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Naturopa

Joby Kreüger

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Captions to illustrations p. 16-17:

1. *Sterna dougallii*, one of Western Europe's rarest breeding species
(Photo C.H. Gomersall-RSPB)

2. Wetlands along the Moroccan Atlantic coast (*Platalea leucorodia*) (Photo W. Verheugt-ICBP)

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True co-operation

Twice a year, with the changing of the seasons, there occurs the great mystery of migration, particularly by birds. At the approach of winter they leave northern, eastern and western Europe in their millions and head for the south. Once winter is over, they return, often in less spectacular fashion, to ensure the continuation of their species. The spectacle never fails to arouse wonder.

During their journey these birds, in common with other migratory species, encounter numerous obstacles, many of them man-made. Accordingly this issue of Naturoopa is devoted to the subject of international political and technical co-operation, for surely it would be desirable, indeed only

natural, if concern to ensure the survival of our natural environment became one of the mainstays of understanding, détente and genuine co-operation?

In Lisbon in June 1987 the Council of Europe will be holding the fifth European Ministerial Conference on the Environment. Its main theme will be the compatibility of agriculture and wildlife, with reference to a new strategy for the environment and many other important aspects. All this will be dealt with in Naturoopa N° 55.

H.H.H.



Photo S. Cordier

Editorial

The roots of the current preoccupation with north-south co-operation are to be found in economic, political and cultural factors, in the long or short-term.

The task confronting us today is to put the debate on concepts behind us and to start to build an appropriate system of co-operation based on mutual interests, one which stops considering the third world as an "aided" block. In other words we have to build north-south relations on the foundation of partnership, respecting the utilisation of the natural resources of the countries of the south in a development context which is attentive to local conditions and to major natural balances.

Within the space of a few years, the world economic crisis, the threat of the collapse of our planet's ecological balance, drought and the tragedy of desertification, especially in the Sahel countries, together with the sheer magnitude of the problems common to the world community have brought the north and south together and led to the beginnings of better international co-operation based on the respect of the other party's interests.

The approach which views the north-south issue in terms of duality is changing. The scale of values on which the power of money and economic profit are synonymous with success and happiness is beginning to crack, albeit hesitatingly. Money is no longer the sole source of power, culture is no longer exclusively European, ethnocentrism is losing ground to a dialogue of cultures, in which the spiritual, cultural and material values of each people are recognised as a rich part of the heritage of humanity.

The interdependence of the parts making up the biosphere dictates the inevitable interdependence of human societies and the need for joint action.

This determination to take joint action, born of the firm conviction that we all live on one earth, "UNITERRA", guided the work of the United Nations Conference on the Human Environment, held in Stockholm in 1972.

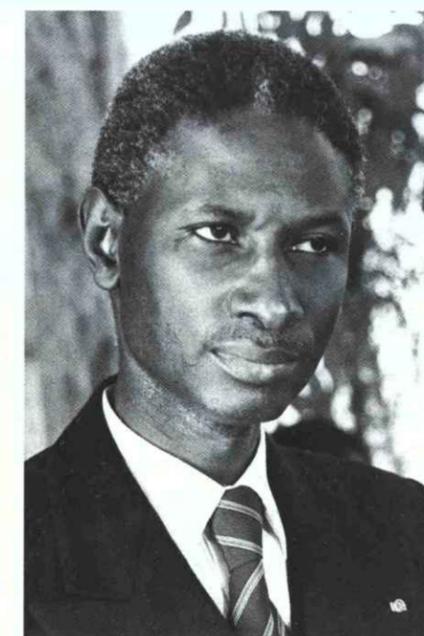
The Council of Europe was one of the forerunners of this development, having since its inception set itself up as an organisation devoted to mankind, all mankind, in society, in the diversity of its societies and in all its rights.

I would like to salute this distinction of the Council of Europe, to which the European Cultural Charter, Social Charter, the European Convention on the Legal Status of Migrant Workers and the Convention on Conservation of Wildlife and Natural Habitats in Europe, known as the Berne Convention, all bear witness.

Although the Berne Convention focuses primarily on the continent of Europe, it nevertheless acknowledges the close interdependence of Europe and Africa in fulfilling the objectives of the convention.

For how is the continued existence of populations of geese, waders and other European migratory species to be ensured unless they are correctly protected and managed throughout their entire life cycle, ie during their seasonal wanderings and during their wintering in Africa. In this context the Berne Convention is a privileged instrument of Euro-African co-operation within a new dialogue.

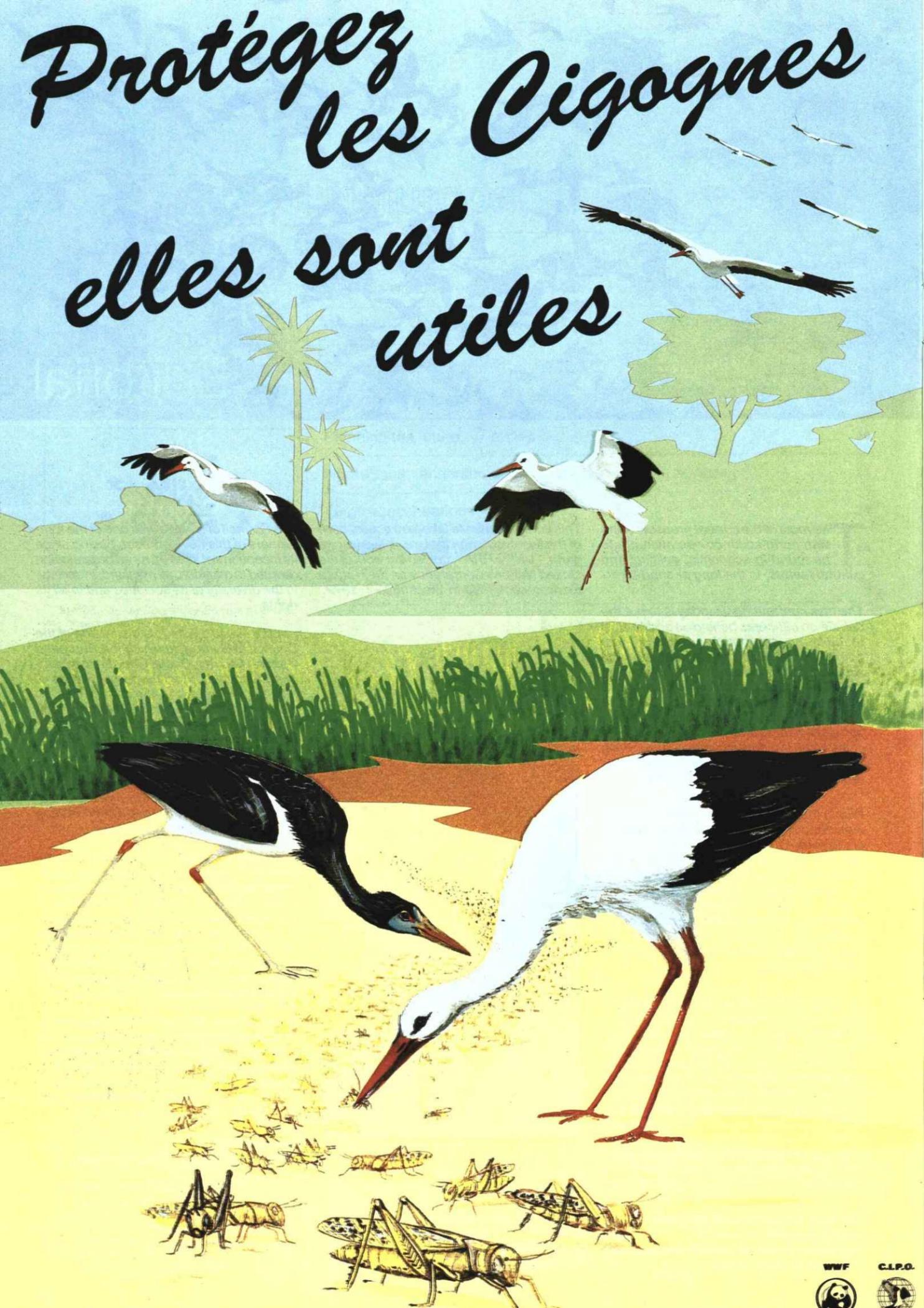
Senegal was the first African country to accede to the Berne Convention, and that is perhaps an eloquent testimony of its resolute determination to play an active role in a field which is crucial to both Europe and Africa, ie the rational management and exploitation of our natural resources.



Abdou Diouf
President of the Republic of Senegal

Protégez les Cigognes

elles sont utiles



Migrants without frontiers

Chris Mead

The phenomenon of bird migration is one of the natural wonders of the world. It is nature's way of ensuring that bird species are able to exploit natural resources that are only available seasonally. In most cases these are summer populations of insects and other invertebrates in northern latitudes and the birds spend their winters far to the south. However bird migration patterns are almost infinitely variable and many routes take the birds east to west (or *vice versa*) rather than from north to south. There are also many species breeding at altitude which are able to survive simply by moving down the mountains to more clement climate for the winter.

Within Europe more than 80 % of the 400 species of breeding birds are either wholly migrant or include populations that regularly migrate. This means that the whole continent is criss-crossed by moving birds each and every year. These routes have evolved over many generations and, with many long-distance migrants, the influence of the last glaciation some 18,000 years ago can still clearly be seen. Of course, for the birds, not only are their breeding and wintering areas absolutely vital for their survival but so also are the stop-over places regularly used on migration.

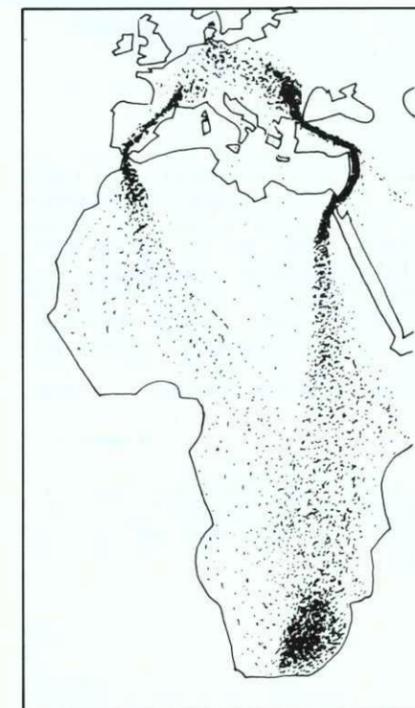
The number of individual birds involved is staggering. Each year some 5,000,000,000 birds of some 150 species probably start in autumn on the flight between Europe and sub-Saharan Africa alone. Many more millions from the Arctic come southwards to winter in Europe and billions move westwards across the continent to the warmer winters of the Atlantic seaboard. It is not just the small songbirds that are involved but seabirds, waders, waterfowl, gulls, terns, birds of prey — all sorts of species. All will have their particular strategy which has evolved for them to accomplish their journeys successfully.

Preparation of the journey

For many this will start to be implemented long before the journey. Just as one must refuel a car for a long trip the birds need to lay down the fuel that they will use on their flight. This calls for a change in their physiology so that they can deposit fat subcutaneously and in the body cavity. This may take several weeks and involve the bird in doubling its weight. Birds are amazingly efficient in flight and calculations and

observations have shown that small warblers or flycatchers — with a breeding season mass of 8 to 15 gms — will consume about 0.7 % of their weight for each hour they are flying. This indicates they may be capable of flying for four days and nights, non-stop, and travelling during that time about 3,000 kms in still air.

The equations are not the same for bigger birds since their energy consumption in flight becomes increasingly more efficient. For instance a small wader (45 gms) could probably make 4,500 kms on 50 % fat (a doubling of mass) and a larger one, for instance a bar-tailed godwit (*Limosa limosa*) (300 gms) on its way back from a British estuary to Siberia, would be able to accomplish the same distance on 33 % fat. The most energy efficient migrants of all, the soaring birds like honey buzzards (*Pernis apivorus*) or white storks (*Ciconia ciconia*) over land and shearwaters over the sea, are able to exploit winds and thermal movements in the atmosphere. For them flights of thousands of kilometres are possible using little more energy than they need for the maintenance of their ordinary metabolism!



Migration of white storks

The physical feats accomplished by the migrants are only part of the wonder of migration. The other aspect that has won man's admiration over the centuries is the precision of the birds in both navigation and timing. Finding the way is accomplished through sun-compasses, the use of star-maps, a sixth sense enabling them to pick up and orient themselves using the earth's magnetic field and a very good memory for landmarks. Not all these (and several other) means of navigation are used by all species but all migrants have a very good sense of time — a circadian rhythm during the day and a circannual rhythm through the year. The latter is kept running accurately through the massive external clues — in

the temperate zones — of lengthening and shortening days in the spring and autumn.

For us humans the migrants are a very obvious clue to the changing of the seasons. In many cultures the arrival and departure of migrants used to be used to mark the time for ploughing and sowing and, even now, the arrival of the summer birds is often a time for celebration in the spring. This applies equally to the starlings (*Sturnus vulgaris*) coming eastwards into eastern Europe, the dancing cranes (*Grus grus*) arriving in Scandinavia or the swallows (*Hirundo rustica*) coming back to Britain. This emphasises another aspect of bird migration — it is happening all around us if only we are capable of recognising it.

Two special sites in Europe - Gibraltar and the Bosphorus

Probably the most spectacular European migration sites are those at each end of the Mediterranean where the soaring birds cross: in the west from Gibraltar to North Africa and in the east over the Bosphorus. In both areas the autumn passage is the most spectacular for there are more birds involved with the populations swollen by the youngsters. The watchers in the west may see 35,000 white storks and 125,000 honey buzzards over the Straits of Gibraltar. At the Bosphorus the figures, in a good autumn, might be over 300,000 white storks and 25,000 honey buzzards. In the central part of the Mediterranean a small flight of honey buzzards via Malta and Sicily is still flagrantly and illegally shot by so-called sportsmen. At the Bosphorus, in particular, the passage birds are a source of valuable tourist income.

Small migrants mostly take off at dusk and seldom, except where weather has been unkind and they have been forced into making a mistake, do they occur in spectacular numbers. Their needs are therefore very often for large areas of suitable habitat in the wintering area and also at their stop-over places. For this reason much of Iberia and parts of northern Italy are of vital importance to a wide range of species breeding over Northern Europe. There is much evidence from the recoveries of ringed birds and detailed research on the birds in these stop-over areas that they are putting on weight there in the autumn for their longest journey — across the rest of Europe, the Mediterranean, North Africa and the Sahara to reach the Sahel zone. Here some winter but others will carry on even further into Africa.

The tragic degradation of the Sahel, with consequent heavy loss of human life, has been mirrored in the population levels of some migrant birds in Northern Europe. The Common Birds Census, run nationwide in Britain by the British Trust for Ornithology, showed a 80% decline in

whitethroats (*Sylvia communis*) numbers over a few years at the end of the 1960s — and subsequently they have hardly recovered at all. This loss was the greatest but population studies of a wide range of other species wintering just south of the Sahara, from many parts of north-west Europe, give much cause for concern. One of the diurnal migrants, the sand martin (*Riparia riparia*) has also been very badly affected with population levels in some areas now less than 10% of 20 years ago. This species is probably quite mobile in the winter when it feeds on insects in the Sahel areas where there has been rain — in dry winters these are very few and far between.

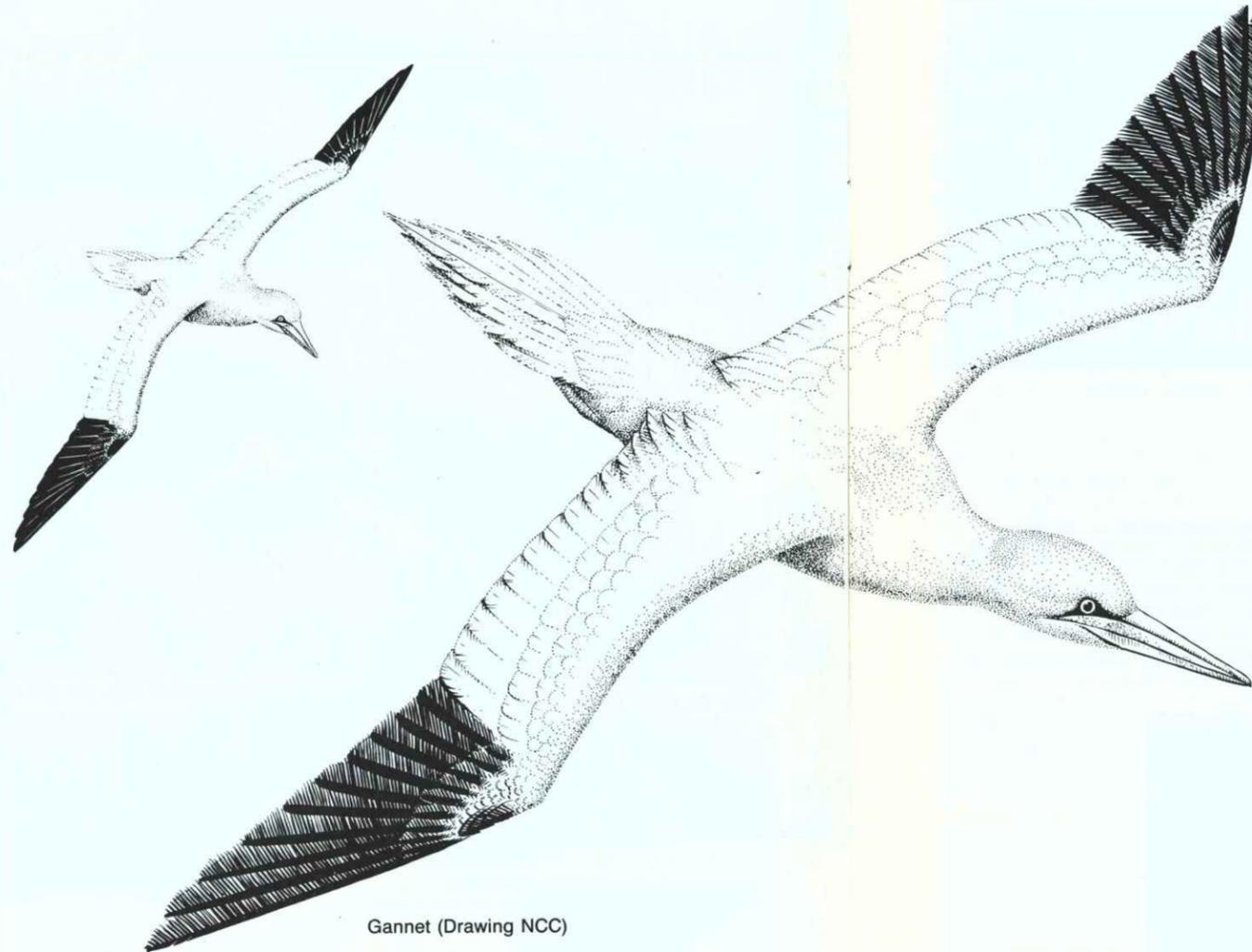
Bird ringing

Information on migration comes from many sources but, since the beginning of this century, one of the main means of tracing birds has been through numbered metal rings, with a return address, placed round the bird's legs. Nowadays almost 2,000,000 birds are ringed each year in Europe and tens of thousands subsequently reported providing vital information on movements and mortality.

The work is coordinated through EURING (European Union for Bird Ringing) and the Dutch ringing centre in Heteren holds the Euring Data Bank with information on almost a million subsequent reports of ringed birds from many of the European

national centres. International cooperation, both in the exchange of data on birds travelling from country to country and also between the ringers themselves (who are mostly highly skilled amateurs), is excellent and maintained through regular meetings of the EURING members.

The discovery of the routes used by the favourite migrant in Europe, the swallow (*Hirundo rustica*), has come about through the files of ringing returns that have built up over the last 80 years. Different breeding populations winter in different areas in Africa — for instance British and Soviet birds (from the area of the Urals) are to be found in the southern Cape but German birds are found in winter in Zaire.



Gannet (Drawing NCC)

Seabirds

For many people, living far from the sea, Europe's seabirds are far from sight and mind. There are, however, very considerable populations of migrants on our western seaboard. Many of these are doing very well at the moment since the fishermen have so depleted the stocks of the larger predatory fish that the smaller species, which have always been of greatest importance for the seabirds, are doing exceptionally well. There are signs that this may soon alter as industrial fishing techniques are being used to suck up the small species for fish-meal. The distances the seabird migrants travel are unmatched by any others — not only do Manx shearwaters (*Puffinus puffinus*) spend the winter off South America and storm petrels (*Hydrobates pelagicus*) off South Africa but the Arctic terns (*Sterna paradisaea*) from Britain, Ireland, Scandinavia, Iceland, Greenland, etc. are off the Antarctic pack-ice during our winter.

For many people the most spectacular natural areas in Europe are the wetlands like the Coto Doñana of Spain and the Camargue in Southern France. These attract a very wide variety of species and are the homes of the major populations of waterfowl — including the ducks. These are important quarry species throughout the world and a great deal of international research effort is expended on their population ecology. Nonetheless there are increasingly pressures on the wetlands from developers wishing to harness their inherent productivity. Even where reserve areas are set aside the birds are at risk from pollution by agricultural pesticides and contamination by fertilisers which may fatally upset the balance of nature. Further north many wildfowl populations share areas with agriculture and goose flocks, in particular, are accused of causing serious economic damage to individual farmers. Since this winter damage is usually being caused by birds breeding in natural areas far, far away financial recompense seems necessary in such cases rather than the authorisation of drastic control measures.

The waders

The final group of migrants — the waders — are particular favourites of many birdwatchers. Without exception the members of this group are elegant and thrilling birds to watch. Some are virtually residents in the southern part of Europe but many are long-distance migrants from the High Arctic which pass through Europe (or winter here). These birds often take advantage of the estuaries on our western shores and Britain, Ireland and the countries bordering the North Sea have a very special responsibility. Several areas have over 100,000 different individuals of 20 species using them at any one time and, since there is a very

marked turn-over, such sites may be host to 250,000 or more different individuals in the course of a year.

Research has shown the intricate series of movements undertaken by these birds through their migration. Early passage southwards, a stop for the autumn moult, further movement southwards for the winter, a return northwards to a hitherto unused area for fattening and then the main passage towards the breeding sites. Any one of the five or six different estuaries used may be threatened by industrialisation, reclamation for agriculture or unthinking pollution. The loss of any one could destroy the intricate pattern, established over hundreds of generations, for particular populations of several different species.

Just as the birds know no frontiers in their migrations so the international measures for their conservation and protection need to be drawn up with a broad brush and a real understanding of the needs of the migrants. Over the years a wide variety of conventions, directives and accords have been drawn up and ratified. International organisations, such as ICBP and IWRB, have long been active in this field and there are few countries without their own active national conservation bodies. In these days of massive civil engineering development, international financing of projects and, as we have seen so tragically, accidents with international repercussions, the migrant birds, who have been using our environment since long before such threats were even dreamed of, deserve our full attention and consideration.

Pied flycatcher

These birds (*Ficedula hypoleuca*), breeding in woodlands from Wales eastwards into the Soviet Union, migrate first to north-west Iberia to put on weight before flying south to winter in West and Central Africa. Their feeding adaptations are equally efficient at catching flying insects in the moist woodlands of the breeding area, the arid country in Iberia or the African woodlands near the Guinea coast. The strange migration route in the autumn, westwards and then southwards, indicates that the ancestral pied flycatchers remained in the western part of the Mediterranean during the last glaciation and then spread northwards and eastwards across Europe as the ice retreated.

Arctic tern

Without doubt the northern breeding Arctic terns (*Sterna paradisaea*) are the living organisms on earth which naturally see the most sunlight through the course of a year. Birds breeding well north of the Arctic circle — in continuous daylight in the northern summer — spend their winters in continuous daylight round the Antarctic pack ice. Young Arctic terns may hatch at the beginning of July, take their first flight at the beginning of August and, before the end of the month, be several thousand kilometres south of their birthplace off the West African coast!

Knot

Many knot (*Calidris canutus*) breed very far north. Their journeys southwards use many of the European estuaries. The flocks wintering in Europe seems largely to be from the Greenland and Canadian breeding population. The Siberian birds pass through Europe on passage in both autumn and spring but mostly winter on the West African coast.

Sand martin

Unlike the swallows from Europe, some of which winter far to the south in Africa, sand martins (*Riparia riparia*) from western Europe do not venture much further south than the Sahel zone. Detailed results from massive ringing in Britain during the 1960s showed that the routes southwards in autumn are rather further to the west than the routes northwards in the spring.



Arctic tern (Photo J.C. Chantelat)

Barnacle goose

The traditional wintering areas of the different northern breeding populations of *Branta leucopsis* are very strictly maintained with very few birds ever being found in the "wrong" areas. Even the birds from Greenland and Spitzbergen, which winter only a few dozen kilometres apart in Scotland, remain strictly segregated. As with many other large wildfowl these traditions are passed on within the family groups. The adults migrate together with their offspring during their first autumn.

White stork

The two routes into and out of Europe used by many soaring species are well illustrated by the white stork (*Ciconia ciconia*). Even the relatively short sea crossing over the central Mediterranean is too hazardous and energy-sapping for the largest soaring birds to contemplate. Within Africa the Rift Valley forms a unique and very important route, both in autumn and spring, for the birds travelling to the far south of Africa. ■



(Photo G. Lacoumette)

When the close of the winter brings back the white stork to feather its nest again after a long return journey, everybody feels that spring is nigh. This is the season when all the children from the gates of the Sahara to the head of the Baltic, in the Iberian peninsula and on the plains of Alsace, around Greek temples and Middle Eastern mosques, are told the many tales and legends which have made the stork one of the most widely known and cherished birds.

In France and Germany it is said to bring new-born babies to the home. In Lithuania and Poland, grandmothers relate how God changed a man into a stork to decrease his too bountiful creation of snakes, frogs and toads.

The people of Denmark all long for the days when the stork nested on every rooftop and was the national bird, whose rarity eventually caused it to be supplanted by the skylark.

Finally, in Tunisia and Iran there is gladness at the return of Hadj Belgassen (the pilgrim), just back from a winter in Mecca and therefore esteemed and revered by the faithful.

Popular but declining

The popularity of the stork is growing as witnessed by its use as an advertising logo, but unfortunately the same does not apply to its numbers.

In October 1985 over 70 specialists from Europe, Asia and Africa came to Walsrode (Federal Republic of Germany) to rescue *Ciconia* in distress.

The first world symposium on the white stork met to investigate the decline of the species, its causes and possible remedies.

The 1984 international count organised by ICBP demonstrated that only the Baltic

Marc Thauront

populations (Poland, Estonia) were still thriving. Elsewhere, the situation is most alarming; the drop in numbers since 1958 exceeds 50% on most countries of the EEC and North Africa, and nearly 90% since 1934 in the Federal Republic of Germany, Netherlands, Denmark and France.

Further east, the figures for Yugoslavia, Romania, Greece and Iran are scarcely any brighter.

Yet for hundreds of years the white stork has been settling near dwellings in the Old World with everyone's blessing. The environment is nevertheless changing in and around villages. Wetlands rich in invertebrates and amphibians are being drained, while new farming methods alter the landscape as well as the prosperity of the farming population. Old-style straw-ricks, the favourite haunt of storks in Yugoslavia, are disappearing. In Greece, flat concrete roof-tops are less attractive than the older pitched roofs. In Alsace, Romania and Spain, some people are even beginning to complain about the droppings.

It is nevertheless quite plain that these environmental changes are not the main reason for the stork's decline.

Scientists have shown that the numerical changes are due to a decrease in the survival rate of white storks rather than to less successful breeding. The cause of the problem is therefore to be sought in the conditions of wintering and migration.

The long journey

From mid-July storks revert to their gregarious habits and gather for their mass departure. The ones from Western Europe fly over the Strait of Gibraltar, join their North African cousins and journey on to their wintering grounds, which extend from Senegal to Cameroon.

Those nesting east of a line from Denmark to Bavaria cross the Bosphorus in company with thousands of raptors. A succession of rising air currents and long glides brings them to East Africa, and some go as far as South Africa.

The wonderful sight presented by these soaring birds is carefully watched by Israeli ornithologists, who counted a total of 440,000 migrating storks in 1984. In 1986 it will be Egypt's turn to monitor these huge flights of up to 10,000 birds.

Their journey to the tropics is nevertheless dotted with hazards which stop many birds in their tracks. In Europe, untold dozens of storks are electrocuted each year on the numerous power lines intersecting our countryside.

Having got past this electric barrier, they come under heavy fire from hunters in Lebanon and Syria (and to a lesser extent in Morocco), for whom all migratory birds, even the Mecca pilgrim, are fair game.

There follows the crossing of the desert where the simoon selects the hardest

storks, leaving those which have been forced to alight stranded on the burning sand, usually unable to take off again.

After all these trials the exhausted survivors hungrily begin foraging for migratory locusts, known to the Pharaohs as the eighth plague of Egypt.

A meeting with Walia

On its arrival in the Sahel, Ciconia spends some time alongside the no less popular Walia — as the Fulani herdsmen call Abdim's stork (*Ciconia abdimii*), one of Africa's most spectacular migratory birds.

After wintering south of the Equator (from Katanga to Cape Province) and traversing the equatorial forest, Walia comes home to nest in the Sahelian villages shortly before the onset of the rains. Like Ciconia in Europe, it is the companionable harbinger of the warm season. The Africans also call it the "rain bird" or "locust bird" since these crop-destroying pests constitute its staple diet.

Walia is protected by all, apparently even to the extent that anyone finding an injured bird must return it to its nest to ward off ill-luck.

Sad to say, the white stork does not enjoy this veneration during its winter stay. In West Africa it arrives shortly before the departure of Walia at the start of the dry seasons.

For some years now, locust control compounded by drought has had extremely adverse effects on stork populations: the dwindling of food stocks (locusts and other insects) prevents it from building up suffi-

cient reserves to withstand the return migration, and many perish from exhaustion in the Sahara.

Hunting is another major cause of mortality on the wintering grounds. According to marking bands returned to the Bird Population Biology Research Centre (CRBPO) of the Paris Natural History Museum between 1963 and 1983, 74 % of the white storks recaptured in French West Africa had been shot or trapped.

There are many instances of this in the lower Niger Delta (Mali); although hunting has been prohibited since 1977, poaching of these placid big birds continues.

In Nigeria the wardens of the Nigerian Nature Conservation Foundation and the members of the ICBP detected large-scale trapping of storks in 1985; poachers were setting hundreds of snares in a shallow lagoon and using birds as decoys.

Ciconia and Walia: symbols of north-south migratory bird protection

Education for the protection of migratory birds, particularly the white stork, is being carried out in all European countries but there has so far been no such attempt in West Africa.

The French section of ICBP has therefore decided to conduct an educational campaign on migratory birds in West Africa. Ciconia and Walia have been chosen as the emblem and the main example. The good public image of these two birds in Europe and Africa respectively has prompted us to make them the symbols of north-south migratory bird protection.

Thanks to financial backing from French firms (Prisunic, Société Commerciale des Potasses et de l'Azote) and nature protection bodies (ICBP, WWF France, IUCN), we have already been able to distribute over 5,000 posters and leaflets in Mali, Senegal and Ivory Coast.

It is hoped that the white stork will benefit from the esteem in which Abdim's stork is held through our effort to associate them as predators of the migratory locust.

One of the chief wintering grounds of the white stork is situated in the lower Niger Delta, which the stork shares with thousands of other migrants such as garganey, black-tailed godwit, glossy ibis and yellow wagtail.

In this area, where lakes and flood plains make the closeness of the desert a dim memory, you can witness the unforgettable spectacle of the huge flights from the north intermingled with widgeon, vultures and African pelicans.

This is the area chosen by ICBP France for the furtherance of its educational work. During the 1986-87 school year a French ornithologist and an engineer from the water and forests department of Mali are to tour secondary schools in the fifth region of the country with a travelling exhibition, a tape/slide show and work-books for distribution to pupils.

The exhibition presents the migratory wildfowl of Mali, the process of migration, ring-marking and the value of predatory birds.

Printed on the covers of the work-books are games recapitulating the main themes of the tour and designed to involve the pupils, test the educational effect of the scheme and leave memories of our visit.

Let us hope that this action will benefit the white stork and enable Mali's brand-new Association for the Preservation of Birds to reveal some of the pupils as future ornithologists ready to defend the cause of African migratory birds. ■

Information: lack of knowledge concerning the avifauna prevents understanding why certain species are in danger and should therefore be protected (Photo M. Thauront)



(Photo P. Petit)

International agreements

Ralph Osterwoldt

Birds do not need maps or passports to make their way across national borders, but they are assisted by laws which mitigate the dangers posed by people engaged in hunting, farming or industry.

To inspire co-operation between States and to oblige individual States to enact local laws, a number of international agreements, called treaties or conventions have been initiated by particularly concerned governments, conservation groups, or United Nations agencies.

International law is a diverse collection of customary norms and formal rules to regulate relations between States. States may enter into binding "contracts" with other States by "ratifying" or "acceding" to a convention. To join as a "Party", a government must deposit a diplomatic instrument, signed by the head of state or by the minister of foreign affairs, with the designated "Depositary".

Laws protecting "useful" birds have existed historically because particular species were valued for food, sport, or insect control. Today's laws aim to recognise the ecological, economic and educational value of all birds.

There is no international policeman to enforce obedience to international rules. Thus diplomatic persuasion and public pressure often move governments to comply. In the field of nature conservation, non-governmental organisations (NGOs) and concerned citizens have played an important role in encouraging governments to adhere to them. The more effective conventions require Parties to deliver progress reports at regular meetings which are attended also by observers from non-Party governments and actively interested organisations. The provision of a trust fund helps to finance conservation measures especially in developing countries and a permanent secretariat serves to stimulate and coordinate action by governments. By obliging their Parties to act within a prescribed administrative framework, conventions foster the practical implementation of laws.

Important agreements now in force are outlined below. Concerned officials and citizens are invited to contact the Secretariats, whose addresses follow, for information on how a government can accede as a Party to a particular convention and how they can help to put such conservation law into practice.

Convention on Wetlands of International Importance (Especially as Waterfowl Habitat) or Ramsar Convention (1971)

The objective of the Ramsar Convention is to stem the loss of the wide variety of wetland habitats including mangrove swamps, marshes, fens, tidal flats, rivers, lakes and seashores. The Parties have designated more than 300 wetland sites covering some 20 million hectares which are of international importance because they support more than 10,000 ducks or 20,000 shorebirds, provide habitat for waterfowl and other vulnerable species during critical stages of their biological cycles, or are good regional examples of characteristic types of wetland.

The wise use of all wetlands, the establishment of nature reserves and cooperation in research and training is promoted. Parties pledge to conserve their own sites but on a broader interpretation, they should also not permit damage to wetlands elsewhere through transfrontier pollution or environmentally unsound development aid. Environmental impact assessments should precede and guide planned projects.

Today, 37 countries are party to the convention, named after the place where it was agreed: Ramsar, Iran. The List of Wetlands of International Importance is available from the IUCN, which serves as the "Bureau" of the Convention, while UNESCO is the "Depositary". (Director-General, UNESCO, 7 place de Fontenoy, F-75700 Paris — IUCN Secretariat, Avenue du Mont-Blanc, CH-1196 Gland)

Convention on the Conservation of Migratory Species of Wild Animals (CMS) or Bonn Convention (1979)

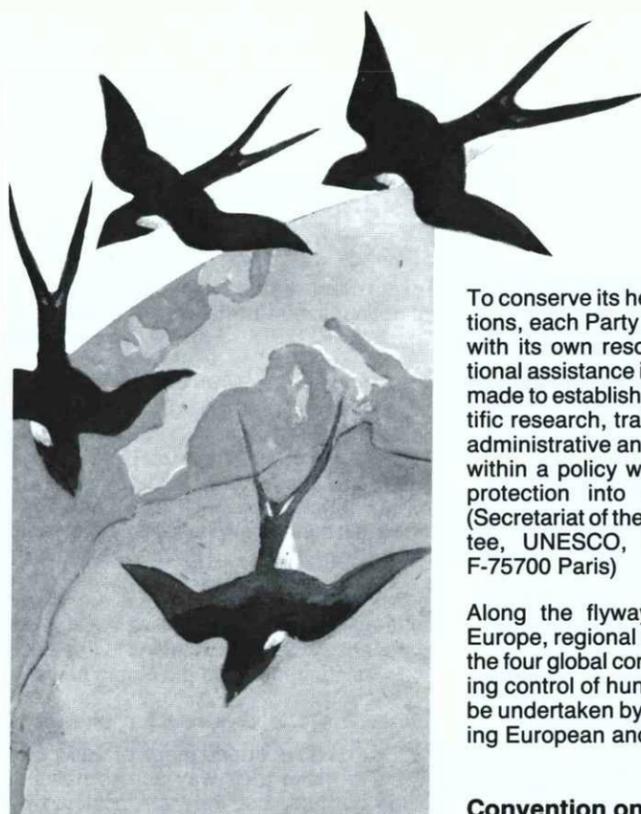
Migratory birds escape the northern winter by flying south, seals and sea turtles return to their beaches of origin to breed, and antelopes, gorillas, and zebras roam over wide ranges. En route, migrants run a gauntlet of hazards from hunters and hurricanes to pesticides and power poles, often only to find that their habitat has been destroyed by desert dunes or dam builders. Since such migratory species of wild animals regularly cross national boundaries, their conservation requires joint international action.

The Convention exists to facilitate the concerted action of countries with respect to particular migratory species throughout their range.

It endeavours to fully protect the migratory species listed on the Convention's Appendix I which are deemed "endangered", such as the white-tailed eagle, the Mediterranean monk seal, the Baltic population of the harbour seal, and the Palaeartic populations of the white stork and the white pelican. Parties must prohibit their hunting and capturing and endeavour to mitigate such threats as habitat loss. The second and central aim of the Convention is for Parties to conclude regional or bilateral formal conservation "Agreements" to benefit Appendix II species which require conservation and management, whether or not they are endangered. Under such an "Agreement", the Wadden Sea seals are soon to be protected by Denmark, Netherlands, and F.R. Germany. Such "Agreements" are also open to accession by range states which are not CMS Parties. The co-ordinating Secretariat in Bonn is provided by the United Nations Environment Programme (UNEP). (UNEP/CMS Secretariat, Ahrstrasse 45, D-5300 Bonn 2)

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) or Washington Convention (1973)

Regulating the trade in endangered species is one way to conserve wildlife. The Convention aims to establish world-wide controls over the commercial trade of wildlife specimens and products. National authorities control the export and import of species listed in three Appendices, aided by the CITES Secretariat which monitors trade, exchanges information and holds Conferences of the Parties. For species threatened with extinction and thus listed on Appendix I to the Convention, effectively no commercial trade is allowed. For Appendix II species, those which are "vulnerable" or which look very much like endangered ones, and for locally regulated "rare" species listed on Appendix III, export or



import permits may be issued by national management authorities but only so long as the populations of the species concerned suffer no harmful effects.

Through this international agreement, the 90 Parties regulate commercial trade in endangered wildlife, including migratory sea turtles and several migratory bird species like herons, falcons, hawks and eagles. (CITES Secretariat, 6 rue du Maupas, Case postale 78, CH-1000 Lausanne 9)

Convention concerning the protection of the world cultural and natural heritage (1972) or UNESCO's World Heritage Convention

was the first international agreement which provided for a permanent administration and a financial fund to help developing countries as well as stipulating the legal duties of participating nations.

To draw attention to and protect natural and cultural areas of "outstanding universal value", UNESCO initiated this Convention to which 83 Parties now adhere.

The Convention imposes a legal duty upon Parties to protect their listed sites. Applying beyond borders, the Convention binds Parties not to take any deliberate measures which might damage natural and cultural heritage sites in other countries. This could be interpreted so as to disallow transfrontier pollution or grants of financial or technical aid to development projects such as hydroelectric dams which threaten bird sanctuaries or national parks. On this interpretation, Parties should also not permit excessive hunting of migratory birds which are en route to breeding or wintering sites on the World Heritage List.

To conserve its heritage for future generations, each Party is obliged to do all it can with its own resources and with international assistance if available. Efforts will be made to establish services and staff, scientific research, training centres, and legal, administrative and financial measures, all within a policy which integrates heritage protection into development planning. (Secretariat of the World Heritage Committee, UNESCO, 7 place de Fontenoy, F-75700 Paris)

Along the flyways between Africa and Europe, regional agreements supplement the four global conventions above. Increasing control of hunting and habitat loss will be undertaken by the Parties to the following European and African agreements.

Convention on the Conservation of European Wildlife and Natural Habitats or Bern Convention (1979)

Addressing all aspects of conserving the natural heritage this Council of Europe Convention calls for strict protection for wild species of both plants and animals, including most migratory bird species. This European initiative is also open to accession by non-Member States of the Council of Europe, and invitations have been extended to African states. Wide participation should guarantee full protection for migratory bird species along their migration routes. The Council of Europe has been active for more than 25 years to co-ordinate research and practical measures to protect Europe's endangered, migratory, and endemic species. (Secretary General, Council of Europe, BP 431 R6, F-67006 Strasbourg Cedex)

African Convention on the Conservation of Nature and Natural Resources (1968)

A truly African Convention convened by the Organisation of African Unity to ensure the conservation, wise use and development of fauna resources. Recent amendments promise effective future co-operation once all member states have ratified. (General Secretariat, Organisation of African Unity, P O Box 3243, Addis Ababa, Ethiopia)

EEC Directive on the Conservation of Birds (1979)

An agreement limited to members of the European Community (EEC), it is devoted fully to the protection of wild birds and their habitats. The members states are obliged by the Directive to maintain populations in ecologically viable numbers by preserving diverse habitat and regulating hunting and trade. The use of wild birds for commerce or sport is only to be considered if the population surpasses optimal ecological levels.

Bilateral treaties elsewhere

To protect migratory birds specifically, states in other regions have ratified bilateral treaties: 1916 Canada - USA; 1936 Mexico - USA; 1972 Japan - USA; 1973 Japan - USSR; 1974 Australia - Japan; and 1976 USA - USSR. The trend continues with the recent 1984 draft convention between India and the Soviet Union.

Agreements involving non-governmental organisations

In a novel approach to save seashore birds, two major non-governmental organisations, the International Council for Bird Preservation (ICBP) and the Royal Society for the Protection of Birds (RSPB) have entered into a legal agreement with the Government

of Ghana. Similar agreements have been negotiated with Morocco and Sudan. The NGOs conduct research and training for local conservation officers with host governments providing administrative support and tax exemptions on imported equipment.

Future Prospects

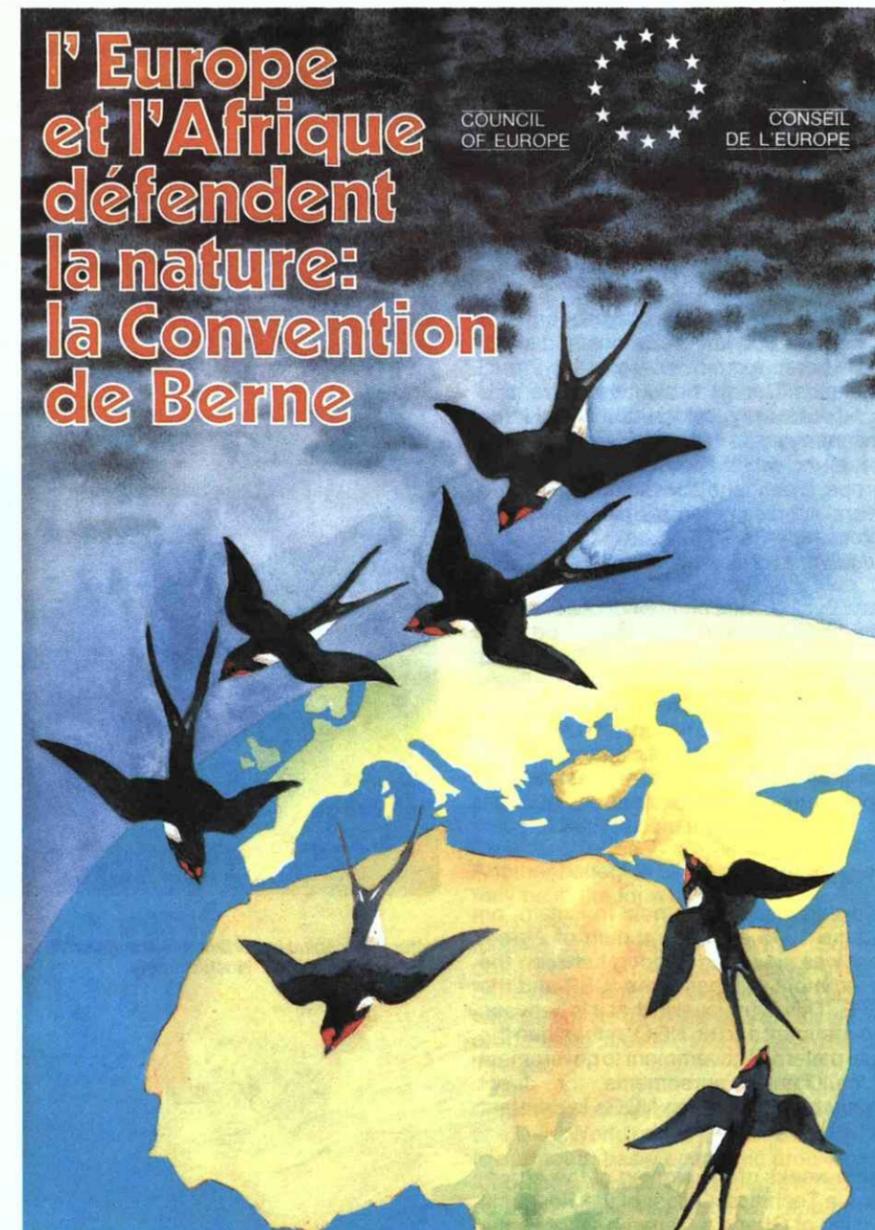
As with every international legal document, only positive action by the Parties can fulfill the aims of the conservation conventions. Without sanctions, convention provisions serve as a sophisticated information document. For example, the Convention on Migratory Species guides its Parties to undertake practical and effective work under more specific regional "Agreements". Since the Convention itself has no operational regulations or internal means of

bringing about the purposes for which it was established, its implementation will depend on the co-operation of the range states of the species deemed to be in need of protection, research, and conservation actions. While the more recent conventions are expected to expand their membership greatly before long, it is the willingness of the Parties to act in an appropriate and concerted fashion which will determine their effectiveness.

In the hopefully not-distant future, the success of efforts to conserve migratory species through international law may be measured by the achievement of:

- wide membership of range states as Parties to the Conventions;
- a series of specific agreements in all biogeographic regions;
- a network of co-operating national wildlife management authorities;
- global scientifically-based conservation plans and action programmes for the most important migratory species; and
- widespread public and political awareness.

That would ease the voyage for our flying visitors. ■



An example to follow

Valerie A. Sackey

Ghana's coastline consists of more than 800 km of lagoons and sandbars, estuaries, rocky bays and headlands. During the winter months, this varied coastline provides habitats for large concentrations of migratory seashore birds. The birds, which breed in North West Europe, Greenland and the Arctic, include several species of terns, among them the increasingly rare roseate tern (*Sterna dougalli*), and also a variety of waders.

Since the 1960s, a number of brief studies have been made of these birds and their movements, but in early 1985 ICBP and the Royal Society for the Protection of Birds (UK) proposed to the Government of Ghana that a joint project be set up, to include conservation measures, public education, and a long-term systematic study of shorebird populations and movements.

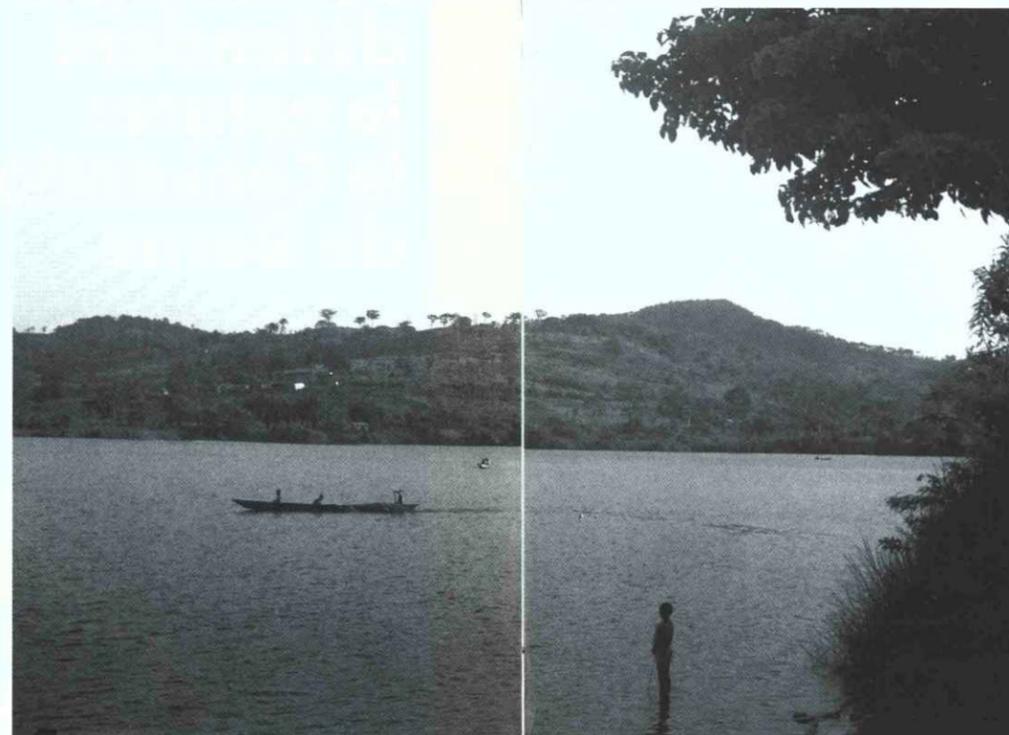
An agreement

Following discussions held in Britain, on 11 June 1985 a Memorandum of Agreement was signed in London between the Government of Ghana, the ICBP and the RSPB. This is unusual in that it is between a government and an NGO, rather than the usual pattern of government to government or multilateral agreements, or direct arrangements between NGOs in different countries.

Within weeks of the signing of the Agreement, a Technical Officer of the Research Division of Ghana's Department of Game

and Wildlife left for England to study bird census techniques and visit RSPB reserves, including the breeding areas of species which winter in Ghana. Later in 1985, RSPB provided two Land Rovers for the project, together with camping and survey equipment. A team of British ornithologists visited Ghana to undertake a preliminary coastal survey together with their Ghanaian counterparts, and to set up a system of regular census to be carried out along the coast. Another team from Britain carried out further work in early 1986, and a Professional Officer of the Department of Game and Wildlife recently left for Britain for a course in conservation education.

The Government of Ghana is soon expected to ratify the Ramsar Convention on wetlands, and this should lead to the creation of additional protected areas to be identified during the shorebird surveys. The Bonn Convention on migratory species is also under consideration, and action is expected shortly.



Water is of capital importance — the River Volta in Ghana (Photot B. Hostil/Pluriel)

An amendment to existing wildlife legislation to extend full protection to all seashore birds is also expected soon.

Work done so far indicates that threats to migratory shorebirds wintering in Ghana are of three types — environmental, in a few localities where pollution or modification of habitat occurs; trapping and snaring by children in coastal towns and villages; and occasional shooting by businessmen on weekend beach parties.

Importance of education

These problems can be dealt with by conservation education, general law enforcement and the protection of certain important sites.

Of these methods, education is the most important. The survey teams carry out informal education as they move along the coast, and have so far had very encouraging response from the local people.

Inhabitants of fishing villages are fascinated to learn of the birds' summer range in Europe, Greenland and beyond, and acknowledge their usefulness in helping fishermen to locate shoals of fish in coastal waters. On one occasion after such a discussion, the elders ordered a small boy who had a captive tern to release it, and the whole village enthusiastically went down to the beach to see this done.

The officer currently undertaking a course in Britain is expected on her return to set up a more formal conservation education programme. For this she will be provided with a mobile education unit with posters, films, slides and other teaching aids.

Whilst this is principally intended for the shorebird project, public awareness of other conservation issues will also be enhanced. For example, marine turtles are fully protected by law, but there is little awareness or understanding of this. Also wider ecological concerns, such as pollution of estuaries and lagoons, destruction of vegetation, etc., can be explained to both schoolchildren and adults. The mobile education unit will also be useful in inland areas to increase understanding of the value of wildlife conservation.

Another benefit to Ghana from this project may be in the form of tourism. The RSPB has publicised the project to its large British membership and since the Society organises ornithological holidays in many parts of the world, it is likely that tours to Ghana, both to the coast and to other areas of interest to birdwatchers, may be of future interest.

Cynics sometimes ask why the government of a Third World country which is struggling to surmount basic economic problems of food, jobs, health, education etc. should concern itself with such an apparently marginal issue as bird conservation.

Certainly Ghana could not afford at this time to divert scarce funds to this project when her people have more pressing needs. The cost to Ghana, however, is little more than providing a small team of committed personnel, whilst the benefits can be far-reaching.

In the light of West Africa's experiences of drought, desertification, devastating bushfires, deforestation and soil deterioration, all of which have an immediate negative impact on the lives of the people, anything which contributes to deeper public understanding of any aspect of environmental conservation is to be welcomed.

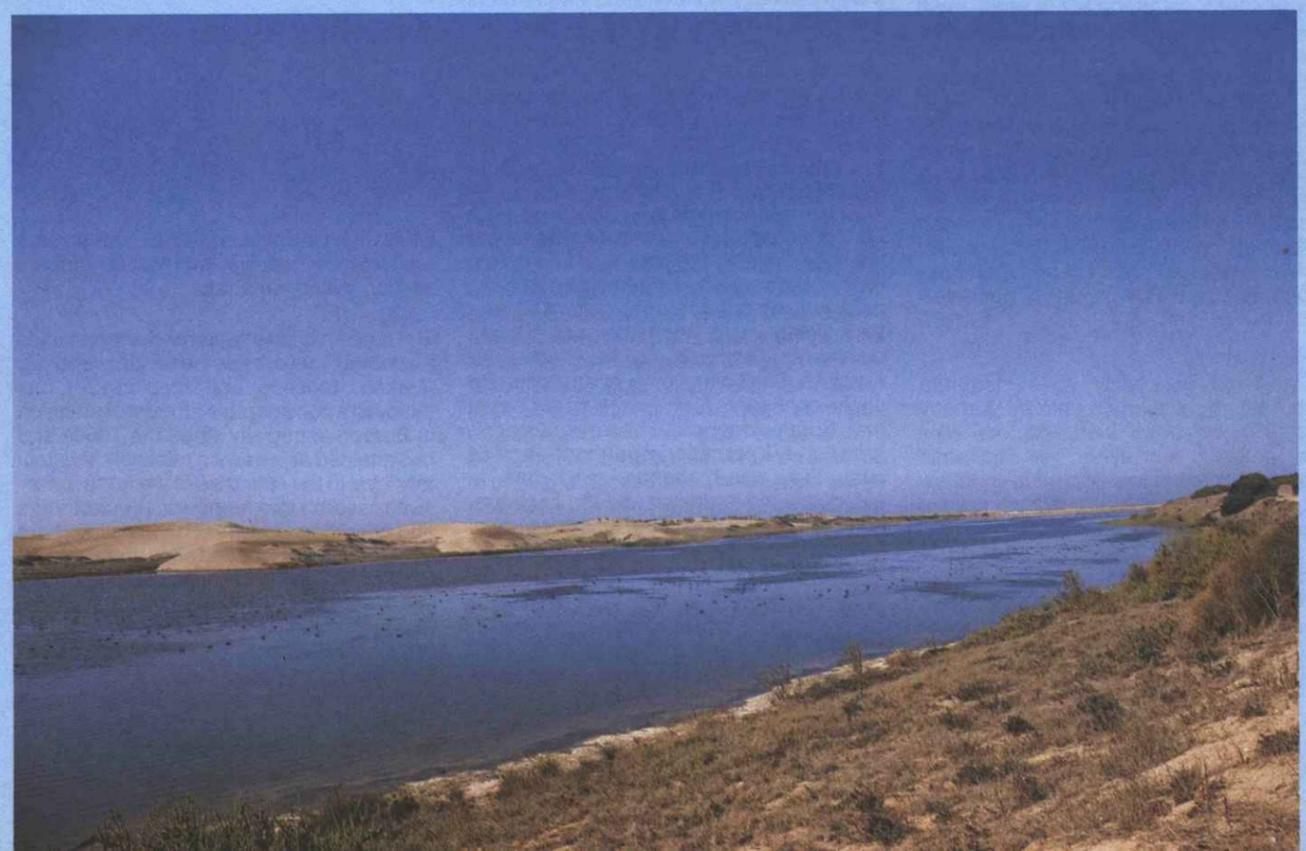
The Government of Ghana recognises that if we postpone wildlife conservation until there is money to spare, then when that day comes there will be nothing to conserve. The "Save the Seashore Birds - Ghana" project is therefore a valuable channel through which material and expert assistance to one aspect of Ghana's conservation programmes can help to protect our natural heritage. ■

FLYING VISITORS

LABORATORY BIRDS OF EUROPE AND AFRICA A MAP PREPARED BY ICBP UNEP AND COMPACT



Migratory birds link countries and continents across the globe. They are a treasure to be shared by all. Only internationally coordinated efforts can protect migratory birds along their entire flyways.



Planning the future

Erik Carp



Migrating waders - ruff (Photo S. Cordier)

Many species of migratory birds are travelling thousands of kilometres between their breeding areas in the northern regions of Europe and Asia and their wintering grounds in the south of these continents, as well as in Africa and Australia. Similar movements are occurring on the continents formed by North, Central and South America. These populations form a truly international patrimony and as such they need attention and care to safeguard their survival and the continuation of the function they fulfil as part of ecosystems in the north and south.

Conservation of waterfowl and wetlands

Among the best studied groups of migrants belong certainly waterfowl. It is now known that huge numbers of waders have extremely important wintering areas along the Atlantic shores of the African continent

while several species of duck and waders are also frequenting in impressive numbers African inland wetlands.

The conservation of waterfowl and wetlands — habitat these birds need for breeding, feeding, roosting and moulting — has received a considerable amount of attention in Europe especially since the 1960s and has attained at present a relatively satisfactory level in the countries of the north. Intensive research into numbers, requirements and conditions in wintering areas and the conservation of wetland sites for migrating Palaearctic waterfowl in the countries of the south started in earnest in the late 1970s. Although a number of wetlands could be put under protection (Bancs d'Arguin in Mauretania, the Djoudj in the flooding area of the Senegal river in Senegal, Lac Ichkeul in Tunisia, to name only the most striking examples in North and West Africa) the conservation of wetland habitats in many

developing countries of Africa is hampered by serious socio-economic problems. Above all, there is the necessity to raise food production for a rapidly increasing human population in most countries while the Sahel zone in particular experienced severe drought during many successive years since 1972. According to Brown and Wolf (1985) 140 million of the 531 million people of Africa were fed with imported grain in 1984. It is clear that food production is a top priority in many countries and the pressure on wetlands is becoming very high indeed.

Radical transformation of large areas of flood plains for cash-crop production may initially give attractive results but soon the soils get exhausted and massive use of fertilisers will have to replace the formerly natural silt deposits after flooding. Grasslands for grazing deteriorate, fishing declines since the natural wetlands which served as hatching and nursery grounds do not exist any longer. Wildlife will not be able to survive.

The big dams planned and built in the higher and central parts of the great African river systems may be beneficial to some human populations on a regional scale but will prove detrimental to the water requirements for other populations living further downstream.

Wetlands are among the most productive ecosystems in the world, and this is reflected in the solutions proposed by the international conservation agencies based on the World Conservation Strategy developed by the International Union for the Conservation of Nature and Natural Resources (IUCN), United Nations Environment Project (UNEP) and World Wildlife Fund (WWF), launched in 1980. These emphasise that the wetland resources of Africa will only continue to support a long-term, sustained contribution to the food requirements of the continent if the characteristic ecological and hydrological conditions can be maintained. Wetland conservation in Africa will, in most cases, only receive priority and funding if the rural communities clearly will benefit from the resources of the conserved area. In order to be successful the local population must be involved in the development and implementation of conservation measures to protect wetland sites. The multiple use of wetlands offers, if carefully studied and planned, viable solutions for food production, which may include agriculture, grazing of cattle, fisheries, as well as the conservation of sites of vital importance for waterfowl and other forms of wildlife.

Several steps would be constructive for this type of development, some of which could be undertaken jointly by each country in the south with technical assistance of specialists of governmental and non-governmental agencies and institutes of the north:

1. Development of a National Conservation Strategy Plan as encouraged by the World Conservation Strategy (IUCN-UNEP-WWF, 1980);
2. Inventory of wetland areas on a national level;
3. Selection of wetland sites for multiple-use development;
4. Drawing up of a master plan for selected sites;
5. Drawing up of a management plan for selected sites;
6. Application for funding of development projects for multiple-use wetlands.

Training courses

However, these steps are by no means sufficient on their own. In the long run the countries of the south should be in a position to manage their multiple-use wetlands entirely themselves. At present not enough competent personnel for management of such reserves is available in the African countries. Training courses have to be set up to recruit the necessary conservation specialists, technicians and game wardens. Fortunately, over the last few years, an increasing number of persons working in the national parks of the African countries have come to European countries to visit institutes, national parks and reserves in order to familiarise themselves with methods of management and research. These visits are arranged between the ministries responsible for nature conservation in the African countries and some of the international agencies such as the education department of WWF and IUCN, both based in the same building at Gland (Switzerland), ICBP in Cambridge (United Kingdom) and the International Waterfowl Research Bureau (IWRB) at Slimbridge (UK).

Although such visits are certainly of interest, training courses in African countries are definitely more practical and beneficial as these are dealing with wetlands quite different from the European ones and submitted to specific African problems and conditions. In order to understand and to manage wetlands it is necessary to integrate biological, hydrological and socio-economic knowledge.

In the beginning of 1986 such a training course took place at Lake Ichkeul, Tunisia, organised by the Ministry of Agriculture of Tunisia and the IWRB, with financial aid of WWF and the Commission of the European Communities. Thirty participants of seven countries from the Maghreb and the Sahel zones of Africa attended the theoretical classes followed by practical training in the field. In principle the methodology taught during the course is applicable to conditions in their own country while practical work and study in the field give a basic knowledge and experience of how to deal with certain aspects of research and management in other African wetlands.

Other courses will be organised in the near future at Lake Ichkeul, but also in other wetlands of Africa. For instance, all field projects of the WWF/IUCN Wetlands Programme 1986-87 will incorporate a training

component, varying from an expatriate expert to work with and train local project staff in the field, to sending key project staff to advanced training institutes such as Garoua in Cameroon. Also mentioned here should be the Mweka College of Wildlife Management in Kenya which has trained 1,200 conservation managers since 1963.

Development in Africa will make undoubtedly rapid progress in the coming years. It is the duty of north and south to take care that this development, which will affect large regions in Africa, should be carefully planned, fully aware of the fact that maintaining the basic ecological and hydrological characteristics of the wetland areas will be beneficial to the local human population as well as to the conservation of migratory waterfowl populations, a patrimony which is, in fact, universal, belonging both to north and south. ■

Flamingos in Kenya (Photo G. Lacoumette)



North-South: understanding

C.A. Drijver and W.F. Rodenburg

Many European and African governments have undertaken to support the conservation of migratory birds. This joint resolution has been officially confirmed in the Convention on the Conservation of Migratory Species of Wild Animals, signed at Bonn in 1979. However, the same governments that are signatories to the Convention are also supporting development projects that have a profound impact on the Sahelian wintering areas of migratory bird populations.

Of course everyone agrees that the problems of drought and hunger in the Sahel are of the highest priority and of quite another dimension than the call for bird conservation. But the generally presented model of conflict between man and birds is not a realistic one. Birds do not merely have a value for bird lovers — they are also essential components of an ecosystem and their abundance is an indication of the quality of specific ecosystems in the Sahel, which are of vital importance for the local people too. The Sahelian flood-plains for instance, clearly demonstrate that the capacity of these areas to sustain the variety of traditional land use types practised by the local people, goes hand-in-hand with their importance as wintering sites for European migrants. Consequently, a rich birdlife indicates rich possibilities for human exploitation.



Flood-plains in the Sahel

Over the centuries both local and nomadic communities have depended on the Sahelian flood-plains for their survival. Their fishing, herding, and agriculture systems are completely adapted to the seasonal flooding patterns of the major rivers.

When the flood-plain is inundated the fish are widely dispersed and fishing activities are restricted. Early in the flooding season spawning takes place, and the young fry benefit from the abundance of food and the wide expanse of the shallow waters. When the water starts draining back into the main channels, the fish become concentrated in creeks and lagoons. During this period a high catch is obtained with a minimum of effort and investments. Baskets, nets and weirs are used, sometimes in combination with specially constructed ditches. A second peak of fishing activities occurs at the beginning of the next flood when the water level starts rising again and the adult fish are migrating to their breeding grounds on the flood-plain.

With the advance of the severe dry season, the Sahelian upland pastures dry out completely and cannot provide sufficient fodder for the cattle herds to survive until the onset of the next rainy season. At that time the water level on the flood-plains is decreasing

and fresh grass is shooting up through the wet soil. The herds are coming from distances of 250 km or more to occupy the flood-plain pastures for a period of two to three months. Obviously, the flood-plains are of crucial importance for the proper functioning of the "transhumance herding system" that is characteristic to the Sahel region.

Flood-plain agriculture consists of three typical cropping systems. When the water starts rising, varieties of floating rice that are able to survive high flooding may be planted. At the end of the flooding season extensive areas on the plains are planted in the wake of the receding water with a special type of sorghum, which is able to follow the lowering water table in the soil down to about 2,5 m. Late in the dry season even the shallow river banks of the main channel become exposed and are cultivated with several garden crops.

What these three forms of agriculture have in common is that they make optimal use of the available water and the fertile sediments that are deposited by the river, and that they only require the input of existing labour capacity and skills of the local communities. Capital inputs are hardly necessary. Although production levels are lower than those of intensive high-input farming systems, they are, however, fairly high in comparison with traditional types of rain-fed agriculture. Moreover, harvesting takes place during critical periods in the dry season when there is no production on the rain-fed soils of the northern Sahel. Thus, flood-plain agriculture is a prerequisite for an all-year-round food supply.

In respect of their combined production of fish, meat, milk and crops, flood-plains should be regarded as multifunctional productive ecosystems that play an indispensable role in the traditional land use systems and survival strategies of the Sahelian people.

Development projects and their impact on ecosystems

In the past decade, most development projects induced by north-south co-operation have paid little attention to the local relationships between man and environment. Irrigation projects for instance, generally aimed at a maximum production of rice only, ignoring the basic multifunctional potential of flood-plains. As a result, harmful side-effects on the natural functioning of ecosystems and the disruption of traditional land use systems have been commonplace.

A striking example is the so-called development of the delta of the Senegal river. In the 1960s this large river delta was the principal dry season grazing area for cattle herds that used to come from North Senegal and South Mauritania. For the sake of large-scale irrigation a dike has been constructed

along the south bank of the river between Richard Toll and St. Louis.

As a result, an area of some 2,400 ha of deltaic flood-plain has been separated from the influence of the flooding of the river. Large-scale irrigation schemes have been constructed along this new dike but the soil appeared to be too saline for economical water management, and consequently the irrigated agriculture was doomed to fail. Nowadays this southern part of the delta is a dry, poorly vegetated area which is hardly used by the herds. The decision to embank this entire area has turned out to be a grave mistake, both from an ecological and an economic point of view. Only a part of the original value of this coastal wetland for migratory birds has been preserved through the foundation of the Djoudj National Park. At high floods a specially constructed water inlet in the dike allows river water into the park where it is retained by a low embankment all around the area. Owing to its strategic geographical position the Djoudj Park has become a wetland of international importance for migratory birds.

Another example is presented by the SEMRY II rice development scheme in North Cameroon. This hydro-agricultural project has generated far-reaching ecological changes in the flood-plain of the Logone River, which is one of the major effluents feeding Lake Chad. In 1979 an artificial lake (39,000 ha) was created following upon the completion of a 28 km dam between Guirvidiq and the Logone River. In addition, embankments have been constructed along the Logone to protect the irrigated fields (12,000 ha) from flooding. The project area thus encompasses some 51,000 ha, but the downstream area that is directly affected through a reduction in natural flooding is more than twice as large.

The corresponding loss of flood-plain productivity has had far-reaching impacts, not only affecting traditional cattle herding, fishery and the culture of the local communities but also the carrying capacity of the famous Waza National Park.

The recent prolonged sequence of droughts has already exerted severe pressures upon the people and the ecosystems in the surroundings of the project area. In the primary impact zones of the project these adverse drought conditions are likely to persist, resulting in a permanent decrease in productivity. Typical flood-plain pastures continue to dry out and to be replaced by less productive dry vegetation types. Massive starvation of thousands of wild ungulates (notably *Kobus Kob*) has been recorded recently. The regional herding system has been seriously disrupted by the loss of natural watering points and by the decline of the fodder-producing capacity of the range. In their attempt to find alternative resources the herds are now overgrazing the pastures even beyond the primary impact zones of the project.

The SEMRY project has been initiated without due consideration of ecological principles and consequently any integration of measures to prevent or mitigate the environmental impacts is lacking. The shallow reservoir, for instance, could be developed as an important compensation for the loss of downstream fish production, but in the absence of management guidelines and regulations the productivity of the lake has been diminished by over-fishing. Also, the recession zone of the lake (ca 15,000 - 20,000 ha) could well be an important area for fish reproduction and for grazing, at the same time serving as habitat for migratory birds. But for this area too, an integrated management plan is lacking and SEMRY has already developed plans for further reclamation of this land.

To compound the situation even further, SEMRY is experiencing major problems in marketing the rice that it produces. Presently, it is cheaper to buy rice on the world market and the Cameroonian Government has failed to instigate any measures to protect its national market. This economic crisis of SEMRY is another reason for its negligence in addressing the prevailing environmental problems.

(Photo A. Bouchet/Pluriel)



Integrating environmental aspects in development

The integration of environmental aspects in development co-operation has been generally accepted and officially undersigned by the members of the Council of Europe in the Lomé III convention. Its practical implementation, however, will need much more effort and funding.

At this point it seems useful to indicate briefly how Lomé III can contribute to the implementation of this environmental approach and which major aspects need our foremost attention.

The implementation of an environmental approach should not be restricted only to the prevention or mitigation of the harmful effects of new projects. Development co-operation should also contribute to a systematic solution of existing environmental problems in a given region. Specifically in the Sahel wetlands the present degradation of the environment will have to be stopped before we can start thinking about sustainable development options.

The necessary implementation of programmes in the fields of soil and water conser-

vation and regeneration of the vegetation cover will only be successful if they are understood and supported by the local rural communities. This implies that measures will have to be generated at the lowest planning level through incentives that duly consider the different perceptions and ambitions of both local groups and individual men and women. The local people will only give lasting support to environmental measures if they can expect tangible benefits in doing so. Therefore, environmental conservation should always be linked to direct rural development initiatives involving the participation of the local population.

At the same time such programmes should be attuned to regional development strategies that integrate the potential values, functions and carrying capacities of the ecosystems with the development needs and options of the different sectors.

At the national level it is imperative that Lomé III provides the tools to the ACP countries to develop a National Conservation Strategy (NCS) in close relation to the Food Strategies that already have the support of the EEC. One of the major advantages of an NCS will be to enable ministries and other national institutions for planning, research and implementation, to integrate their activities into a singular intersectoral approach of all problems in the fields of environment and development. Lomé III could support this integration through a strengthening of the local capacity for environmental research and education.

A more detailed planning of specific interventions which tackle the problems of environment and development should be integrated into strategies and plans at the regional (sub-national) level. This is the principal level at which ecological constraints and characteristics of the environment should be considered.

Any regional strategy for conservation and development should relate directly to the framework of the NCS, but its design should be such that all options and interventions can be generated at the local level. Above all, Lomé III should be instrumental in developing integrated projects at the local level, including both development and conservation components. In this way the local people will acquire the necessary basic experience to consider the feasibility and effectiveness of the various alternatives for sound environmental management.

To illustrate our general view on the contributions that could be generated within the framework of Lomé III, we will once more refer to the Sahel Wetlands:

Among all existing and projected dams in the river systems of the Western Sahel, over 50 dams are located in the upper reaches of the respective river basins. Their cumulative long-term effects on the ecological functioning of downstream wetlands are

presently being investigated at the Centre for Environmental Studies. This research project forms part of the Migratory Birds Programme of ICBP. The initial results indicate that these dams will not only affect migratory bird populations, they will also have profound impacts on the existing land use patterns of local communities. Therefore, the following initiatives are recommended:

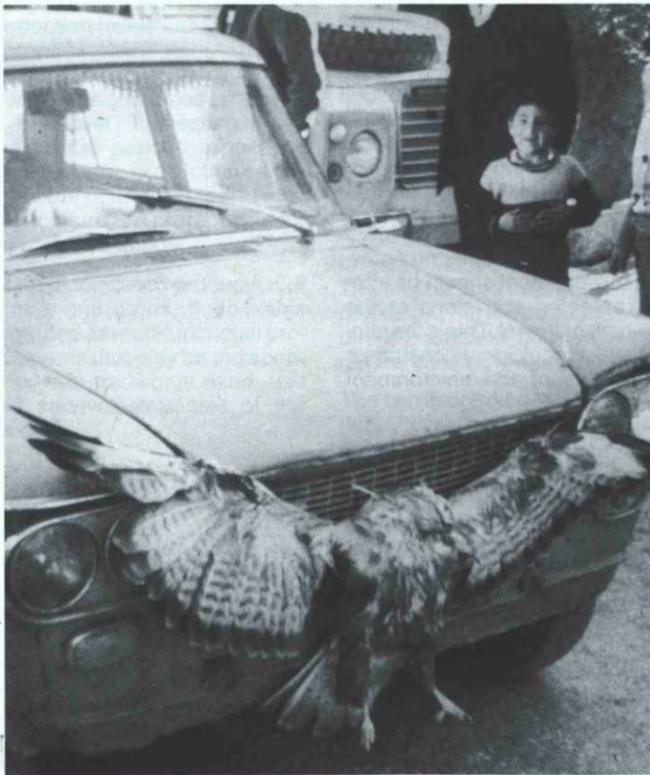
1. Development of action programmes for sustainable use and management of natural resources and ecosystems in the valley of the Senegal River, adapted to local social structures, and designed in consultation with the rural communities involved.
2. Carrying out an environmental impact assessment study of the cumulative effects on environment and traditional land use systems of all dams planned in the Niger River upstream of the Internal Delta in Mali.
3. Development of a Regional Conservation Strategy for the flood-plain area of the Logone River in North Cameroon.
4. Integration of ecological guidelines into the development programmes, supported by the EEC, for the valleys of the Bénoué and Mayo Kébi rivers in North Cameroon. ■

Large concentrations

Yossi Leshem

On the path which no eagle knoweth and which the honey buzzard's eye hath not surveyed - Job 28:7.

The Middle East, particularly the Holy Land, has always been known as a politically tense area, where innumerable battles have been fought. The reason is quite clear from one look at the map; this sensitive area is located at the junction of three continents — Africa, Asia and Europe — which has led to continuous power struggles from historical times to this day.



No comment (Photo R. Kopan)

During the last two decades another facet of this region has become better known as a result of migration studies. It has become clear that Middle Eastern skies are probably the best place in the world for watching and studying migrating birds in general and soaring birds in particular. The latter include most birds of prey, storks and pelicans, all of whom have large wingspans. This characteristic enables them to utilise hot air currents and cover thousands of kilometres by soaring and gliding, while expending minimal amounts of energy.

On their way to and from breeding to wintering grounds, most of these birds avoid crossing the Mediterranean. Instead, they fly around it, a route hundreds of kilometres longer, flying overland, along mountains and cliffs, where thermal currents abound.

Migrating raptor and stork counts in the Mediterranean Basin during the past two decades have concentrated mainly on "bottleneck" areas: the Straits of Gibraltar - Spain, Cape Bone - Tunisia, Sicily - Italy, the Straits of Bosphorus and Pontiacs - Turkey, the Suez Canal - Egypt, Eliat and Kfar Qasem - Israel. The data from these surveys shows that Western European and part of the Northern European populations converge on the Gibraltar Straits and a small part of the Central European populations cross the Mediterranean from Italy to Sicily, Sardinia to Corsica, Greece to Cyprus. The major part of Central and Eastern European populations, however, fly over the Middle East to Africa and are joined by most of the migratory population of Western Asia.

At Gibraltar up to 189,000 birds of prey have been counted during one migration session, in Sicily 33,000 and at the Bosphorus 76,000. In the spring of 1977, 764,000 raptors were counted over the Eilat mountains and 1,193,000 in the spring of 1985. At Kfar Qasem, in the autumn of that same year, 564,000 birds of prey were seen migrating. The major part of the world population of white storks and white pelicans converge over the Middle East on their way south to Africa as well.

tracking of flocks of raptors, storks and pelicans. The approach radar at Ben Gurion airport in central Israel has proved extremely effective in locating flocks of birds and tracking them for distances of up to 110 kilometres.

Another major improvement in this year's survey was the inclusion of the motorised glider. The glider is directed towards a flock of raptors, storks or pelicans by the radar. The minute the glider joins the flock, it turns off its engine and glides with the birds up to the Egyptian border. During the autumn of 1986, 29 flights took place, with the glider tracking flocks of pelicans, storks and raptors over most of Israel. We were thus able to study routes and altitudes of migration, rate of progress of soaring birds as well as gather data on the relationship between weather and migration.

This combination of observers on the ground, radar and motorised glider provided us with fantastic possibilities for studying in depth the unique phenomenon of bird migration in the Middle East.

The Raptor Information Centre's surveys

The raptor migration survey by Danish bird-watchers, summarised by Christiansen et al, in the Eilat area in Israel during the years 1969-78 aroused great interest in the study of migrating birds of prey over Israel. For the past six years, the Israel Raptor Information Centre (IRIC) has organised migration surveys based on observation teams spread over the country in spring and autumn. During the autumn of 1986, for example, 20 teams, comprising over 180 bird-watchers, were actively counting migrating birds of prey. A number of species, such as *Pernis apivorus*, *Aquila pomarina*, *A. rapax*, *Buteo rufinus*, *Accipiter brevipes*, pass over the Middle East in concentrated waves of tens and sometimes hundreds of thousands a day. On 10 September 1982, 117,635 honey buzzards flew over Israel in less than four hours. The next day, 124,041 were counted. In other words, during two days 241,676 honey buzzards passed over Israel, along a narrow stretch of about 15 kilometres.

On 29 September 1983, 46,679 lesser spotted eagles passed over central Israel between 10.45 am and 2.15 pm. The next day, 29,967 lesser spotted eagles were counted and a total of 141,868 during the whole season. These numbers surpass by far estimates of the size of the world population of this species. There is no doubt, in fact, that the whole world population of lesser spotted eagles migrates over Israel in the autumn. Migration counts in this case would enable us to estimate changes in the population size of this species over the years. A similar situation exists for the other species previously mentioned.

Radar tracking and motorised glider

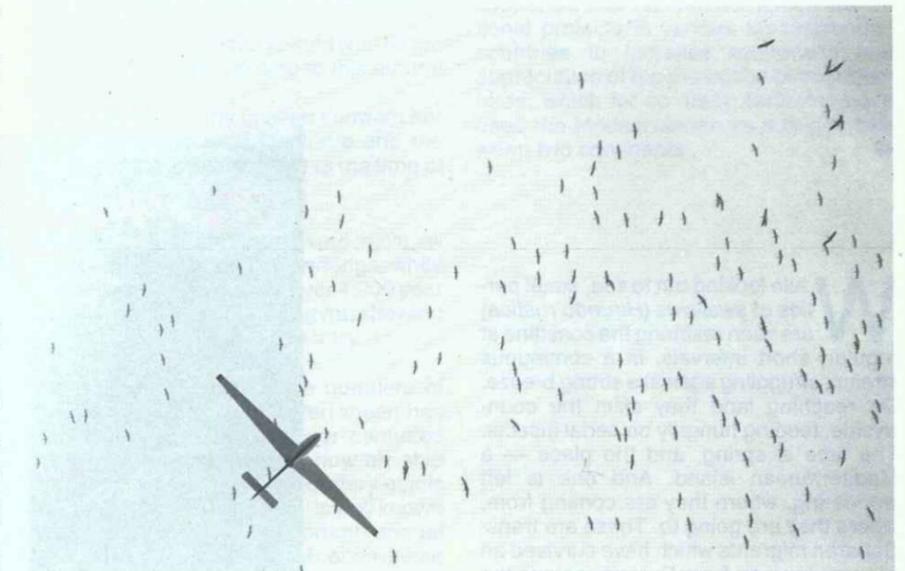
This past year the migration counts from the ground have been complemented by radar

Importance of information

The IRIC invests a tremendous amount of time and energy to increase public awareness of birds of prey. Thanks to publicity in the media, over 30,000 visitors came to the observation station at Kfar Qasem. For many of them this was their first sight of bird migration. Only ten years ago, there was only a handful of Israeli birdwatchers interested in migration. As a result of intensive educational activity there are now thousands.

The massive hunting of migrating raptors and storks, so common in most Middle Eastern countries, can be stopped only if educational activities by international nature conservation organisations in the area are stepped up. The success of such methods in Israel has already been proved.

The International Conference of the World Working Group on Birds of Prey of ICBP will be held on 22-27 March 1987 in Eliat, Israel. One of the major subjects up for discussion will be the problems of birds of prey on migration and in their wintering areas in Africa. ■



Modern techniques used for bird census (Photo Y. Leshem)

A bridge between two continents

Joe Sultana

Millions of birds

About one-third of the summer bird-population of Europe winters in Africa, south of the Sahara. Add to these the number of species, such as the robin (*Erithacus rubecula*) and some finches, which migrate to the north African countries bordering the Mediterranean and one can imagine the magnitude of the bird migration which occurs in the Mediterranean area.

Reggie Moreau, the eminent ornithologist, who has published several works on migration, including his authoritative book "The Palaearctic-African Bird Migration Systems" (1972), estimated that 5,000 million birds, without including waterbirds, are involved in the autumn migration across the Mediterranean.

Many species cross the whole of the Mediterranean in the dark. Some fly over very high and therefore a great percentage of the trans-Mediterranean migrants pass

undetected. However, these birds are sometimes made to land by adverse weather conditions, such as head-winds, overcast skies, or stormy weather, which follow suddenly on a period of settled and fine weather. When this happens migrants become disorientated and make for the nearest land, providing spectacular influxes of birds to the countries bordering the Mediterranean and on the islands.

Most migrants, except for soaring birds, such as storks and birds of prey, cross the Mediterranean over the entire distance, from Cape St. Vincent to the eastern end, irrespective of its width, which in the widest part may reach up to 1,100 km. Before they do this in the autumn, they have the opportunity to obtain food in Europe. However, when they reach the southern side of the Mediterranean at the end of the long, dry summer, they will be faced — with the exception of the Maghreb coast — with nothing better than a narrow belt of desert



(Photo J. Sultana)

While looking out to sea, small parties of swallows (*Hirundo rustica*) are seen reaching the coastline at regular, short intervals, in a continuous stream, struggling against a strong breeze. On reaching land they skim the countryside, feeding hungrily on aerial insects. The time is spring, and the place — a Mediterranean island. And one is left wondering, where they are coming from, where they are going to. These are trans-Saharan migrants which have survived an autumn journey from Europe, across the Mediterranean and an inhospitable Sahara Desert, wintered in southern Africa, and are now making the return trip to Europe. They are taking part in migration, a natural phenomenon, ignoring political and geographical boundaries. Like many thousands of millions of other birds they fly annually back and forth across the Mediterranean, between Europe and Africa.



Honey buzzard (Photo Y. Leshem)

scrub backed up by about 8,000,000 sq km of Sahara desert.

The pioneering radar studies in the early 1960s carried out in the Mediterranean by M.B. Casement also support the fact that migration takes place along the whole length of this "inland" sea at almost uniform density, except in the Ionian Sea where it is greatly reduced.

Apart from the concentration of soaring birds at the shortest crossings, mainly at the Bosphorus and the Strait of Gibraltar, there are some exceptions to this broad front migration. Some passerines, including the swallow, tend to be guided by the coastline and this coasting habit is also noticed on the islands.

The migrating broad-winged birds of prey appear to concentrate on the Gibraltar and the Bosphorus crossings. Some species, such as the honey buzzard (*Pernis apivorus*) and the black kite (*Milvus migrans*) also use the central Sicilian crossing. On the other hand, other birds of prey, namely the harrier species and the small falcons, do not seem to be restricted to the shortest crossings only.

Migration through the ages

The spectacular annual appearance and disappearance of migrating birds in the Mediterranean has always fascinated man

and one can come across several references to migration in the Bible, as well as in the writings of classical Greek writers.

What we find in Jeremiah could well be the earliest reference in writing to this natural phenomenon:

"Yea, the stork in the heaven knoweth her appointed times: and the turtle and the crane and the swallow observe the time of their coming".

Heroditus, Aristotle and Cicero have all recorded migration in their writings, while archaeologists uncovered over 4,000 year old reliefs and paintings in Egypt, showing migrating species to that country.

The sudden arrival of large numbers of migrating birds in the Mediterranean has always been impressive. Four centuries ago Pierre Belon described how his ship was literally covered with migratory quails (*Coturnix coturnix*). The quail is well known to have provided an important annual source of food in some Mediterranean countries and large-scale hunting has been suggested as one of the possible factors for its decline. An "invasion-type" migration of this species saved Moses' people from starvation:

"And there went forth a wind from the Lord, and brought quails from the sea"... "And the people stood up all that day, and all that night, and all the next day, and they gathered the quails".

Migratory birds have been an important source of food in former years in the Mediterranean. For many years there has been large-scale killing and trapping and hundreds of millions of birds are killed every year in countries bordering the "inland sea". In some regions these activities are particularly intensive. Nowadays the main reason for killing and catching birds is "fun", although in different areas varying degrees of importance are given to these activities as a source of income, for food, for caging and for taxidermy.

Dangers

The Mediterranean Sea does not present serious difficulties for birds during migration, except for the presence of hunters and trappers. It can be safely said that some Mediterranean countries are a death-trap for migrating birds. In most countries there are legal restrictions against most of the killing and trapping that takes place, but laws are rarely properly enforced.

Man is now fast realising that this fascinating migration can only persist if these wanderers are allowed to continue their journeys unmolested along their migratory paths. ICBP, since its foundation in 1922, has recognised the need for an international solution to the migratory bird's problems and in the mid-1970s it established a Committee to help conservationists in the Mediterranean combat the threat posed by human persecution to birds in this strategic migration area. ICBP has supported and initiated numerous educational projects in various Mediterranean countries to increase awareness and appreciation of the protection of migratory birds, which for so many centuries have used the Mediterranean as a bridge between two continents. ■



Blackcap
(Photo G. Magnin/ICBP)

Education

Wim Verheugt

It is a classic scene: while in spring 1986 Italian conservationists gathered in their conference room in Calabria, police and army forces had to protect the entrance to the seminar against a mocking crowd of protesting local hunters. In this case, the seminar was organised to address the preservation problems faced by birds of prey during their migration over the central Mediterranean. The hunters, far outnumbering the assembled members of the Italian Society for the Protection of Birds (LIPU), were challenging the attending Italian Minister of Ecology to lift the ban on spring shooting. They were demanding to be allowed to shoot honey buzzards, a bird of prey, strictly protected by both national and international wildlife legislation. However, despite the powerful lobby of the Italian Hunters Association, the authorities are backing the conservationists and have called for vigorous enforcement of existing laws. Equally important, the Minister stressed the important role groups such as LIPU play in helping the government to curb incidental poaching problems occurring in some Italian regions.

Members of the Malta Ornithological Society (MOS) were monitoring the autumn migration of birds of prey last year in Buskett Gardens, one of the few protected areas, when they were chased from this

public place by angry hunters, who threatened the MOS members with their shotguns. Some weeks later a police court heavily fined one of the hunters.

Changing attitude

In recent years, the Mediterranean has been the scene of some rapid developments, especially in the tourism sector, but also as a consequence of EEC agricultural policies. Such changes have frequently led to the alteration or rapid deterioration of important habitats for wildlife. Clashes between local conservationists and hunters, such as the one just described in Malta, are a clear indication of the changing mentality of young people in the Mediterranean wishing to prevent further destruction of their environment. Some decades ago, it would have been hard to believe that such local conservation groups could play such an important role in steering government towards a policy for the protection of birds and their habitats. This Mediterranean "Green Movement", whether it is devoted strictly to birds or the whole environment, is increasing public awareness of the need for conservation. ICBP, a federation of several hundred conservation organisations throughout the world, with its headquarters in Cambridge, U.K., has provided catalytic support to these local bird conser-

vation initiatives over the last five to six years. ICBP recognised the need for extensive education programmes in order to change deep-seated habits and attitudes.

Death trap

The major initial reason for ICBP's support and intervention in the Mediterranean was its concern about the mass destruction of migratory birds during their bi-annual passage across the Mediterranean. This large-scale slaughter is an old established tradition, dating back, in some areas as far as the Middle Ages.

The Mediterranean region has always been an important area for migratory birds moving to and from their breeding grounds in Europe and their wintering areas in Africa. During the autumn migration, these birds build up their fat reserves for the arduous voyage across the Mediterranean and the Sahara Desert. The catching of small birds has long been practised as an important source of food for local people in Mediterranean countries where protein deficiency was once a widespread problem. The hunting practices were, in principle, not different from hunting traditions occurring elsewhere in Europe. Although the numbers of migratory birds killed were large, it was thought to have had little effect on

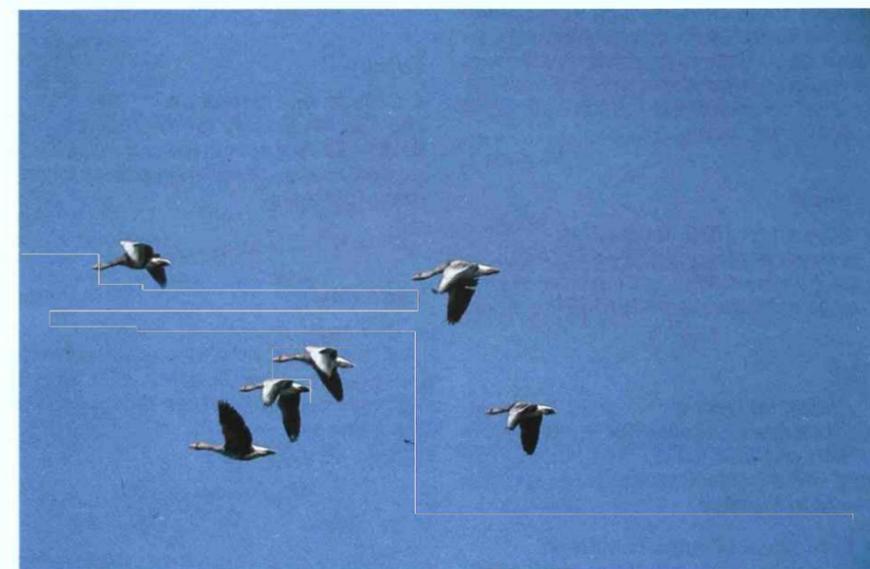
populations of these birds. During the last two decades however, the bi-annual shooting and catching of migratory birds has rarely been for subsistence reasons, although in some regions the annual culling still plays a minor role in the budget of low-income families. By and large, the main reason for the continuation of the hunting tradition is fun and amusement, and a minor one being the use of harvested birds as a culinary delight. Using more sophisticated indiscriminate equipment, such as mistnets and high power quick-loading repeater shotguns, and with more leisure time available, shooting and trapping now occur on a scale that has already been shown to be harmful to bird populations. An assessment of the scale of the culling, commissioned by ICBP in 1980, showed that several hundreds of millions of birds were killed annually. On Malta alone, a country of less than 250 sq km, some 3 million birds are reportedly caught every year — the majority by means of traps, a legal practice according to Maltese laws. It has been estimated that the numbers of birds killed in the Mediterranean may well be a considerable proportion of the total number of birds wintering in or passing through the area. This is particularly the case for preferred quarry species such as the conspicuous colourful species and birds of prey. Stuffed birds are the final testimony to the process of the skilled marksmen.

International co-operation

ICBP established in 1978 the European Committee for the Prevention of Mass Destruction of Migratory Birds to steer and coordinate a concerted European effort to stop this massacre. By focussing on the controversy over the indiscriminate bird killing, ICBP first of all underlined the need for conservation education and the provision of support for local bird conservation efforts. Many organisations throughout Europe generously donated the necessary resources for ICBP to carry out its mission. Since 1978, ICBP has undertaken over 100 projects in more than 12 Mediterranean countries, channelling some \$ 150,000 into a wide range of conservation activities, with the vast majority of the projects being of an educational type. After consulting with its member organisations in the region, ICBP recognised that there was a definite need for popular educational books and guides in the national language of each country to outline simply the principles of nature conservation. Consequently, ICBP developed an all-purpose bird book for Mediterranean countries. Artwork depicting some 150 birds, both common residents as well as migrants, was prepared and from this an appropriate selection was made for each country. ICBP is working closely with its national sections to seek translation and adaptation of the text so as to highlight national conservation issues. So far booklets have been produced for Portugal,

Morocco, Greece, Turkey and Lebanon, and editions for Spain, Yugoslavia, Jordan and Cyprus will follow soon. Meanwhile ICBP has produced a wealth of other education material. Posters, wallcharts, audio-visual programmes and education packages for teachers have all been developed in close co-operation with the affiliated organisations. These education programmes have already helped to foster the formation of local conservation organisations. The growing membership of such societies undoubtedly has a political effect, placing more pressure on governments to enforce their wildlife regulations and to swing public opinion in favour of conservation. Organisations such as MOS and LIPU have grown from a few dedicated individuals to a strong force of conservationists, most of them young people, signalling hope for a future, more conservation-conscious generation.

Over the last three years ICBP has begun to expand its campaign for the conservation of migratory birds into Africa in an attempt to cover the whole European-African flyway system. With its sister organisation, IWRB, a co-ordinated plan has been drafted incorporating a wide variety of activities. Again, public awareness and education are the major components. From the experience gained in the Mediterranean, ICBP is hoping to execute an equally successful programme in Africa where the problems facing migratory birds may be even greater. ■



Greylag geese. (Photo J.C. Chantelat)

It is often through the concerted campaigns of conservation groups that important conservation milestones have been achieved. For instance, many governments in the Mediterranean have now recognised that their wildlife legislation has to be adjusted, which in turn has led to the abolition of the traditional spring shooting season and a ban of indiscriminate hunting devices. Furthermore, a breakthrough in wildlife legislation has been achieved through the signing of several important international agreements, some of which have been specifically set up to protect migratory birds, a heritage that can only be conserved by international legislation and cooperation.

Examples of ICBP's work in the Mediterranean

France

- **Preventing spring shooting**
The Ligue Française pour la Protection des Oiseaux (LPO, a member of ICBP-France) organised a spring bird-watch in 1985 and 1986 of the Medoc area to discourage poachers from violating the EEC Wild Bird Directive by shooting turtle doves (*Streptopelia turtur*) during their spring migration. A press kit was produced and mailed to many French press agencies to draw attention to the illegal shooting activities in the Medoc area.

- **Protecting Pyrenees passes**
Valleys in the Pyrenees provide key migration routes for migratory birds. ICBP helped the French group, Col Orgamideska Libre, to lease some passes which would otherwise be rented by French hunters. After six years of an intensive public awareness campaign against illegal shooting activities by local poachers, the French authorities took over the lease.

Greece

- **Support for HOS Secretariat**
The newly established Hellenic Ornithological Society could secure payment of a full-time co-ordinator thanks to ICBP's support.

Italy

- **Education Centre**
ICBP assisted the Italian Society for the Protection of Birds (LIPU, member of ICBP Italy) with the establishment of an education centre in Sardinia.

- **Production of publicity material**
LIPU produced several forms of education material, such as posters, audio-visual aids and a bird booklet with ICBP's support.

- **Explaining EEC legislation**
ICBP sponsored the publication of the leaflet explaining the Directive of the Council of the European Economic Community on the conservation of wild birds. The leaflet was aimed at members of parliament, police forces and the Italian press.

Malta

- **Education Centre**
ICBP is assisting the Maltese Ornithological Society (MOS, member of ICBP Malta) in establishing a visitor centre at Valletta. The centre will serve as MOS's headquarters. Training courses will be organised to acquaint participants from all over the Mediterranean region with skills in conservation education techniques.

- **Booklet on robin conservation**

To halt the large-scale illegal trapping of robins by children, MOS have distributed pro-robin stickers, posters and information packs to every school in the country.

Mallorca

- **Audio-visual programme**
ICBP provided the resources for the Mallorcan Ornithological Group (GOB) to produce a slide programme on the importance of Mallorca for birds. Besides production of publicity material, GOB produced stickers and posters to campaign against the slaughter of thrushes, doves and robins.

Turkey

- **College wall newspaper**
The Turkish Society for the Protection of Wildlife (DHKD) have produced with ICBP's support a series of wall newspapers for university colleges.

Yugoslavia

- **Bird book**
ICBP is assisting the Croatian authorities to produce a book on the birds of Croatia to highlight specific Croatian bird conservation features.

Algeria

ICBP provided field guides and binoculars for a group of birdwatchers, to promote bird observation and bird conservation in Algeria.

Morocco

- **Education centre**
ICBP is assisting the Moroccan Directorate-General for Forest and Water to establish an education centre at Sidi Bou Rhaba, a coastal lagoon and Ramsar site.

Tunisia

- **Teacher's kit on bird migration**
With a contribution from ICBP, Les Amis des Oiseaux prepared a 30-page booklet about bird migration aimed at science teachers in secondary schools and university colleges to provide them with good background teaching material. W.V.

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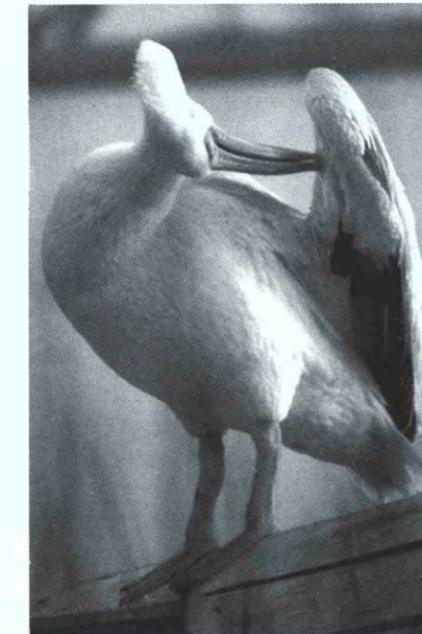
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(Photo A. Bouchet/Pluriel)

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