Biodiversity Support Program.)

PRIORITIES FOR IMMEDIATE ACTION AND SUPPORT

The success of the National Biological Diversity Conservation Strategy (NBDCS) will require that actions be taken and steady progress made in many areas. There are, however, several key elements of the strategy that deserve immediate support within Bulgaria and from the international community. The areas recommended for support are discussed in this chapter. They are of urgent importance, offer both immediate and long-term benefits, and provide much of the foundation on which the full conservation strategy can be built.

STRENGTHENING THE SCIENTIFIC BASIS FOR CONSERVATION

A sound scientific foundation is essential to the long-term effectiveness of conservation actions. Improved land and resource management, the formulation of more effective legislation and policy, the design of relevant extension services and environmental education programs, and the appropriate development of ecotourism opportunities all require accurate, up-to-date information about biological diversity. Applying basic

scientific knowledge to conservation problems also requires interdisciplinary, and often international, communication and collaboration. This is especially important as concepts in conservation biology advance. Bolstering the scientific foundation of the NBDCS will promote progress in all these areas and will allow Bulgarian scientists to apply and extend their existing knowledge in important new directions.

Efforts to strengthen the scientific understanding of biological diversity in Bulgaria should focus on the gaps identified elsewhere in the strategy, especially the need for basic information on specific taxonomic groups, geographic areas, anthropogenic threats and impacts, and mitigation and restoration methods. Other high-priority areas include

- *Equipment and supply needs.* In many cases, the most important scientific needs are the most basic: office equipment, computer supplies, copy machines, field and laboratory supplies, and so forth. Progress in other areas will often require assistance first in meeting these basic needs.

- *Revision of the Bulgarian* Red Data Books *and the creation of new ones for missing taxonomic categories.* The books synthesize basic information on rare and endangered species for use in many aspects of conservation planning and environmental impact assessment. Their data are outdated, and some groups, such as fungi, have not yet been covered. The categories of conservation status used in Bulgaria need to be brought into agreement with the internationally accepted categories of the World Conservation Union (IUCN), which are now being revised. Much of the information to improve or compile new books already exists. In some cases, additional research will be needed.

- *Additional species- and community-level information.* The basic information provided in the existing *Red Data Books* needs to be supplemented with additional information about biological diversity at the species and community levels. At the species level, atlases of breeding area distribution (especially of plants, birds, and other vertebrates) need to be prepared. At the community level, standardized habitat descriptions need to be adopted, and the classification system coordinated with that used in other European countries. Consideration should also be given to preparing red data lists for threatened habitats and community types.

- *Encouragement of interdisciplinary research.* The fostering of interdisciplinary research is especially important to the future of conservation in Bulgaria. The study of Bulgaria's soils, waters, fungi, plants (including its forests), animals, agricultural systems, fish resources, genetic resources, and other aspects of biological diversity has, as in other countries, followed traditional disciplinary lines. The interdisciplinary approaches needed to address conservation problems have been relatively neglected. Support is needed for research projects and training opportunities that encourage the integration of scientific knowledge.

- *Greater access to existing scientific information.* In the last several years, Bulgarian biologists have been able to interact more regularly with colleagues from outside Bulgaria. However, opportunities to stay abreast of scientific information and concepts developed in other countries and regions are still quite limited. Especially in the emerging, integrative disciplines of conservation biology, landscape ecology, and restoration ecology, Bulgarian scientists have much to learn from, and contribute to, colleagues from other countries. Support should be given to Bulgarian scientists and institutions for the purchase of books and reports, subscriptions to journals and computer net-

works, and attendance at conferences and scientific meetings.

- *Dissemination of scientific information.* To make existing and newly gathered information about biological diversity more available to citizens, students, other scientists, and decision makers, improved methods of dissemination need to be devised. These include not only reports and other publications, but the development of computer data bases, classes and seminars, policy-related briefings, mass media programs, and other communication opportunities.

Legislative Initiatives

Legal reforms and initiatives related to biodiversity conservation in Bulgaria have reached a critical stage. New laws, and revisions of existing laws, will be needed to implement many aspects of the national biodiversity conservation strategy. Stronger enforcement provisions will be needed to ensure that these laws are effective. In addition to a framework biodiversity law, new laws involving land restitution, the administration and management of protected areas, management of forest, fish, game, and medicinal plant resources, and CITES implementation are being drafted and introduced.

These laws should be based on the most complete technical and scientific information and reflect the broadest possible public input and NGO support. To achieve this goal support should be given to the in-country legal experts and non-Bulgarian advisers who have been working with scientists, NGO representatives, and government officials to draft these laws. Such support will ensure that these initiatives provide a strong framework of national legislation related to biodiversity conservation and bring national laws into accordance with European and international environmental agreements. In addition, continued assistance is needed to ensure that new laws are not merely passed, but that they are fully and effectively implemented. As laws are adopted, they will require shifts in institutional functions and priorities. Facilitating and monitoring these changes will be as essential a task as the initial passage of legislation.

Finally, it should be noted that the ongoing consultations in support of legislative initiatives are also serving to equip in-country legal experts with knowledge, tools, and experience that will provide continuing benefits. Moreover, the process of public participation in drafting biodiversity-related legislation has further benefits that extend beyond the conservation context. It conveys basic principles of democracy and justice, and thus is valuable in and of itself as Bulgaria develops the legal procedures and institutions essential to stable democratic government.

Expanding and Strengthening the Protected Areas Network

The central aim of the NBDCS workshop was to identify and coordinate a broad range of actions that will conserve biological diversity across the whole landscape, that is, in both aquatic and terrestrial ecosystems, and on both reserved and nonreserved lands. As such, it could only begin the process of identifying in detail those areas requiring protected status and those actions needed to strengthen the network as a whole. A follow-up process should begin immediately to focus exclusively on expanding and strengthening the network of protected areas. This process should include

- Clarification of the jurisdictional issues affecting the protected areas and full authorization of the overseeing agency to provide effective protection and management of designated areas. (These goals are expected to be met through the adoption of the new protected areas act and the creation of the new NNPS within the Ministry of Environment);

- Appointment of a task force of scientists, agency officials, nongovernmental organization representatives, and others to determine the percentage of the land base needed in meeting the goals of the protected areas network and to define the methods to be followed in improving the network;

- A review of the existing protected areas and identification of areas of special interest and concern (including corridors and buffer zones) that are outside the protected areas network, in part through gap analysis using geographic information systems;

- Identification and ranking of the management needs of the protected areas network, including the development of public education, information, and interpretation programs; strengthening of enforcement capabilities; assessments of staffing requirements; development of effective management plans and sustainable land use programs; and increased opportunities for professional training;

- Regional meetings, open to public participation, leading to a national meeting that will review the status of the existing network and develop detailed plans for its expansion and improvement;

- Delineation of research needs (including inventories, monitoring, and long-term ecological studies) within individual protected areas and in the network as a whole; and

- A review of the status of Bulgaria's 17 biosphere reserves and their management needs.

Environmental Education and Cooperative Extension

In the long run, the conservation of Bulgaria's biological diversity will depend on the general public's understanding and appreciation of its value and the actions that are needed to protect it. This, in turn, requires that much more time, energy, and attention be devoted to environmental education at all levels. This is a long-term undertaking, but immediate steps can be undertaken to begin the process. These steps should include

- Development of a national strategy for environmental education, involving the relevant government ministries, the Bulgarian Academy of Sciences, nongovernmental organizations, and teachers;

- Appointment of an advisory group of scientists, educators, and conservationists to provide guidance and advice in the design of curricula involving biological diversity and its conservation;

- Development of teacher training programs to convey information about biological diversity, concepts of conservation, and principles of environmental education; and

- Support for opportunities for Bulgarian educators to interact with environmental educators, and to learn about successful environmental education programs, in other countries.

Educational programs should not be limited to students or to schools. This is especially important to the land restitution process. Extension services should be organized on the national level to disseminate information to new (as well as current) landholders, and to communicate landholder concerns back to the scientists and policy makers. Such services might include, for example, forming a national speakers' bureau, offering short courses for landholders, organizing demonstration days, and discussing biological diversity issues through mass media outlets. While this extension network will focus initially on biodiversity conservation in the context of land restitution, it can with time be more formally constituted to provide private landhold-

ers and other citizens with continual services related to conservation, environmental management, and land use in general.

Developing and Implementing an Ecotourism Policy

Ecotourism can be an important source of funding for conservation projects. Ecotourism opportunities must, however, be pursued carefully, especially as regional and site-specific plans are developed. It is highly important that the various ministries and committees soon develop a clear and workable national policy on ecotourism. Without such a policy, there is a danger that these various agencies will not adequately address key issues that ecotourism entails, including the identification of sensitive areas and potential "pressure areas," the environmental impacts of tourism activities, and the equitable distribution of economic benefits from tourism activities.

Immediate support should be sought to develop an ecotourism policy and implementing key provisions of the ecotourism component of the national strategy. With the development of the *Tourism Development Strategy for Bulgaria* (1992), the foundation for a comprehensive national ecotourism policy already exists. This policy should involve support for practical activities, including the publication of tourism-related literature on protected areas; establishment by the MOE of tourism management guidelines for protected areas; definition of conservation design guidelines for essential construction activities; establishment of an incentive system for conservation projects; and the dissemination of business development and marketing advice for craft industries.

Stimulating Conservation in the Black Sea Basin

The Black Sea requires both unilateral and international measures to recover and conserve its biological diversity and economic resources. Bulgaria's Black Sea coast is a critical region in terms of biodiversity conservation. It is among the most species-rich regions in the country, and contains unique communities, wetlands, and important migratory bird habitats. At the same time, it is subject to heavy anthropogenic impacts from pollution, industrial and recreational development, and overexploitation of its biological resources. Support should be given to the following unilateral actions that address these threats:

- Identification of biologically important areas not yet included within the protected areas network;
- Integrated planning to direct coastal zone protection and development (the Ministry of Regional Development and Construction has begun to develop such an integrated management program with the support of the World Bank);
- Increased investment in restoration and pollution mitigation projects; and
- Stronger enforcement of regulations and prohibitions involving pollution, bottom trawling, and overexploitation of fishery resources.

Unilateral actions alone will not suffice to protect the Black Sea's biological diversity. The ecological health of the Black Sea is affected by the inland activities of all the countries within the Black Sea basin, as well as the coastal and open-water activities of those countries on its shores. Conservation of the Black Sea's biological diversity and economic resources will thus require intensified cooperation among all the countries within its watershed. International support and collaboration is needed to provide accurate information on the Black Sea ecosystem and to address the problems of pollution, sedimentation and eutrophication, overexploitation of fishery resources, oil and gas exploration, and inappropriate development. Specific actions should include

- Explicit consideration of biodiversity conservation needs within the Fisheries Convention on the Black Sea that is now being prepared;

- Support for implementing the provisions of the Convention on the Protection of the Black Sea from Pollution;

- Support for biodiversity monitoring, research, and conservation planning as part of the proposed Black Sea Action Plan, a region-wide environmental management and protection program now being developed with the support of the Global Environmental Facility of the World Bank, the United Nations Development Programme, and the United Nations Environment Programme;

- Increased investments by all the countries within the Black Sea basin in the restoration of marine biodiversity; and

- Support for collaborative, ecosystem-level scientific research on the Black Sea and its biological diversity.

Stimulating Conservation in the Balkan Peninsula

The conservation of biological diversity within Bulgaria requires cooperation and coordination with neighboring countries. Conversely, actions taken with Bulgaria have ramifications for conservation beyond its borders. Immediate steps should be taken to explore shared concerns, exchange information, and coordinate biodiversity conservation plans with the other countries of the Balkan Peninsula. While regional conservation planning is a complex process, and should be viewed as a long-term goal, short-term actions can be taken to strengthen existing ties and to build the foundation for cooperative conservation projects. For example, limited investigations of biodiversity conservation issues in important transboundary areas (such as the Strandzha Mountain region shared by Bulgaria and Turkey and the Rhodope Mountain region shared by Bulgaria and Greece) could be initiated.

Other actions that deserve support include

- A region-wide conference to explore and discuss transboundary threats to biological diversity and opportunities for collaborative conservation projects;

- The establishment, in Bulgaria and other countries, of councils to provide advice and guidance on cooperative projects involving transboundary issues and programs (perhaps with the involvement of the IUCN as a neutral body);

- Collaborative scientific research on the biogeography and biological diversity of the Balkan Peninsula, the abundance and distribution of rare and endemic species, threats to biodiversity, sustainable management strategies, and other questions that are international in scope;

- The preparation of Balkan-wide red data books; and

- Landscape-level conservation planning in border areas, especially where adjacent protected areas, buffer zones, and habitat corridors have been, or can be, established.

Such actions are difficult to initiate given the current levels of political and economic instability in the region. This should not be regarded as an impediment, but as a challenge to conservationists, citizens, and leaders throughout the region. Even modest cooperative conservation projects can provide a positive focus for the region's peoples and contribute to the realization of a more secure and peaceful future for the Balkan Peninsula as a whole.