**Reference:** Cyrille de Klem (1994), 'The Problem of Migratory Species in International Law', in Helge Ole Bergesen and Georg Parmann (eds.), *Green Globe Yearbook of International Co-operation on Environment and Development 1994* (Oxford: Oxford University Press), 67–77.

# The Problem of Migratory Species in International Law

***Cyrille de Klemm***

## The Nature of the Problem

### *The Migration Phenomenon*

Migratory species are species which perform cyclical movements between two distinct geographical areas, one of which is usually the area in which they breed. There are terrestrial, freshwater, and marine migratory species. Terrestrial species include certain mammals, such as many bats and some ungulates, and a large number of birds. Freshwater species comprise river dolphins and tortoises and many fishes. Marine migrants include cetaceans and seals and a large number of fish species.

The migrations of birds and of certain marine species are of particular interest because of the many international problems which arise from them.

### *Birds*

Bird migrations are beginning to be relatively well understood after years of research. Of particular importance and interest are the migrations of birds which breed in the northern hemisphere to their wintering quarters, often very far to the south. Some of these are particularly spectacular, including the migrations of arctic terns to the southern ocean, of certain North American waders from the Canadian tundra to the southern tip of the South American continent, or of waders breeding in northern Siberia to the south-western parts of Australia.[1]

Birds of the same species usually assemble after breeding in large flocks to migrate and then disperse again in suitable habitats, such as savanna or tropical forests, when they have reached their winter quarters.[2]

Water and shore birds depend on the maintenance of suitable wetland areas along their migration routes as assembly, staging, and wintering areas. Examples are the Copper River delta in Alaska, a major assembly area at the start of the Pacific flyway, and the Delaware Bay on the Atlantic flyway in the eastern United States, where hundreds of thousands of migrant waders stop over in May to feed on the eggs of the horseshoe crab, which breeds there at that time of the year.[3] Another example is Roebuck Bay and the Eighty Mile Beach in Australia, which is the terminus of the East Asian–Australian flyway and whose significance was only recognized in the early 1980s.[4]

### *Marine Species*

Many marine species perform migrations between coastal areas and the open sea. Some breed in the ocean and spend their adult life in inshore areas where they feed. Many others, on the contrary, reproduce themselves on the shore or in coastal lagoons or shallow waters and then migrate to feeding areas further out to sea. Examples are seals, sea-birds, sea turtles which lay their eggs on sand beaches, and many fishes. The grey whale breeds in lagoons in Baja California, Mexico, in the winter and then migrates in the summer to its feeding grounds in the Arctic.

A few species, such as tuna and most of the great whales, are highly migratory and are capable of covering considerable distances in the open sea.

There are also certain fish species which are biologically adapted to frequent fresh and salt water at different stages of their life cycle. Sturgeons and several species of salmon, for instance, spawn in rivers, often in headwaters at a considerable distance from the coast. Their young then migrate to the sea where they feed, grow, and spend their adult life before returning to breed in the river where they were born. These species are called anadromous.

Others, on the contrary, follow the reverse cycle and are known as catadromous species. They breed in the open sea and their young migrate to fresh waters, where they grow to maturity and then return to the sea to spawn. Eels are the best-known example of this category of species.

### *The Legal Status of Migratory Species*

States have sovereign rights over all animals which are present in their territory or areas under their jurisdiction at any point in time. This principle is the consequence of the recognition by international law of the sovereignty of states over their natural resources. It is now embodied in the Preamble of the new Convention on Biological Diversity, which reaffirms that states have sovereign rights over their own biological resources. With regard to marine species, the sovereignty of the coastal state over all animals occurring in its Exclusive Economic Zone (EEZ) (that is, the 200-mile-wide zone which states are entitled to establish along their coast and in which they exercise exclusive jurisdiction) has been expressly recognized by the Convention on the Law of the Sea of 1982.

Beyond the EEZ, that is to say in the high seas, the principle of freedom of fishing applies. This means that, in the absence of a treaty regulating fishing, states are free to exploit or over-exploit marine species as they please.

As a result of these general principles of law, migratory species come under the successive sovereignty of each of the states situated along their migration route. This means that their conservation is subject to the legislation of each of these states in succession. Conservation measures taken only in some of these states may accordingly be of little effect unless other states follow suit. International co-operation among all states along the same migration route is therefore essential.

With regard to marine species migrating between the EEZ and the high seas, their conservation and management require the co-operation of all states harvesting the resource in the high seas. The taking of such species may be direct, as target species, or indirect, when it is incidental to the taking of other species, as, for instance, in drift nets.

International co-operation should address all the threats that affect or may affect migratory species. The nature of such threats obviously varies from one species to another. Examples include dams which prevent the upstream migration of anadromous fish, spent lead shots which poison water-birds and their predators, or the introduction of alien species which, by preying on or competing with native species, may bring about their extinction. By way of example, the accidental introduction of the American ruddy duck, *Oxyura jamaicensis*, into Europe is now threatening the survival of its European counterpart, the white-headed duck, *Oxyura leucocephala*.[5]

The main threats to most migratory species, however, are over-exploitation and the destruction or alteration of essential habitats.

Rules governing the taking of exploited species should be adopted by common agreement among all range states and, as the case may be, by states fishing for those species on the high seas. Such rules should ensure that exploitation is and remains sustainable. The taking of species which are not exploited, particularly endangered species, should be uniformly banned, and incidental taking should as far as possible be minimized by appropriate rules.

With regard to the protection of habitats, essential breeding, feeding, and nesting areas must be preserved, regardless of their geographical location. This is of particular importance for water-birds, as the destruction of vital staging or wintering areas may have disastrous consequences on the survival of the populations concerned if no alternative sites are available.

In other words, populations of migratory species should be managed as single units, irrespective of jurisdictional boundaries. Where allowed, their exploitation should be sustainable, and all the ecological conditions which are necessary to keep them in a favourable conservation status, most particularly the preservation of their essential habitats, must be maintained.

These conditions can only be achieved though the conclusion of treaties or other arrangements to which all the range states of the species or population concerned must be parties. So far, however, only very few, if any, international instruments provide for this integrated management approach.

## The International Regime of Migratory Species

### *Marine Species*

The extension of the EEZ to a distance of 200 nautical miles from the coast, as made possible by the Law of the Sea Convention of 1982, is now almost universal.[6]

As a result, the vast majority of migratory marine species have now come under national jurisdiction and no longer require international agreements for their conservation and management. In addition, the Convention establishes a special regime for anadromous and catadromous species. The taking of these species is prohibited in the high seas. This restriction to the principle of freedom of fishing in the high seas was accepted in recognition of the 'primary interest' of the states of origin of anadromous species in these resources, particularly because of the effort and expense entailed by the maintenance or rehabilitation of habitats, the construction of fish passes at dams, and restocking operations.

Similarly, coastal states in whose waters catadromous species spend the greatest part of their life-cycle have 'responsibility' under the Convention for the management of the species and must ensure the ingress and egress of the fish.

The above provisions constitute a virtual nationalization of these two categories of migratory species to the benefit of the coastal states concerned. The main object of such measures was the Atlantic salmon and the five species of North Pacific salmon, which were being taken in the high seas by countries other than their countries of origin and in respect of which disputes had arisen.

Although the Law of the Sea Convention is not yet in force and has not been ratified by the salmon-fishing states, the provision on anadromous species has been used as a basis for the conclusion of the Convention for the Conservation of Atlantic Salmon (Reykjavik, 9 March 1982). The Convention prohibits fishing in the high seas and large parts of the EEZs of the range states.

The Convention on the Law of the Sea also contains provisions dealing with what it calls highly migratory species, that is to say, species that range freely over vast oceanic areas. Coastal states and states fishing for these species in the high seas have, in particular, the obligation to co-operate with a view to ensuring the conservation and promoting the optimum utilization of these species throughout the region concerned,

in both the EEZ and the high seas.

Well before the conclusion of the Law of the Sea Convention, a number of agreements had been signed to cover certain highly migratory species which were subject to exploitation. Examples include the Inter-American Tropical Tuna Convention of 1949 and the International Convention for the Conservation of Atlantic Tuna of 1966. The great whales are covered by the International Whaling Convention of 1946.

The Whaling Convention was signed to prevent the over-exploitation of the great whales and to safeguard 'for future generations the great natural resources represented by the whale stocks'. The Convention has two very important features which are missing from other treaties dealing with marine species. First, it applies to all waters where whaling is prosecuted, including throughout the territorial sea and internal waters of coastal state parties. Secondly, it is open to all states, whether or not they are whaling states. This provision was deliberately accepted by the Convention signatories, who considered that the safeguarding of whales was in the interest of the nations of the world. As a result, a large number of non-whaling states have acceded to the Convention and constitute a majority in the International Whaling Commission, which is empowered to take conservation measures.

This precedent was not followed in later treaties dealing with migratory species. The Bonn Convention, in particular, limits accession to any Agreements concluded thereunder to range states and states exploiting the resource in the high seas. However, it does make an exception to this rule for cetaceans because of the Whaling Convention. Agreements on cetaceans concluded under the Bonn Convention must, therefore, be open to all states. Despite this provision, the only Agreement on cetaceans which has been made so far, which deals with the small cetaceans of the Baltic and the North Sea, is open only to range states. It is therefore open to question whether this Agreement can properly be considered to be an Agreement under the Bonn Convention, as it clearly violates the latter's specific provision relating to accession by non-range states.

To return to the International Whaling Convention, it is widely acknowledged that in spite of the large number of non-whaling states which have acceded to it, it has notoriously failed to meet its objectives and that, as a result, species after species has had to be granted fully protected status.

### *Terrestrial Species*

International law does not recognize any special right of the state of origin over migratory species, as such a status would infringe the principle of national sovereignty. There has, nevertheless, been some recognition that these species constitute an international resource, such as in the Preamble to the Convention on Wetlands of International Importance, Especially as Waterfowl Habitat, of 1971. Early drafts of the Bonn Convention referred to migratory species as common resources shared by all their range states, but this met with the opposition of certain countries and was not retained in the final text.

The principle of national sovereignty over migratory species, therefore, continues to prevail. As a result, the limitations of sovereignty necessary for the conservation and management of those species can only be established by treaty.

There are a small number of treaties dealing with individual species or populations of mammals: the Agreement on the Conservation of Polar Bears (Oslo, 1973); several Conventions on the Conservation of the Vicuña (La Paz, 1969; Lima, 1979; Buenos Aires, 1981);[7] and an Agreement between Canada and the United States relating to a migratory herd of caribou in the Arctic (Ottawa, 1987). There is also a Convention regulating fishing for migratory fish in the Danube (Bucharest, 1958).

### *Bird Treaties*

There are, in addition, a number of bilateral treaties which have been specifically concluded for the conservation of migratory birds.[8] Of particular interest are those signed by the United States with Canada in 1916 and with Mexico in 1936, because they resulted, for constitutional reasons, in the transfer of jurisdiction over these birds from the individual provinces and states in Canada and the United States to the federal government of each of these two countries. This made it possible to develop federal management rules which otherwise would have been impossible to enact.

Other bilateral treaties were concluded later between the United States, Japan, Australia, China, and the USSR.

All these treaties are very similar. They merely prohibit the taking of certain listed species, require the establishment of close seasons for game species, and encourage parties to establish reserves. There are no mechanisms to co-ordinate their functioning. Furthermore, they are never open for accession to other states situated along the same migration route.

There is, accordingly, a need for the conclusion of flyway agreements providing not only for taking restrictions but also for the preservation of key habitats.

### *The Ramsar Convention*

In the late 1960s, faced with the alarming destruction of vital aquatic habitats, the conservation of water-birds and wetlands became a matter of priority for the conservation community.

The International Waterfowl Research Bureau (IWRB), now renamed the International Waterfowl and Wetlands Research Bureau, an international non-governmental organization established in 1954 to stimulate and co-ordinate research on and conservation of waterfowl and their wetland

habitats, has played an extremely active part, in co-operation with the IUCN—The World Conservation Union—in the promotion of the Convention on Wetlands of International Importance, Especially as Waterfowl Habitat, signed at Ramsar in Iran in 1971.[9]

The obligations laid down by the Ramsar Convention are limited. Parties must designate at least one wetland for inclusion on a List of Wetlands of International Importance. They must then formulate and implement their planning so as to promote the conservation of listed sites. Another major obligation in the Convention is to promote the wise use of wetlands in general, whether or not they are included in the List. However, for the protection of areas which are of critical importance for water-birds, their listing as Rams ar sites is essential as this may considerably assist the taking of adequate conservation measures at national level.

After a slow start, the Convention is now growing at an ever-increasing rate. There are seventy-seven parties and 610 listed sites, covering a total of almost 38 million hectares (as of 1 June 1993). Many of the most important areas for water-birds are therefore now protected under the Convention, although serious gaps still remain. Other deficiencies include the absence of a flyway approach to site designation and the lack of adequate protection at certain listed sites. The parties have approved a monitoring procedure, entailing on-the-spot visits, to assist in finding solutions when sites are endangered by human activities. However, the Convention has very little money and only a small, though active, Secretariat. A Wetland Conservation Fund to be supplied by voluntary contributions has been established to assist developing countries in preserving their wetlands.[10] So far, contributions to the Fund have been small.

Finally, the very purpose of the Convention being limited to the conservation of aquatic habitats, the management of the bird populations themselves must necessarily be left to other agreements which are so far still awaiting negotiation. The main purpose of the Bonn Convention was to provide a framework for the conclusion of such Agreements.

### *The Bonn Convention*

The Convention on the Conservation of Migratory Species of Wild Animals was signed at Bonn on 23 June 1979.[11]

The Convention contains two main obligations. Parties must protect certain endangered migratory species which are listed in Appendix I to the Convention. They must also endeavour to conclude Agreements for the protection and management of migratory species whose conservation status would substantially benefit from the international co-operation deriving from an Agreement. These species are listed in Appendix II. If the circumstances so warrant, a species may be listed in both Appendices. The Appendices may be amended by the Conference of the Parties.

Migratory species are defined as those which cyclically and predictably cross one or more national jurisdictional boundaries. In other words, species which perform their migrations entirely within the territory of a state or in the high seas are not covered by the Convention. Marine species are therefore covered only to the extent to which they cross jurisdictional boundaries, either between adjacent internal waters, territorial seas of EEZs, or between an EEZ and the high sea. As mentioned earlier, states exploiting a migratory species—as so defined—in the high seas are deemed to be range states of that species.

For the time being, Appendix I only includes fifty-two species, all very threatened. Appendix II, on the contrary, contains a large number of species, most of which are birds, including entire families. The Convention is therefore applicable to almost 2,000 species of birds, nearly a quarter of all existing species. Appendix II also includes many small cetaceans, all populations of European bats, and all sea turtles. There are no marine fishes.

With regard to Appendix I species, parties must prohibit any taking of these species, subject to some limited exceptions. They must also endeavour to conserve and, where feasible, restore the important habitats of these species, and to prevent, reduce, or control factors that are endangering or are likely to endanger these species. It should be noted that the obligation is only to 'endeavour' to do the above.

For Appendix II species the obligation is to endeavour to conclude Agreements for their conservation and management where these would be for the benefit of the species. Priority should be given to species with an unfavourable conservation status. Once again these obligations are not binding, although the Convention does lay down detailed guide-lines for Agreements. Each Agreement should cover the whole range of the migratory species concerned, thus satisfying the condition of unit management, and should be open to accession by all range states of that species, whether or not they are parties to the Convention itself. Non-range states, may not, therefore in principle be parties to Agreements. As mentioned earlier, there is an exception to this rule in favour of cetaceans.

These guide-lines constitute a comprehensive catalogue of the types of measures that should be required by Agreements. These include periodic reviews of the conservation status of the species concerned; the development of co-ordinated conservation and management plans; research into the ecology and population dynamics of the species; maintenance of a network of suitable habitats appropriately disposed in relation to migration routes; control of exotic species detrimental to the migratory species in question; elimination of activities and obstacles which hinder or impede migration; measures based on sound ecological principles to control and manage the taking of migratory species; and prevention,

reduction, or control of the release of polluting substances into the habitats of the species.

The Convention establishes a Conference of the Parties, which meets every three years, and a Scientific Council composed of experts appointed by the parties. There is a small Secretariat located in Bonn, provided by the United Nations Environment Programme (UNEP).

The Migratory Species Convention has been very slow in getting off the ground. It suffers particularly from the lack of a sufficiently large number of parties to cover the majority of the species listed in the Appendices and their migration routes. On 1 June 1993 there were only forty-one parties, of which seventeen were in Europe, including the European Community, fourteen in Africa, five in Asia, four in America, and one, Australia, in Oceania. Countries of major importance for migratory birds, such as the Russian Federation where very large numbers of European and Asian water-birds nest, China, Japan, the South-East Asian countries, Canada, the United States, and most Latin American countries are still outside the Convention.

As a result, the listing of many of the Appendix I species remains purely symbolic, since their range states are not parties. For the same reason, it is difficult to start negotiating Agreements for most of the Appendix II species. It follows that, as at mid-1993, almost ten years after the Convention entered into force, very few Agreements have been concluded under the Convention. Those which have been signed have only a very limited scope.

There are only three Agreements, only one of which was actually in force on 1 June 1993. The latter is the Agreement on the Conservation of the Seals in the Wadden Sea, concluded in October 1990 between Denmark, Germany, and the Netherlands. The Agreement provides for the development of a conservation and management plan for common seals, *Phoca vitulina*, including habitat-protection measures, and generally prohibits the taking of the species in the area covered by the Agreement.

The other two Agreements, which are not yet in force, are the Agreement on the Conservation of Bats in Europe, and the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas, concluded in September 1991 and March 1992 respectively.

The Agreement on Bats calls upon parties to prohibit the deliberate taking of these species, to identify and protect sites of importance for these species, and to promote research and public-awareness programmes. The Small Cetaceans Agreement contains a Conservation and Management Plan which the parties undertake to implement. However, the Plan contains few binding rules, and even with regard to the taking of small cetaceans, the obligation is still only to endeavour to protect them.

Nevertheless, there are signs that the development of Agreements is gathering momentum. Negotiations have started for an Agreement on Small Cetaceans in the Mediterranean, and a Memorandum of Understanding on the Siberian crane, *Grus leucogeranus*, a very endangered species, is being discussed. The Scientific Council has also made a number of proposals for potential Agreements, such as an Agreement on cetaceans, seals, and sea-birds in the southern part of South America, where Argentina, Chile, and Uruguay are parties. However, these initiatives are still of limited scope.

The development of two major Agreements relating to water-birds has been initiated, firstly in the Western Palaearctic and Africa, and secondly in Asia and Australasia. The idea in each case is to cover the whole of the migration routes of the species concerned. However, progress has been very slow. For example, preliminary work on the Western Palaearctic Agreement was started by the Dutch government in 1989. A draft Agreement has been produced but negotiations have not yet begun. To date, the Bonn Convention has therefore not been able to provide for the conclusion of Agreements on any species of migratory birds.

Outside the Bonn Convention, however, there is one example of an informal arrangement in North America which seems to be working well.

### *North America*

In 1985 the Canadian and US agencies responsible for wildlife jointly adopted by mutual agreement the North American Waterfowl Management Plan[12] covering thirty-seven species, mostly shot as game. The Agreement establishes a framework for joint long-term planning and sets goals for the re-establishment of depleted populations and the protection of more than two million hectares of wetlands as breeding, staging, or wintering habitats. In 1988 the Agreement was extended to Mexico by the conclusion of a Memorandum of Understanding between the wildlife agencies of the three countries. This instrument establishes a tripartite committee to develop and implement a global conservation strategy for migratory birds and their habitats. Co-ordinated management plans will, where appropriate, also have to be prepared.

The financial problem seems to have been solved by the adoption by the US Congress in 1989 of the North American Wetlands Conservation Act, which empowers the federal Government to finance conservation projects in Canada and Mexico through the proceeds of a tax levied on the sale of hunting weapons and ammunition, as well as through a budgetary contribution approved by Congress. From 50 to 70 per cent of the funds made available in this way must be devoted to the financing of projects in the two other countries, according to priorities determined in the light of the birds' needs.

The system works because of the close ties which have been developed between the agencies concerned. There is also the political will, backed by strong conservation and hunting communities, to remedy the decrease in the number of ducks and geese and essentially to address the major cause of this decrease, the destruction of natural habitats.

It is of particular interest that it is through a contribution by the hunters, through the tax they have to pay on arms and ammunition, that the conservation of habitats is made possible. This contribution is in addition to that derived from the duck stamps that hunters in the US have to buy and stick on their hunting licences. Finally, a powerful NGO, Ducks Unlimited, collects sizeable contributions from its members and uses this money to acquire and manage wetland habitat in Canada, Mexico, and the United States.

## Obstacles to the Conservation of Migratory Species

Obstacles to the conservation of migratory species are basically no different from those relating to the conservation of biological diversity in general. They include lack of interest and political will on the part of governments, lack of understanding of what is at stake, consequent lack of trained staff and of money, and opposition on the part of vested interests, which may be particularly strong when attempts are made to regulate the taking of species of commercial importance or the protection of habitats. There is, in addition, a general lack of understanding of the causal links between certain human activities and the depletion of wild species.

With regard to migratory species, the problem is of course further complicated by the need to adopt common conservation and management objectives and rules. This implies international commitments to impose certain restrictions on human activities and to accept financial obligations which may not always appear justifiable to certain segments of the population and to the governments concerned.

A distinction must be made, however, between migratory species of commercial importance, mostly fishery resources, and those which are not exploited or are only taken for sport.

### *Commercial Resources*

For commercial resources, the main objective of governments is to maintain the economic activity concerned. As regulatory measures are unpopular, they are often accompanied by various subsidies and measures to modernize fishing fleets, which almost inevitably increase over-exploitation. In addition, research is almost entirely carried out by government agencies as a free service to the fishing industry. There is even an intergovernmental organization, the International Council for the Exploration of the Sea, which was established as early as 1902, and whose task is to co-ordinate research in the Atlantic Ocean and its adjacent seas.

Little is generally done for the safeguarding of the habitats of the exploited species, especially inshore spawning or nursery areas, as this often meets with the opposition of other interests and will generally have no immediate apparent effect on the level of the fish stocks.

At the international level, essential as fishery agreements may be to provide for the sustainable exploitation of shared stocks and migratory species, they are often ineffective in terms of conservation, since regulatory measures proposed by scientists usually meet with considerable opposition on the part of fishery interests. Furthermore, fishery treaties never provide for the protection of the essential habitats of the species they purport to conserve.

In spite of these shortcomings, the conclusion of more ecologically based fishery treaties along the lines of the Guidelines for Agreements of the Bonn Convention appears to be difficult. In principle, the Bonn Convention is potentially applicable to any migratory species, whether terrestrial, freshwater, or marine and whether commercially exploited or not. Attempts to exclude marine species at the Conference of Plenipotentiaries, which adopted the Convention in 1979, were defeated. In practice, however, there seems to be a tacit consensus to keep exploitation and conservation treaties separate.

As a result, there are hardly any species subject to commercial exploitation listed in the Appendices to the Bonn Convention and, in particular, no marine species of commercial importance. All the great whales, for instance, which continue to be considered at least as a potential economic resource are left to the International Whaling Convention, except for five endangered species which have now been protected under that treaty for decades and are listed in Appendix I to the Bonn Convention.

The conservation and management of most migratory marine species, with the exception of those which are recognized as endangered or vulnerable (such as many small cetaceans, sea turtles, and some seals) will therefore continue to be governed by the relevant fisheries agreements. It is unlikely that agreements governing the commercial exploitation of migratory species will ever be concluded under the Bonn Convention.

### *Agreements Under the Bonn Convention*

For most migratory species of no commercial value, agreements under the Convention would seem to be the best way to organize essential international co-operation. Agreements are indeed the corner-stone of the Convention. If no agreements are concluded, the Convention will remain an almost empty shell, with only the obligation to protect the

few Appendix I species. Nevertheless, agreements are difficult to initiate, take time to negotiate, and take an even longer time before they come into force.

This two-step system, cumbersome as it may be, was probably unavoidable. Particular species or groups of species require specific conservation measures, which could not have been adequately included in a general convention designed to cover all migratory species. As a result, the Convention simply constitutes a framework for more detailed agreements.

The dilemma here lies between the negotiation of a large number of little agreements, covering individual species or small groups of species having the same range and similar ecological characteristics, and trying to conclude agreements relating to a large number of species in a vast geographical area, such as the two water-bird agreements in preparation. In the latter case, however, if all specific situations are to be taken into consideration, the text of the agreement will again have to be fairly general and there is a definite risk that a further tier of agreements will be necessary to take account of many individual cases. Some form of mechanism must accordingly be devised so that the specific needs of individual species may be taken into account under more general agreements.

The matter is further complicated when agreements need to be ratified by their signatories. This will almost always be the case when they contain provisions establishing meetings of the parties and a secretariat, since their implementation requires financial commitments. There may be a natural reluctance on the part of legislators to ratify a large number of separate treaties dealing with obscure animals, especially if these necessitate government expenditure.

On the other hand, if no institution is established to assist in the implementation of agreements, there is a considerable risk that they may be almost completely ineffective. Agreements concluded so far (on bats and small cetaceans) do have machinery provisions and must therefore be ratified. The agreement on the Wadden Sea seals uses the existing Wadden Sea Secretariat. The agreements on water-birds will not be able to operate without adequate institutional arrangements.

The reluctance to enter into international commitments when the species concerned have no economic value is easy to understand. Inaction is much more surprising, however, in the case of water-birds, where what is at stake is the preservation not only of species but also of the multi-billion-dollar hunting industry. Notwithstanding, the only ecologically inspired agreement ever concluded in this respect is the North American Memorandum of Understanding on ducks and geese.

International research work on water-birds and their habitats is mostly carried out by a non-governmental organization, IWRB, with little money. IWRB undertakes bird counts, mostly through volunteers, identifies important habitats, evaluates the conservation status of species, and proposes conservation measures. Other private organizations carrying out research in these fields include the International Council for Bird Preservation (now called Bird Life), the Asian Wetlands Bureau, and Wetlands for the Americas, with whom IWRB has concluded co-operation agreements.

The work accomplished so far by these bodies is essential to the implementation of the Ramsar Convention, and will be even more valuable as a scientific basis for future agreements under the Bonn Convention, if and when the states concerned muster the political will to conclude them.

To these problems should be added the difficulties arising from the existence of several treaties, global or regional, dealing not only with different but also often with the same aspects of the conservation of certain species or groups of species, with resulting gaps or overlaps.

### *Lack of Co-ordination Between Conventions*

The conclusion of the Bonn Convention has changed nothing in respect of the earlier agreements on certain migratory species. The Polar Bear Agreement and the existing agreements on seals remain independent of the Convention and the species they cover are not listed in the Bonn Appendices. Admittedly, bringing an earlier agreement under the ambit of the Bonn Convention is fraught with legal, political, and practical difficulties.

It follows that the Bonn Convention *de facto* only has residual competence over those migratory species which are not already covered by earlier agreements. However, the reverse is not true. After the conclusion of the Bonn Convention, certain species listed in the Bonn Convention have also become covered by other Conventions.

A good example is that of sea turtles. Out of a total number of seven species, six are listed in Appendix I to the Bonn Convention and all seven on Appendix II. To date, no agreement has been concluded for their conservation under the Convention and none is presently in the making. However, these species are protected under a number of regional instruments, in particular the Protocols to the Regional Seas Conventions for East Africa and the Wider Caribbean. Some species fully protected under the Bonn Convention are listed as exploitable species in the East Africa Protocol.

On the other hand, sea turtles in the Mediterranean are protected under no less than four different instruments (Bonn Convention, the Berne Convention on the Conservation of European Wildlife of 1979, African Convention on the Conservation of Nature and Natural Resources, and the new European Community Directive of 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora).

Another problem may be the difficulty of determining clearly the areas of responsibility of the Ramsar Convention

and any future agreements that may be made on the conservation of habitats of migratory water-birds under the Bonn Convention. It is essential that joint decisions be made on such matters as the establishment of criteria for listed sites.

In addition to the usual obstacles to the conservation of biological diversity, migratory species therefore suffer from legal and political difficulties which are the consequences of the migratory nature of these animals.

## Possible Solutions

For marine species of commercial importance, there seems to be only one solution to existing problems. Adequate implementation and enforcement mechanisms should be developed within each fishery agreement, to provide not only for the sustainable harvesting of the resource but also for the maintenance of the ecological conditions and habitats which are essential to ensure its continuous existence.

For migratory species of no commercial value, there is an urgent need to promote the conclusion of agreements under the Bonn Convention. If these agreements are to be effective, however, they must meet the objectives of unit, rational, and ecological management of the species concerned. In addition, the Convention should be better co-ordinated with other treaties which are of relevance to the conservation of migratory species.

### *Unit Management*

Certain major countries must be persuaded to join the Bonn Convention: Canada, the United States, and most Latin American countries which are important wintering grounds for many American waders. The Memorandum of Understanding between Canada, Mexico, and the United States works well but it is limited to ducks, geese and swans, the large majority of which do not fly further south for the winter. Large numbers of waders migrate to South America, and an agreement is necessary to cover them.

Similar problems exist in other parts of the world. In the Far East, for instance, none of the countries where the birds breed or through which they pass during migration are parties, except Australia at the far end of the migration route.

Another important matter is to find ways to overcome the reluctance of states to enter into formal and financial commitments requiring ratification. This problem would be largely resolved if means could be developed to finance the necessary mechanisms without imposing financial obligations on the parties to agreements.

One possible solution would be to finance agreements out of the budget of the Convention itself. However, apart from the fact that the large number of agreements would mean that the Convention budget would also have to be large, which many parties would probably not accept, parties might well also object to the use of their mandatory contributions to finance agreements to which they were not parties.

There remains the possibility of voluntary contributions made for the specific purpose of financing the operation of agreements. This would require the establishment of a migratory species fund, along the same lines as the Ramsar Wetland Fund. It is expected that the matter will be discussed at the next meeting of the Conference of the Parties in 1994, but it is possible that the use of the fund will be limited to the financing of field projects. If this is the case, the problem of funding the administration of agreements will remain unresolved.

Another way to bypass the hurdle of ratification consists of concluding informal arrangements. Admittedly, such arrangements are not binding in law. Nevertheless, parties to these instruments have at least a moral obligation to comply with their provisions. This works well in North America, as seen above.

An example of such an arrangement is the Memorandum of Understanding which is now being developed under the Bonn Convention for the conservation of the Siberian crane. The first draft of this document requires range states to provide strict protection for the species, to conserve the wetland habitats essential for its survival, and to implement an Action Plan containing general provisions, which should be applied throughout the range of the bird, as well as much more specific action points to be carried out by individual range states.

Meetings are to be hosted and organized by one of the range states. Secretariat services are to be provided by the Secretariat of the Bonn Convention. International financing requirements are consequently reduced to a minimum.

The instrument contains two particularly interesting features which could serve as useful models for similar arrangements in the future. It requires range states to develop a longer-term species-conservation plan for eventual inclusion in the Asian/Australasian Waterfowl Agreement which is in the course of preparation. This approach makes it possible to start preparing conservation plans for individual species in particular need of protection without waiting for the development of an agreement under the Convention. This may save a lot of time and hence some endangered species.

The second interesting feature is the participation of certain NGOs in the Memorandum of Understanding. In the case in point, the International Crane Foundation and the Wild Bird Society of Japan have been allocated specific tasks relating to research and monitoring. This can easily be done through an informal arrangement, but could be much more difficult under a treaty-like instrument to which, in international law, NGOs may not be party.

The effectiveness of the Bonn Convention will, however,

be judged on its ability to bring about the conclusion of flyway agreements, especially for the conservation and sustainable exploitation of water birds.

*Rational Management*

Rational management means that in respect of harvestable species range states should agree on a maximum allowable take for each species concerned.

The first problem is that there is wide variation between countries as to which species may lawfully be taken. Migratory water-birds have long been considered as a windfall or a gift of God and their hunting was accordingly unrestricted in many countries. The situation has changed and most, if not all, countries of the world now accord some degree of protection to these species. Moreover, the number of species which can be hunted is now much lower almost everywhere compared to what it was in the past. Nevertheless, it is still almost impossible to harmonize regulations as to which species may be taken along the same flyway, because of long-standing hunting traditions.

The next problem is that of the open and close seasons for those species which may lawfully be taken. It is generally agreed that hunting should be prohibited during the breeding season and for as long as the young are not fully fledged, as well as during the return journey of the migrants from their wintering areas to their breeding grounds. The reason for this is that returning birds which have survived the hazards of the fall migration and the wintering season are all potential breeders, and to allow them to be shot on their way back to their nesting areas would directly affect the reproduction of the species.

States situated on the same flyway must therefore agree to a close season starting from the beginning of the return migration to the time when the young birds are fully grown and no longer dependent on their parents for their survival.

The most difficult matter on which international agreement will have to be reached is the number of birds of each species which may be taken each year along the same flyway without affecting the conservation status of the species, just as fisheries commissions have to do in respect of the harvesting of fish stocks.

An evaluation of the potential breeding population of a species can be done by counts in mid-January on the wintering grounds just before the birds start their return journey. IWRB has been doing exactly this for years for Western Palaearctic waterfowl. From the numbers thus obtained, estimated mortality until the breeding season must be subtracted to obtain the desired figure.

This method provides sufficiently accurate information on the number of breeders, but not on breeding success which may be affected by climatic conditions on the breeding grounds, such as late frosts.

In North America, estimates of breeding success are made in the nesting areas by means of sample brood counts, and evaluations of available breeding habitat and any limiting weather conditions. As most water-birds nest in the Arctic tundra and are scattered at the time over huge areas, more-accurate estimates are clearly impossible. Nevertheless, they are thought to be sufficient to determine the level of allowable harvesting.

For Palaearctic birds, breeding grounds are for the most part located in northern Russia and Siberia, where similar counts would have to be undertaken for all flyways from the eastern Atlantic to the western Pacific.

Harvesting mortality would also have to be determined through the compulsory submission of kill returns by individual hunters.

From these various figures, it should be possible to calculate for each species a sustainable harvesting level year after year. It will then be necessary to apportion this global quota among the states concerned. This may be achieved by imposing daily and seasonal bag limits and possession limits, or by adjusting the duration of the open season, or both. In North America, these methods have been used for decades and do not give rise to serious problems. It may not be so easy to apply them elsewhere.

## *Ecological Management*

An essential aspect of ecological management is the conservation of suitable habitats along the full length of migration routes. However, other important aspects, such as pollution by lead shots or other substances like pesticides, and the introduction of exotic species should not be overlooked.

There must, therefore, be an obligation to preserve essential wetland habitats. Breeding habitats being generally scattered, international agreements cannot go any further than imposing a general obligation to conserve and monitor them.

However, the situation is quite different for large staging and wintering areas. There must be an international commitment to conserve them, either under the agreement itself or under the Ramsar Convention, or both. This will of course require money, as do the necessary surveys, research, bird counts, and so on. Many essential wintering and staging areas are in developing countries in Africa, South-East Asia, and Latin America. It cannot be expected that these countries will agree to finance the conservation of such areas by themselves, as this would be tantamount to subsidizing hunting in developed countries. The cost of conserving habitats should instead be reflected in the cost of hunting, as is done by the combination of taxes and the duck stamp in the United States.

The central question is whether the North American system, with its Waterfowl Management Plan and mechanisms

for financing habitat conservation, can be used in other parts of the world. The difficulties are enormous, because of the large number of countries, traditions, economic situations, and legal systems concerned. Nevertheless, there may be no alternative.

There is obviously also a need to take special measures for the conservation and recovery of endangered species of water-birds, such as the Siberian crane. These species need recovery plans developed and monitored at international level, whilst responsibility for their implementation will naturally continue to rest with individual range states.

### *International Co-ordination*

The final challenge concerns the co-ordination between conventions dealing with migratory species.

The obligations on the conservation of biological diversity and the sustainable use of biological resources, which are at the very basis of the Bonn Convention, are now also included in the new global Convention on Biological Diversity. This Convention also contains new obligations on matters such as environmental impact assessments, as well as the need to identify, regulate, and manage processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity. All these provisions are, of course, as applicable to migratory species as to any other species.

It follows that agreements made under the Bonn Convention should hereafter provide for the implementation and further development of the new obligations embodied in the Convention on Biological Diversity, particularly those dealing with environmental impact assessments and potentially damaging processes and activities.

It should also be possible to use the financial mechanism provided by the new Convention to fund projects for the conservation of migratory species and their habitat. Ideally, as the Bonn Convention is the specialized treaty in this field, projects should be jointly prepared between its Secretariat and the range states concerned for submission to the Biological Diversity funding mechanism.

Another important question concerns co-operation between the Bonn and Ramsar Conventions. The two Conventions complement each other as far as water-birds and other aquatic species are concerned. Agreements under the Bonn Convention will, of course, require the identification and conservation of important sites for the species concerned. The designation of sites as Ramsar sites may assist in the protection of such species, and will make such sites subject to the Ramsar monitoring procedure and to recommendations by the Ramsar Conference of the Parties. An example is the Agreement on the Seals of the Wadden Sea, which is an agreement under the Bonn Convention whilst the Wadden Sea is a Ramsar site.

There should also be the possibility of holding joint Bonn–Ramsar meetings at flyway level. This would have the advantage of bringing together all states that are parties to either of the two Conventions, or to both. It could greatly facilitate the conclusion of flyway agreements in those parts of the world where there are few parties to the Bonn Convention and many to the Ramsar Convention, such as on the American continent.

The other two global conventions which may be of importance to migratory species, the World Heritage Convention of 1972 and the Convention on International Trade in Endangered Species of Wild Fauna and Flora of 1973 (CITES), are also complementary to the Bonn Convention. Several very important sites for migratory birds are included on the World Heritage List. Many of the species listed in Appendix I to the Bonn Convention are also included in Appendix I to CITES, which prohibits commercial trade in specimens of those species. Co-ordination is necessary with the Bonn Convention, however, to ensure that as many as possible of the major bird sites are designated as World Heritage sites, and that all those species listed in Appendix I to the Bonn Convention which may be affected by international trade are also listed in Appendix I to CITES.

There remains the problem of regional conventions, with which co-ordination is difficult because of their small and widely scattered secretariats. Wherever possible, joint meetings should be held to decide on the allocation of tasks. This process has already started in the Mediterranean, and has led to the decision that the agreement on small cetaceans should be developed under the Bonn Convention, even though the species concerned were also protected under the Berne Convention of 1979 on the Conservation of European Wildlife.

It may be too early to embark on this process with other conventions, especially those on the regional seas, as most states in the areas concerned (that is, East Africa and the Caribbean) are not parties to the Bonn Convention. No agreements are therefore contemplated in these areas for the time being.

Some degree of co-ordination is now possible, however, under the new Convention on Biological Diversity, as that Convention requires its Conference of the Parties (Article 23(4)(*h*)) to contact the executive bodies of conventions dealing with matters covered by the Convention, with a view to establishing appropriate forms of co-operation with them.

## Notes

1. Jean Dorst (1956), *La Migration des oiseaux* (Payot, Paris).
2. Reginald E. Moreau (1972), *The Palaearctic–African Bird Migration System* (Academic Press, London and New York); Commission des Communautés Européennes—Environnement et Qualité de la Vie (1986), *Aperçu des zones de grand intérêt pour la conservation des espèces d'oiseaux migrateurs de la Communauté en Afrique* (Rapport EUR 10878).
3. Christopher Joyce (1986), 'Food for Flight in Delaware Bay', *New Scientist* (9 Oct.), 34–6.
4. Vaughan Pattinson, Broome Bird Observatory (1993), 'Roebuck Bay and Eighty Mile Beach, Australia: A Major Link in an International Network of Important Wetland Sites', *Asian Wetland News*, 5: 2/6, 1.
5. International Waterfowl and Wetlands Research Bureau (1992), 'Conservation Status of the American Ruddy Duck, Oxyura jamaicensis', *IWRB News*, no. 8.
6. For more information on all matters pertaining to the Law of the Sea and the legal regime of the biological resources of the ocean, see Cyrille de Klemm, 'Living Resources of the Ocean', chap. 2 in Douglas M. Johnston (ed.) (1981), *The Environmental Law of the Sea* (IUCN Environmental Policy and Law Paper no. 18).
7. Simon Lyster (1985), *International Wildlife Law* (Grotius), 55–61 (polar bears) and 88–96 (vicuña).
8. Ibid. 62–87.
9. Geoffrey V. T. Matthews (1993), *The Ramsar Convention on Wetlands: Its History and Development* (Ramsar Convention Bureau). Lyster, *International Wildlife Law*, 183–207.
10. Convention on Wetlands of International Importance, Especially as Waterfowl Habitat, *Proceedings of the Fourth Meeting of the Conference of the Contracting Parties* (Montreux, Switzerland, 27 June–4 July 1990), vol. i.
11. Lyster, *International Wildlife Law*, 278–98.
12. US Department of the Interior (Fish and Wildlife Service) and Environment Canada (Canadian Wildlife Service) (1985), *North American Waterfowl Management Plan*.