

IUCN Species Survival Commission

The Live Bird Trade in Tanzania

N. Leader-Williams and R. K. Tibanyenda

Editors



Occasional Paper of the IUCN Species Survival Commission No. 16

The Live Bird Trade in Tanzania



TRAFFIC

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The Live Bird Trade in Tanzania

Proceedings of a Workshop held in December 1991

N. Leader-Williams and R. K. Tibanyenda

Editors

Planning and Assessment for Wildlife Management

**Department of Wildlife
Dar es Salaam, Tanzania**

Occasional Paper of the IUCN Species Survival Commission (SSC) No. 16

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PREFACE

Tanzania has long been recognised for its outstanding avifauna. This reputation arises from the great variety of species found in Tanzania, and the number of endemic species that are restricted to Tanzania, for whose future conservation Tanzania is solely responsible. Among the total of 1060 bird species now recorded in Tanzania, at least 19 species or sub-species are endemic to Tanzania alone, while a further 16 species are endemic to East Africa. Taking pride of place among the Tanzanian endemics is the genus of bird new to science, and discovered only in 1992, *Xenoperdix* the Udzungwa partridge, whose closest living relative is the Indian hill partridge. The discovery of this genus in Udzungwa Mountains has added further to their endemic avifauna. Udzungwa also boasts two other restricted species, including a species of sunbird discovered in 1981, as well as at least six other Tanzanian endemics found in other montane and coastal forest areas. Further restricted endemic species are found in other Eastern Arc montane forests, including the Pares, Usambaras, Ukagurus, Ulugurus, Udzungwas and Southern Highlands. Other Tanzanian endemics have a more widespread distribution throughout drier areas of *Acacia*-dominated woodland, including a species of starling and two lovebirds. A number of endemic species also occur in various wetlands, for example in the Wembere swamps. Furthermore, two Tanzanian endemics, a species of weaver, and a species of cisticola as yet undescribed to science, occur in the Kilombero Valley.

Since the 1960s Tanzania has aimed to conserve her wildlife resources using strategies that include utilisation for the benefit of the people of Tanzania. The practice of maintaining wild birds in captivity extends back several thousand years among peoples of many different regions and cultures. Among their attributes, birds can provide meat, feathers, companionship and beauty. Large numbers of exotic birds have been traded internationally since the mid-nineteenth century. Countries in Africa, Asia, and Central and South America have supplied large numbers of birds to markets in Europe and the United States throughout this century. With improvements in the speed of transport, the volume and diversity of species in trade have increased dramatically. Today the pastime of keeping wild birds for pleasure is common throughout much of the world, giving rise to the international trade in millions of wild birds each year. Among the major suppliers of world markets over at least the last 15 years has been Tanzania, which ranks as the second largest African supplier of wild caught birds behind Senegal. Taken in combination, Senegal and Tanzania have accounted for over two-thirds of the trade in all species listed on the CITES Appendices during the late 1980s. Tanzania has utilised wild-caught live birds to supply world markets, under strategies that promote conservation both through protection and a wide range of utilisation options.

The apparently increasing scale of the trade in live birds from Tanzania and other source countries, including Senegal, Indonesia, Argentina and Guyana, has been causing increasing international concern. At the same time, ornithologists and conservationists within Tanzania raised their own similar concerns about the bird trade. These concerns arose for a number of different reasons during the 1980s and early 1990s. These reasons include the following: whether the present offtake, particularly for parrots and parrot-like species, are set at sustainable harvest levels; whether the standards of animal welfare employed in the trade are adequate; whether the economic structure of the bird trade results in any benefits for conservation, either of the species themselves or of their habitats; and, the large illegal component of the trade. This attention brought recognition that the lack of any coherent policy guidelines to guide the conservation and utilisation of live birds was a major gap in Tanzania. Furthermore, little information has been available to judge the scale and value of the trade in live birds from Tanzania. Indeed, the lack of policies and plans, and the lack of data, throughout Tanzania's wildlife sector was realised in 1990 when the Planning and Assessment for Wildlife Management (PAWM) project was initiated. PAWM was given broad terms of reference, among which were included the brief to tackle the current key planning issues and to draw up national plans for the wildlife sector; and to organise a more efficient, workable system of information storage and retrieval. The goal of the overall programme of PAWM was to conserve the wildlife of Tanzania by promoting the sustainable economic development of the wildlife sector. A workshop on the live bird trade in Tanzania was designed as part of PAWM's programme of work, and was held in Dar es Salaam during December 1991.

During its preparation and follow-up, the workshop developed a number of important objectives, among which were the following:

- to assess the extent and economic value of the live bird trade in Tanzania;
- to bring together expertise and stakeholders both from within and from outside Tanzania, to discuss issues of importance to the future management of the live bird trade in Tanzania;
- to prepare recommendations arising from these discussions that would form the basis of a policy and management plan to assist the Department of Wildlife to better manage Tanzania's trade in live birds.

This volume provides a record of PAWM's efforts to work through these objectives. Readers interested in the subject of the live bird trade, both globally and in Tanzania, can find in the following pages the formal presentations that were made at the workshop, including papers from inside and outside Tanzania. This volume also provides a record of the recommendations that were made at the workshop by various working groups. The task of preparing a policy and management plan for the live bird trade was completed by PAWM in February 1992. It is very pleasing to note that the *Policy and Management Plan for Tanzania's Avifauna, with Particular Reference to the Live Bird Trade* received the approval of the Minister of Tourism, Natural Resources and Environment in June 1993. This policy and management plan provides guidelines that should improve the performance of the trade in live birds and increase earnings for the Government.

When PAWM was given its brief to make recommendations for the future management of the live birds trade in Tanzania, TRAFFIC International was undertaking a world-wide study of the live bird trade, including Tanzania, to prepare for the Ninth Conference of the Parties to CITES, being held in March 1992. This mutual interest between PAWM and TRAFFIC produced the fruitful collaboration that is seen in the record of the formal presentations. TRAFFIC staff were invited to the workshop and presented fascinating material from their own work that was then in the process of being published. TRAFFIC has kindly allowed us to reproduce three papers from *Perceptions, Conservation and Management of Wild Birds in Trade* in slightly edited format in these proceedings. This volume also contains written material kindly provided by colleagues in Tanzania who were invited to attend the workshop. When taken together this collection of 8 chapters sets the bird trade in Tanzania in international context in a manner that has not been fully repeated for any other producing country. Furthermore, the workshop formed the basis for the acceptance by the Government of both a radical policy and management plan, and of a fully revised quota as a basis on which to regulate both biological and economic aspects of the trade. The policy, management plan and revised quota are included in the volume as a worthy outcome of recommendations arising from this workshop. Another interesting development was that this workshop in Tanzania served as a model for subsequent workshops in Senegal and Indonesia.

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Reference

Thomsen, J.B., Edwards, S.R. and Mulliken, T.A. (Eds). 1992. *Perceptions, Conservation and Management of Wild Birds in Trade*. Cambridge, TRAFFIC International.

ACKNOWLEDGEMENTS

The holding of a workshop as complex as this, and the task of compiling the information required can only be achieved with team-work of a high order. PAWM would very much like to thank the Deputy Governor of the Bank of Tanzania, who also then held the office of Chairman of the Wildlife Conservation Society of Tanzania, for his stimulating opening of the workshop, and the Director of Wildlife for his support during its preparation and for chairing the workshop so ably. All the PAWM staff worked hard with staff from the Department of Wildlife, Bank of Tanzania and Wildlife

Conservation Society of Tanzania, to compile the information describing the extent and potential value of Tanzania's trade in live birds. The resource people from TRAFFIC and from within Tanzania invited to present papers at the workshop have given us fascinating accounts of current practices and thoughts on possible future directions. The staff of the Forodhani Hotel in Dar es Salaam made us comfortable and welcome, while the staff of PAWM helped greatly with logistics and photocopying.

Our donors and project managers deserve great thanks. PAWM is funded by USAID, and jointly managed by the African Wildlife Foundation and the Tanzania Office of World Wide Fund for Nature (WWF). The programme of work undertaken by PAWM has been impressive in its breadth and scale. Our donors and project managers are thanked for their foresight and vision in initiating and funding the programme of work undertaken by PAWM. These proceedings have already been printed and distributed locally in Tanzania, but this volume makes them available to an international audience. Our donors are thanked for agreeing to fund the international publication through the Species Survival Commission of IUCN – The World Conservation Union. The Institute of Zoology of the Zoological Society of London, and the Durrell Institute of Conservation and Ecology in the University of Kent provided a base for the senior editor to complete their production. Dr Leslie Smart very conscientiously sub-edited the proceedings, and staff of the Publications Services Unit of IUCN took great care in their production.

OPENING: TANZANIA'S BIRD TRADE WORKSHOP

N.N. Kitomari, Deputy Governor, Bank of Tanzania, and Chairman, Wildlife Conservation Society of Tanzania

Mr Chairman
Distinguished Delegates

This workshop aims to analyse the wild bird trade as it is carried out in Tanzania, to see its potential and problems, and ways and means of resolving these difficulties. For as long as it can be done humanely, honestly and on a sustained-yield basis, the bird trade can be made to contribute to national development. But if it is left in the hands of uncaring, unscrupulous and irresponsible businessmen and corrupt officials, it threatens a healthy environment and the quality of life. Accordingly, I hope you will analyse the data presented to determine:

- its sustainability;
- the real worth of the trade to the economy; and,
- the future outlook for a continued wild bird trade.

As Deputy Governor of the Bank of Tanzania and as former Principal Secretary in the Ministry of National Resources and Tourism, I take a keen interest in the use of wildlife to generate revenue for the country. I am interested not only in the general issue of the sustainable use of natural resources, including wildlife and forest products, but also in very specific technical matters, such as how much of the money generated is retained in the country and in how much of that is actually spent on ensuring the survival and continued well-being of the natural resource being exploited, in this case bird populations and habitats.

Not surprisingly for a banker, I also wish to reassure myself and others that we are receiving a fair profit on our investment. For make no mistake about it, our use of the wildlife resources is an investment. The Government, and indeed many foreign donors and NGOs, have over the years made considerable financial expenditures to ensure that our wildlife resources on the whole are well looked after. Each year the Government must spend huge amounts on anti-poaching efforts, on the issuing of proper documentation for the trade, and on protecting the habitats of the birds and other animals exported. Furthermore, we constantly must train wildlife professionals to develop the expertise necessary to ensure that our wildlife resource continues to exist for the benefit of the country in the future, not just in the immediate five or ten years.

In addition to these very important national concerns, Tanzania as a member of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) has international obligations with regard to the manner in which it handles its wildlife trade, and these obligations also require expenditure. As a signatory of CITES, Tanzania is also under the scrutiny of what one might call "the world microscope". We are expected to manage our trade in wild animals in a responsible manner, and when we do not, our reputation suffers as a country suitable for tourism, related investment, trade and with an ability to manage its natural resource.

In addition to my position in the Bank of Tanzania, I am also Chairman of the Wildlife Conservation Society of Tanzania. This is a locally based NGO with a largely Tanzanian membership which was formed to meet the growing demand for a Society that would serve as a forum for discussion on wildlife conservation. After an extensive study and analysis of the bird trade, our Society prepared a report which recommended to the Government that a moratorium on bird exports for the pet trade be declared for a period of two years. During this time, a number of recommendations based on the biology of the birds in the trade, as well as changes in the mechanism by which the trade is carried out and managed, should be effected.

As you will all be aware, ours is not the only NGO to call for a re-examination and a re-think about the way in which the bird trade is carried out and controlled. Some organizations have questioned the very existence of the bird trade. Tanzania, as the second largest exporter in Africa, has come

under close scrutiny for the inhumane way in which many of its exports are packed, and for the mortality which occurs in transit and in shipment. Some businessmen, indeed perhaps some of you here today, have been able to circumvent the laws regarding exports. In the short term, such activities may earn you a profit. However, in the long run these will bring about adverse publicity, have a negative effect on the very birds on which you depend, and if continued, may entirely stop the trade. For make no mistake about it, if you do not take drastic corrective measures as to the manner in which you conduct your business, sooner rather than later you will find yourselves with no business at all.

In the light of the foregoing concerns, I wish to address the following message to the Department of Wildlife:

- to continue to collect data on the status of birds in trade to determine safe offtake levels;
- to co-ordinate with other countries, international organisations and CITES in order to draw up adequate regulatory mechanisms for controlling the trade; and,
- to take stern measures against violators inside and outside Tanzania.

With regard to businessmen engaged in bird trade, I wish to urge them to:

- be farsighted in pursuing the trade in order to make it both sustainable and safe for the well being of our Earth;
- be truthful in your business practices, because under-invoicing will ruin the economy and lead the Government to ban the trade; and,
- look into the future and the prospects of captive-breeding here rather than in Europe or in North America in order to continue to be in trade.

Some of you attended a meeting in the United Kingdom not long ago on this very subject, and are in the best position to explain to your colleagues the types of questions asked there by various groups concerned about the bird trade and the manner in which it is conducted. However, everyone here is aware of the effectiveness of the ban on ivory imports to the US, UK and Japan.

As we gather here now, legislation is being considered in the United States that would either reduce the trade in wild caught birds in such a way that it would close down over the next 5 years, or more radically, which would close it down in a year. Similar legislation is being considered by the European Community countries. Already a majority of major world airlines have refused to carry live birds as cargo.

Why is it that the bird trade has fallen into such disrepute? Many of the reasons arise from within the country, and relate to the manner in which you capture, handle and transport birds; from the manner in which you market your product, and in which you receive payment. Other difficulties are those of the Government, in failing to adequately enforce both local and international legislation. Finally, of major concern to many biologists and conservationists, are the effects of the trade and other factors, such as habitat and environmental degradation, on natural bird populations. If one claims that the harvest of birds is sustainable, then this must be shown to be so.

This workshop has brought together a variety of specialists; businessmen, staff of TRAFFIC from overseas, Department of Wildlife staff, and local experts on birds and the bird trade. I urge you to listen to one another. Finally, I ask you to develop a policy that will ensure that bird populations will only be exploited for export in a manner that guarantees their continued survival and sustainability. Furthermore, such exploitation will only be done in such a way that is acceptable to national and international standards. Anything less will be a disservice to the country, and to our wildlife heritage.

Thank you.

PART 1

PRESENTATIONS

1. A GLOBAL OVERVIEW OF THE WILD BIRD TRADE*

T.A. Mulliken, S.R. Broad and J.B. Thomsen

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1. INTRODUCTION

People of many different regions and cultures maintain wild birds in captivity, and the practice extends back several thousand years. Providing meat, feathers, companionship and beauty, captive wild birds were kept by ancient Egyptians, early Greeks and Romans, and the native peoples of Southeast Asia, the Caribbean and South and Central America.

Exotic birds have been traded internationally in large numbers since at least the mid-nineteenth century. A brisk trade in cage birds was reported in the United States as early as 1865 (Oldys in Banks, 1976). Europe annually supplied hundreds of thousands of birds, primarily captive-bred Canaries *Serinus canaria* to the US market by the early 1900s. Large numbers of wild-caught birds have been supplied by Africa, Asia, and Central and South America to overseas markets, especially those of Europe and the United States, throughout this century. The international trade increased in size and species diversity as shipping times were reduced through use of steam and then air transport (Oldys in Banks, 1976; Banks, 1976). Today the pastime of keeping wild birds for pleasure is common throughout much of the world, giving rise to the international trade in millions of wild-caught birds each year.

The international bird trade has become the focus of increasing attention and criticism in the past few years. A number of non-governmental organisations (NGOs) and some national governments have expressed concern that trapping wild birds to support foreign pet markets may be depleting certain wild avian populations. Objections to what are perceived as inhumane aspects of the trade have also been raised by some animal welfare and bird protection organisations.

The growing controversy reflects the broad spectrum of opinion regarding 'appropriate' human uses of wild birds and, indeed, of all wildlife. Opinions range from those who see wild birds as a resource to be utilised for human benefit, as long as such use does not endanger wild populations, to those who believe that wild birds have inherent rights of their own, and therefore should not be taken or harassed for human purposes.

Several recent initiatives have been taken to address the international bird trade in the context of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). In 1990, the CITES Animals Committee formed a Working Group on Bird Trade to examine the international trade in wild-caught birds more closely. Almost simultaneously, the General Assembly of IUCN - The World Conservation Union adopted a resolution calling for additional review of the trade in wild-caught birds by CITES Parties (IUCN, 1990). These and other actions will almost certainly make the bird trade a major issue at future Conferences of the Parties to CITES.

The international bird trade has also been placed on the agendas of national governments in the major consumer markets of the United States and Europe. In the United States, the Cooperative Working Group on Bird Trade is composed of representatives from conservation, animal welfare, avicultural and pet industry organisations, and has developed a series of recommendations to address problems associated with the trade. Some Working Group members are currently supporting legislation that would generally phase-out imports of wild-caught birds for the pet trade over a 5-year period, with some exceptions. A coalition of animal welfare and conservation groups is supporting legislation that would immediately ban US imports of wild-caught birds for the pet trade.

In Europe, the European Parliament has adopted a resolution calling for a ban on European Community (EC) imports of wild-caught birds for the pet trade, in response to a campaign

* First published in Thomsen, Edwards and Mulliken (1992)

launched by animal welfare and bird protection organisations. This resolution serves as a recommendation to the European Commission, and is not binding.

A group of animal welfare and conservation organisations has also succeeded in convincing many airlines to announce that they will no longer transport wild birds. Over 40 carriers had made such announcements as of December 1991.

The international bird trade will remain the subject of debate for some time to come. Regardless of the forum for discussion, it is essential that evaluation of this trade and related trade-control initiatives is based on the best available scientific evidence. Furthermore, the trade must be viewed in the broadest possible context, and not as if it exists in a vacuum. A wide range of questions must be considered:

- How is trade affecting the status of different species in the wild?
- Are range countries capable of adequately controlling and managing wildlife utilisation, including harvest of wild birds for export, in a sustainable manner?
- What impact would greatly reducing or banning international trade have on the related issues of species and habitat conservation?
- Are rural communities and/or range country governments benefiting from trade?
- Is captive breeding of birds an effective alternative to wild harvest?
- How should animal welfare and mortality concerns be viewed and addressed in the larger context of wildlife utilisation?

It is also important for the objectives of different trade-control initiatives and those of their proponents and opponents to be clear. Ethical and moral considerations regarding the trade should be identified and considered independently from biological considerations.

Objective analysis will be required if the status of species in trade is to be reasonably assessed and effective actions taken to ensure their conservation in the wild. This is particularly important when bird trade issues are debated in the international arena of CITES.

The purpose of this paper is not to address the question of whether the international trade in live birds is 'right' or 'wrong', or to debate the merits of different trade initiatives. Instead, the paper aims to provide an overview of the current trade, and to highlight those aspects that are of greatest concern:

- changes in wild bird populations;
- trade-associated mortality; and,
- distribution of economic benefits and the effectiveness of current trade controls.

It is hoped that this information will provide a starting point from which to examine trade issues in more detail.

2. COMPONENTS OF THE INTERNATIONAL BIRD TRADE

2.1. SPECIES

Over 2600 of the approximately 9600 described bird species have been recorded in international trade during the past 20 years (Inskipp, 1990). However, accurate trade volumes for most species are unknown, owing to varying or non-existent import and export reporting requirements.

Documentation of international trade in species listed in the CITES Appendices is more extensive than that of trade in non-CITES species. Trade in CITES Appendix III species appears to be less consistently recorded than trade in Appendix I and II species (Mulliken and Thomsen, 1993). It seems likely that CITES trade figures do not accurately reflect total trade volumes for a number of CITES-listed species.

Information available from the United States, the United Kingdom and three major exporting countries (Senegal, Tanzania and China) indicates that the majority of birds in trade are passerines, or songbirds (Order *Passeriformes*). Approximately 59% of all birds imported into the United States from 1984 to 1988 were passerines (Mulliken and Thomsen, 1990). Passerines also accounted for 81% of all birds imported into the United Kingdom during 1988 and 1989 (MAFF, 1989;

MAFF, 1990). Over 90% of birds recorded as exported from Senegal, and over 80% of birds recorded as exported from Tanzania during 1990 were passerines (Edwards and Biteye, 1992; Edwards and Broad, 1992). Exports from China are also believed to be composed primarily of passerines (Melville, 1989).

The vast majority of passerine species are not listed in the CITES Appendices. Therefore the songbird trade is poorly documented. However, estimates suggest that a minimum of 655 passerine species have been traded internationally since 1970 (Inskipp, 1990). It appears that passerines commonly referred to as *finches* (families *Estrildidae*, *Fringillidae*, *Ploceidae*) are traded in the largest numbers, with far fewer specimens of other families appearing in international trade.

Psittacines form the next largest group of birds in international trade. All but two psittacine species are included in the CITES Appendices. Therefore, trade figures for this order are relatively comprehensive compared to those for passerines. The net CITES reported trade in psittacines for the years 1982 to 1988 ranged from a low of 476,917 birds per year to a high of 624,198, and averaged 539,701 birds per year (Broad, 1990).

International trade in other avian orders appears to involve much smaller numbers of birds. Unfortunately, trade analysis is again limited for non-CITES species by lack of data. Except for the orders *Falconiformes*, *Psittaciformes* and *Strigiformes*, which are included in their entirety in the CITES Appendices, available trade data are almost certain to represent only a fraction of the actual world trade.

2.2. WORLD TRADE VOLUMES

The total number of live wild-caught birds traded internationally is unknown. Estimates suggest that a minimum of 7.5 million birds were traded annually during the early 1970s, the period that the trade appears to have peaked (Inskipp, 1979). The total world trade since appears to have declined, coinciding with increased trade restrictions and more effective trade controls adopted by a number of countries during the 1970s and 1980s. Several countries that had been important suppliers of wild-caught birds to the world market banned exports (eg, India, Columbia, Bolivia), and many countries adopted more rigorous trade controls following their accession to CITES.

Extrapolating from the 1983 to 1988 trade volumes of major producer and consumer countries, the international trade in wild birds is currently estimated to involve from 2 to 5 million specimens per year (Inskipp, 1990). Lack of information on exports of live birds from China has created much uncertainty on the total number of birds in trade. A Chinese Government official indicated that as many as three million birds were exported in one recent year (Melville, 1989). The majority of these were almost certainly non-CITES, primarily passerine, species. The majority of this trade has not been documented in Chinese trade records, or in the records of countries of import, however (Inskipp, 1990). Exports from China are believed to be consumed primarily by East and Southeast Asian countries, which do not record non-CITES imports.

The estimates of total world trade do not include birds that die during capture, transport or holding prior to export. Furthermore, the estimates do not include domestic trade. Available information indicates that pre-export mortality and domestic trade both involve large numbers of birds. Estimates of pre-export mortality rates are provided in several trade studies (Bruggers, 1982; Inskipp, 1983; Nash, 1990; Panagis and Stutterheim, 1985; Ramos and Inigo, 1985). Estimates of pre-export mortality vary widely. They range from as few as 5% of the birds removed from the wild for export in India (Inskipp, 1983), to as many as 60% of birds trapped for (illegal) export in Mexico (Ramos and Inigo, 1985).

The number of live birds removed from the wild for domestic trade is unknown. Available information suggests that as many as several hundred thousand birds per year may be trapped for internal trade in certain Pacific, South American and Central American countries (eg, Carvalho, 1986; Thomsen and Bräutigam, 1991). However, it seems unlikely that the combined domestic live bird trade of range states is as large as the international trade.

Undocumented illegal trade is also not reflected in the total trade estimates. This trade is by its very nature impossible to quantify, but has been estimated to involve at minimum tens of thousands of birds (Thomsen and Hemley, 1987).

2.3. SOURCE COUNTRIES

The majority of wild birds documented in international trade are exported by countries located in tropical and subtropical regions (Figure 1). On a regional basis, Africa is the largest recorded exporter of wild-caught birds. African countries provided over two-thirds (68%) of all CITES-listed species recorded in trade in 1988 (Inskipp, 1990). The two largest exporters are Senegal and Tanzania. Both countries are recorded as providing more CITES-listed birds to international markets than any other countries: 684,679 and 127,262 birds respectively in 1988 (Inskipp, 1990). Together, Senegal and Tanzania accounted for an estimated 53% of all CITES-listed specimens reported in trade in 1988 (Inskipp, 1990). Guinea, Mali and Liberia are also important African exporters.

Africa is the major source of wild-caught songbirds in trade, as well as an important source of psittacines. African parrots popular in international trade include lovebirds, *Agapornis* spp, African Grey Parrots *Psittacus erithacus* and members of the genus *Poicephalus* (eg, Senegal Parrot *Poicephalus senegalus* and Meyer's Parrot *Poicephalus meyeri*).

The combined region of Central and South America is the second largest supplier of wild-caught birds for international trade, accounting for 14% of CITES-reported exports in 1988 (Inskipp, 1990). Argentina, the largest Neotropical bird exporter, is reported to have supplied 106,278 CITES-listed birds to foreign markets during 1988 (Inskipp, 1990). Other major exporters include Uruguay, Guyana and until recently, Honduras. The latter country suspended exports of wild-caught birds in 1990 (Secretary of State for Natural Resources *in litt.*, during 1990).

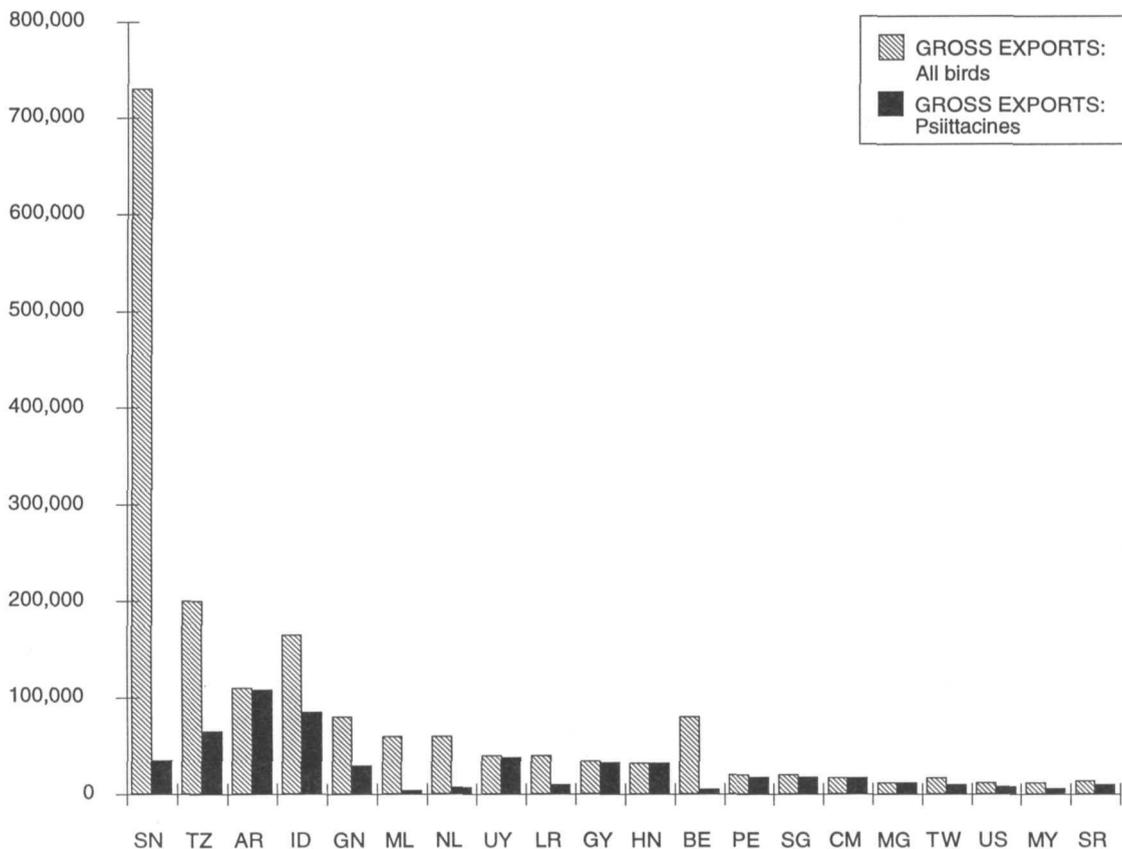


Figure 1: Estimated gross exports of birds in 1988, shown for the top 20 exporting countries (SN = Senegal, TZ = Tanzania, AR = Argentina, ID = Indonesia, GN = Guinea, ML = Mali, NL = Netherlands, UY = Uruguay, LR = Liberia, GY = Guyana, HN = Honduras, BE = Belgium, PE = Peru, SG = Singapore, CM = Cameroon, MG = Madagascar, TW = Taiwan, US = United States, MY = Malaysia, SR = Surinam).

The vast majority of birds exported from Central and South America are psittacines. Parrots exported in large numbers include amazons (*Amazona* spp), macaws of the genus *Ara* and a variety of conures and parakeets. Smaller numbers of birds of several avian families whose ranges are limited to the Americas, eg, toucans (*Ramphastidae*) and hummingbirds (*Trochilidae*),

are also exported. A wide variety of passerine species from this region have been recorded in trade, with the number of specimens of individual species exported appearing to be relatively low.

Reported exports of CITES-listed species from the combined region of Asia and Oceania during 1988 were only slightly lower than those reported for Central and South America, and accounted for 10% of 1988 reported exports (Inskipp, 1990). Indonesia is the largest reported source of wild-caught birds in this area, supplying 88,072 CITES-listed birds to other countries during 1988 (Inskipp, 1990). The majority of Indonesia's reported exports are psittacines, primarily cockatoos (*Cacatuidae*) and lorries (*Loriidae*), both endemic to this region.

As noted above, China may supply a large but undocumented number of birds to other Asian countries. Although unconfirmed as of December 1991, the export figure of 3 million birds (Melville, 1989) may indicate that China is Asia's, and the world's, largest exporter of wild birds. Trade records show that China exports a small number of birds to Europe and the United States, and perhaps several hundred thousand birds (for sale as food) to Hong Kong (Melville, 1989).

2.4. CONSUMER COUNTRIES

The European Community, the United States and Singapore are the largest known importers of live birds (Inskipp, 1990; Figure 2). Trade records show that during the 1980s, the United States imported more birds than any other individual country, with imports averaging nearly 700,000 birds per year from 1984 to 1988 (Mulliken and Thomsen, 1990). US import volumes declined during this period, reflecting a decline in imports of non-CITES and Appendix III-listed birds. Annual imports of Appendix II-listed birds, especially parrots, were relatively stable however, remaining around 230,000 birds (Mulliken and Thomsen, 1990). An initial review of US trade data for 1989 and 1990 indicates that psittacine imports declined by as much as 40% during that year, and remained at reduced levels during 1990.

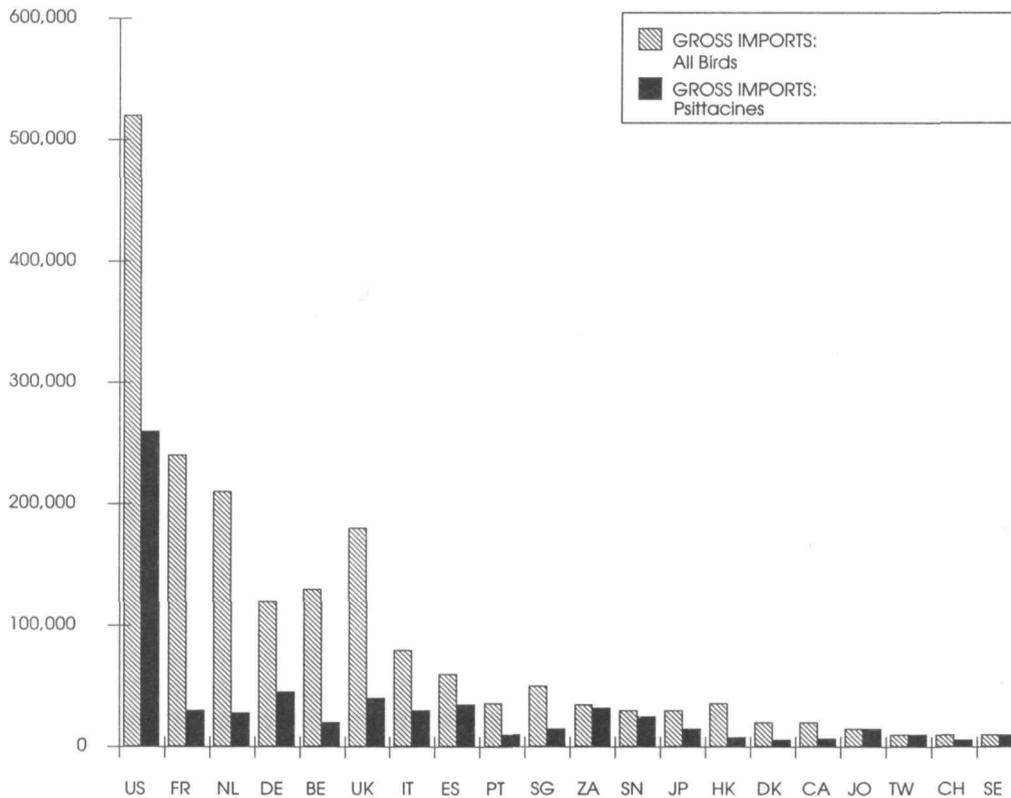


Figure 2: Estimated gross imports of birds in 1988, shown for the top 20 importing countries (US = United States, FR = France, NL = Netherlands, DE = Germany, BE = Belgium, UK = United Kingdom, IT = Italy, ES = Spain, PT = Portugal, SG = Singapore, ZA = South Africa, SN = Senegal, JP = Japan, HK = Hong Kong, DK = Denmark, CA = Canada, JO = Jordan, TW = Taiwan, CH = Switzerland, SE = Sweden).

Data for EC imports are limited primarily to trade in CITES-listed birds. Approximately 1 million CITES-listed birds were imported into the European Community during 1988, and this market consumed 65% of all CITES-listed birds reported in trade (Inskipp, 1990). Available trade data

indicate that France is the largest importer within the European Community, importing approximately 234,000 CITES-listed birds in 1988 (Inskipp, 1990). The United Kingdom is the only EC country to compile data on all exotic bird imports. Imports to United Kingdom ranged from 150,000 to 250,000 birds per year from 1978 to 1989, excluding 1984, when imports were temporarily suspended (MAFF, 1979-1990). The proportion of psittacine to non-psittacine imports remained relatively stable throughout this period, with psittacines generally accounting for less than 25% of total imports. The United Kingdom imported approximately 180,000 birds in both 1988 and 1989. EC trade records do not show a significant decline in imports of CITES-listed birds during the late 1980s, despite increasing export restrictions in source countries and EC import restrictions for some CITES-listed species.

Singapore appears to be the third largest consumer of birds in international trade, importing approximately 31,000 CITES-listed birds in 1988 (Inskipp, 1990). Japan, a major importer of many types of wildlife, is less important in the international bird trade. CITES annual reports for 1984 to 1988 show that Japan's reported imports of CITES-listed birds decreased from over 40,000 birds in 1982 to approximately 21,000 in 1988. More recent data available from Indonesia indicate that exports to Japan and other Asian countries may be increasing (Edwards pers. comm).

2.5. MARKETS AND TRENDS

Although the vast majority of wild-caught birds in international trade are destined for sale as pets, the dynamics of the pet trade itself are not well understood. The sale of millions of birds as pets could reflect a relatively cheap and abundant supply of this commodity. Alternatively, the volume of birds in trade could be a direct result of continuing consumer demand. The fact that hundreds of thousands of cage birds have been traded internationally since at least the beginning of this century (Banks, 1976) indicates that demand for pet birds is not new. However, it seems likely that economics, marketing by the pet industry, changes in fashion and changes in supplies have affected demand for certain types of birds, for example certain parrot species.

The great variety of species in international trade appears to be primarily due to demand from aviculturists, collectors and zoological facilities. These consumers have specialised interests that create a limited but potentially lucrative market for less-commonly traded birds. Such birds include some songbirds, lesser-known psittacines, birds with unusual characteristics, eg, hummingbirds and larger birds such as hornbills, waterfowl and pheasants.

For a small but important minority of aviculturists and collectors, the rarer species (either in the wild or in trade) provide great incentives to procure one or more specimens, no matter what the means. As a result, species classified as endangered may still be trapped and sold on the international market, albeit illegally, as has been demonstrated for a number of species.

The relative importance of the aviculturist and collector markets with respect to trade in a particular species appears to increase with the decreasing availability of that species in trade. If breeders learn that a species is likely to become unavailable for import, they may try to secure as many specimens as possible until such time as trade is prohibited. This behaviour was in evidence with the recent listing of Salmon-crested Cockatoo *Cacatua moluccensis* in CITES Appendix I. Aviculturists began buying up this species when it was proposed for listing in Appendix I, months before the CITES meeting where it was actually prohibited in international commercial trade.

Zoological facilities consume a relatively small number of birds compared to the pet trade and aviculturists. The zoological trade is nevertheless important, as zoos tend to concentrate primarily on rarer species, often those that are threatened or endangered. Because many national governments allow special trade exceptions for zoological and educational purposes, and CITES allows for exemptions for non-commercial trade, zoos can frequently acquire many species that are commercially or otherwise unavailable.

Increasing national trade restrictions and the implementation of CITES appear to have reduced the total world trade in wild birds since the early 1970s. These restrictions, and the inclusion of several commercially traded species in CITES Appendix I, have limited the variety and volume of wild-caught specimens legally available for international trade. Changes in consumer demand and the increased availability of domestically bred birds for the pet trade may also have influenced this decline.

Increasing trade restrictions during the early and mid-1980s did not appear to greatly reduce the reported trade in CITES-listed birds. A number of important exporters of wild-caught birds (eg, Argentina, Honduras and Tanzania) acceded to CITES around this time. Hence, increased trade reporting may have offset a decline in total reported exports resulting from export bans implemented by Bolivia, Mexico and other range countries.

Although the number of range countries exporting CITES-listed birds declined, the demand for CITES-listed species did not. Instead, it appears that the governments of some range countries reduced the numbers of birds allowed in trade, while other governments allowed increased exploitation of indigenous wildlife in response to continuing demand. Trade levels were also sustained to some extent by illegal trade. Birds smuggled from countries with export bans were laundered into trade through second countries, using export permits that mis-identified the country of origin. Data available from the United States and several exporting countries indicate that trade in CITES-listed species may have declined during 1989 and 1990.

As indicated above, captive breeding appears to be meeting at least part of the continuing demand for caged birds. Data for 1982 and 1984 showed that more psittacines were bred in the United Kingdom than were imported, even excluding Budgerigars *Melopsittacus undulatus* and Cockatiels *Nymphicus hollandicus* (Broad, 1985). The number of 'wild' birds being produced by captive breeding is unknown, but appears to be increasing. Captive breeding supplies virtually all specimens of some otherwise unavailable species, for example endemic Australian parrots, (eg, Budgerigars, Cockatiels, Rosellas *Platycercus* spp) in legal trade.

While not approaching the number of wild-caught birds in international trade, captive-bred birds are nevertheless an important component of this trade. It was estimated that approximately 15% of birds imported by the United States from 1986 to 1988 were captive-bred (Mulliken and Thomsen, 1993). Trade among EC countries similarly appears to involve a significant number of captive-bred birds.

Primarily located in consumer countries, captive breeding operations range from small hobby aviaries producing a few birds, to large farms producing thousands of birds each year. These operations play an important role in supplying domestic pet markets. Indeed, it appears that the majority of birds sold as pets in the United States, primarily Budgerigars, Cockatiels and Canaries, are captive-bred in that country (Mulliken and Thomsen, 1993). Some of the more valuable Appendix II psittacines (eg, cockatoos and macaws) popular in trade are being captive-bred in increasing numbers in the United States (Allen and Johnson, 1991). According to some US aviculturists (Abramson in litt., during 1990; Clubb pers. comm), difficulties in obtaining US export permits have restricted the export of these captive-bred birds to other markets.

Captive breeding operations within the European Community not only supply local markets, but also produce significant numbers of birds for international trade. The Netherlands exported an average of 24,000 birds reported to be captive-bred from 1984 to 1988 (van Kreveld, 1990). Belgium is also known to produce a relatively large number of captive-bred birds, exporting approximately 27,000 birds reported to be captive-bred to the United States in 1988 (Mulliken and Thomsen, 1993). According to Belgium's 1989 CITES Annual Report, close to 9000 captive-bred CITES-listed birds were exported to non-EC member countries in 1989. Germany is also known to export significant numbers of captive-bred birds.

Two African countries, South Africa and Zimbabwe, are also reported to export captive-bred birds, primarily Cockatiels, in relatively large numbers. According to CITES trade records, Taiwan is also an important exporter of captive-bred birds.

3. TRADE CONTROLS

3.1. CITES CONTROLS

CITES is arguably the single most important mechanism used to control international trade in wild animals and wildlife products. CITES Parties are obliged to have domestic legislation adequate to fulfill their requirements under the Convention. However, several countries have not met this obligation.

Parties are required to prohibit international trade for primarily commercial purposes of species considered by the Parties to be in danger of extinction, and threatened or potentially threatened by

international trade. These species are listed in CITES Appendix I, which included 126 avian species and 20 subspecies in 1992. In some cases an Appendix I listing is insufficient to protect species from continued exploitation. It appears that international trade in wild-caught Hyacinth Macaw *Anodorhynchus hyacinthinus* actually increased after the Appendix I listing of this species (Munn *et al.*, 1989).

Species for which trade might pose a threat if not adequately controlled are listed in CITES Appendix II, as are some 'look-alike' species included in the Appendix to facilitate enforcement of trade controls. A total of 1165 avian species and 49 subspecies are included in Appendix II in 1992. Parties are required to ensure that trade in Appendix II species is not detrimental to wild populations of those species. Exporting Parties are required to make 'non-detriment' findings (CITES Article IV). Importing Parties may refuse imports if they are not satisfied that appropriate non-detriment findings have been made (Resolution Conf. 2.6). Parties do not appear to have been universally effective at preventing trade related declines in wild populations. Indeed, several species initially listed in Appendix II have been moved to Appendix I. For some species, eg, Salmon-crested Cockatoo, harvest for international trade appears to have been the primary cause of declines in wild populations and subsequent listing in Appendix I.

The fact that international trade may continue despite trade prohibitions and without proper non-detriment findings apparently reflects a lack of commitment and/or ability on the part of many exporting and importing countries to comply fully with the conditions of the Convention. Some Parties have yet to implement domestic legislation necessary to enforce CITES provisions. Many Parties have the necessary legal infrastructure to implement CITES, but lack the personnel and resources necessary for effective CITES implementation. As a result, export permits may be issued without determining whether trade will be detrimental to wild populations, and without inspection of birds being exported. Unauthorised or mis-reported trade may result. Imported shipments similarly may not be inspected by enforcement personnel, with illegal shipments therefore remaining undetected.

Existing enforcement personnel may lack the training and resources necessary to identify species in trade, and verify the legitimacy of accompanying export documents. The United States is one of the wealthiest Parties to CITES, and the largest documented importer of wild-caught birds. However, the United States does not adequately perform these responsibilities even with its relatively extensive enforcement capacity (Cooperative Working Group on Bird Trade, 1990; Mulliken and Thomsen, 1993).

CITES parties recognised that exporting countries might not be able to assess whether trade was detrimental to the survival of the species in trade as early as 1984 (Anon, 1991). The Parties agreed that trade in species that were likely to be impacted by that trade should be reviewed. The resulting study, commissioned by CITES, identified 46 *significantly-traded* Appendix II species for which trade might pose a possible problem (Inskipp *et al.*, 1988).

Action on the part of CITES Parties to control trade in response to results of the initial study was limited. Until very recently, little if any effort was made to reduce export volumes of any possible problem species. Two species, Military Macaw *Ara militaris* and Tucuman Amazon *Amazona tucumana*, as well as several problem species have since been added to CITES Appendix I. Concern that additional species are threatened by trade and/or other factors has prompted proposals for the listing of several possible problem species in Appendix I.

During the seventh meeting of the Conference of the Parties (Lausanne, 1989), the Parties recommended that the *significant trade* process be continued through a review of more recent trade data. The results of this review, carried out by the World Conservation Monitoring Centre and the IUCN-Species Survival Commission Trade Specialist Group, have been presented to the CITES Animals' Committee.

The initial CITES significant trade review mentioned above (Inskipp *et al.*, 1988) determined that trade did not present a problem for 27 Appendix II species, primarily psittacines, traded in significant numbers. The majority of species in trade are not listed in the CITES Appendices. This may be taken as an indication that CITES Parties have not determined that international trade is likely to be a threat to the survival of these species at the present time.

3.2. CITES AND THE PET TRADE

Parties to CITES expressed their specific concern regarding the international trade in wild-caught specimens for the purposes of the pet trade at the first meeting of the Conference of the Parties. CITES Resolution Conf. 1.6, which was not specifically restricted to CITES-listed species, states:

Many species of animals which are popular in the pet trade are becoming rare or even endangered due both to over-exploitation and diminishing habitats. Mortality in trade and captivity is high. This Conference urges exporting countries to endeavour to restrict gradually the collection of wild animals for the pet trade and that all contracting Parties encourage the breeding of animals for this purpose, with the objective of eventually limiting the keeping of pets to those species which can be bred in captivity.

Several CITES Parties have banned exports of live wild animals (and in some cases, all wildlife and wildlife products) since this Resolution was passed in 1976. These bans appear primarily to reflect larger trade control concerns, rather than a direct response to Resolution Conf. 1.6. Few if any range countries have gradually restricted their exports of live birds for the purposes of the pet trade. And while there appears to be a growing number of birds bred in captivity for sale as pets, trade figures demonstrate that the keeping of pet birds is not limited to captive-bred specimens.

3.3. NATIONAL TRADE CONTROLS

Many countries have adopted domestic legislation intended to protect their wildlife from over-exploitation. This legislation is often developed or revised following the accession of a country to CITES. As well as international trade requirements, CITES specifically provides for Parties to take stronger domestic measures to control trade in CITES-listed species.

Unfortunately, a number of national trade-control measures have been ineffective at preventing trade in protected species. The ongoing illegal export of parrots from Mexico illustrates this problem. Mexico imposed a ban on native wildlife exports in 1982, while the United States prohibits imports of illegally exported wildlife. Nevertheless, estimates of the numbers of parrots smuggled from Mexico into the United States have ranged from 25,000 to 150,000 birds per year (Thomsen and Hemley, 1987; Mulliken and Thomsen, 1990). Brazilian and Bolivian bans on wildlife exports have also been ineffective. Birds trapped in these countries have been smuggled to neighbouring countries and then re-exported with export permits falsely declaring the country of origin, as well as smuggled directly to their final destinations in importing countries. This type of illegal trade is especially problematic for species with ranges extending across several countries, such as African Grey Parrot and Yellow-crowned Amazon (*Amazona ochrocephala*).

The rate of detection and confiscation of illegal exports and imports is relatively low in most countries, and penalties for trade violations often small or non-existent. Hence, existing legislation and enforcement frequently do not provide a sufficient deterrent to illegal traders. Traders may be cautious in their handling of obviously illegal birds, such as Hyacinth Macaws. However, they are unlikely to worry about trading a few individuals of common but protected species, or species less likely to be recognised. Protected species, such as Black-capped Lory (*Lorius lory*), may be hidden in a large load of a similar but unprotected species, such as Purple-naped Lory (*Lorius domicella*).

Once a bird has arrived at its final destination, it is difficult to prove in all but a few instances that it has been exported or imported illegally. This problem would continue to exist even if trade were limited to captive-bred birds and wild-caught specimens for captive breeding, unless strict internal controls, including marking systems, were introduced to identify individual specimens.

4. BIOLOGICAL CONSEQUENCES OF TRADE

The trade-control problems mentioned above highlight the potential for inadequately controlled trade to contribute to non-sustainable use of wild avian populations. However, the control of international trade in accordance with CITES may contribute to the protection of avian and other wildlife species that are primarily threatened by habitat loss. This outcome would require that individuals within range countries derived sufficient value from wild bird exports to merit maintenance of existing habitat. However, the economic benefits of the wild bird trade are not now distributed in a manner that encourages protection of either habitat or wild populations (Swanson, 1992).

4.1. EFFECTS OF TRADE ON WILD POPULATIONS

Most species can withstand at least some change in their natural environment, including increased predation by humans such as trapping for export, without suffering long-term declines. However, too little is known about the biological requirements, reproductive strategies and niches occupied by many species to determine whether current levels of human utilisation are detrimental to wild populations. To compound this problem, the number of birds now removed from the wild for trade or other purposes is unknown. Trade data are based on the number of birds exported, and do not reflect pre-export mortality. Furthermore, no records are kept of the number of birds harvested for food, feathers, and so on. Lacking this basic information, it is difficult if not impossible to accurately determine sustainable harvest levels.

The problem of assessing whether current trade levels are sustainable is exacerbated by the lack of information on the age of birds in trade. This factor may be critical to determine the effects of trapping on wild populations. For most species in trade, it appears that the majority of birds in trade have fledged prior to being trapped.

The removal of significant numbers of breeding-age adults from a population may have a larger overall impact than the removal of a similar number of juveniles. A loss of breeding-age adults may result in an immediate decline in the reproductive capacity of the population as a whole. This problem may be especially acute for species with slow recruitment rates, such as larger species of psittacines and hornbills. Only two out of twenty or more pairs of Blue and Yellow Macaw (*Ara ararauna*) observed daily in 1986 were nesting, suggesting that this species might breed only once every several years (Munn, 1988a). Observations of three macaw species in undisturbed habitat showed that less than one-fifth of all pairs of adult macaws had young at the end of the breeding season (Munn, 1988b). Therefore, it seems likely that removal of a significant portion of the breeding-age population of the larger macaws could result in irreversible declines in the total numbers of birds in the wild.

At least initially, removal of nestlings would almost certainly have a smaller impact on populations as a whole than would removal of a similar number of breeding-age adults. Owing to naturally higher juvenile mortality rates, many of the nestlings removed for trade would not have survived to maturity in the wild. As a management approach, collection of nestlings may therefore not be as detrimental to wild populations as indiscriminate harvest of all age groups. However, if a significant (albeit unknown) number of nestlings were removed from the same population for a number of years, then the population as a whole could be expected to decline.

For a limited number of species, trapping for export is known to have contributed to the decline of wild populations, and in a few cases has threatened species with extinction. The blue macaws are perhaps most frequently used to illustrate trade-induced population declines. The wild population of Hyacinth Macaw has declined dramatically owing to trapping for both domestic and international trade. The remaining population is severely threatened by the illegal trapping that continues despite trade controls (Munn *et al.*, 1989). Perhaps more dramatic is the case of the Spix Macaw (*Cyanopsitta spixii*), a species whose range and population size were very restricted even before human interference. The combination of habitat loss and trapping to supply specialised collectors appears to have destroyed the last known wild population of this species, of which only one specimen may remain in the wild (Juniper and Yamashita, 1991; Thomsen and Munn, 1988).

By contrast, it is important that trade may not have a significant impact on the populations of some smaller and generally more prolific species, even though absolute trade volumes appear high. The failure of eradication schemes for Red-billed Quelea *Quelea quelea*, an African passerine pest species in trade, illustrates this point. In 1985, approximately 120 million Red-billed Queleas were destroyed in conjunction with eradication schemes in Zimbabwe (La Grange, 1989).

4.2. EFFECTS OF TRADE ON ECOSYSTEMS AND AGRICULTURE

Concern over the effect of trapping on wild avian populations is heightened by the knowledge that many species are already declining in the wild as a result of habitat loss. In isolated cases, trapping for trade may even be contributing to disruption of habitat. Several studies in Argentina and Mexico have documented that collection of amazon nestlings for trade destroyed large numbers of suitable nesting sites across large areas of habitat (Bucher, 1990; Iñigo-Elias and Ramos, 1991).

There is also concern that declines in some wild populations could disrupt the ecosystems inhabited by that species. Little is understood of the role of birds in seed dispersal, pollination, predation and the food chain. Hence, it is impossible to predict the effects of a decline or the disappearance of a species upon the surrounding habitat.

Trade-related concerns also extend to the potential impact of exotic birds on the ecosystems and agriculture of importing countries. Several species popular in the pet trade, such as Rose-ringed Parakeet *Psittacula krameri* and Monk Parakeet *Myiopsitta monachus* are considered agricultural pests in one or more of their countries of origin. Both species have established feral populations in North America and Europe. If these populations are not controlled, feral birds could potentially threaten crops in these regions. By contrast, if trade even temporarily reduces populations of pest species in areas where they have increased in response to habitat modification (eg, irrigation, agriculture, and so on), then agriculture in those areas may benefit.

In many areas of the world, introduced species compete with native species, and in some cases cause the decline and even extinction of their wild populations (Long, 1981). If the decline of wild populations from harvesting for trade has far reaching effects on surrounding ecosystems, so may reductions arising from introduction of exotic species.

4.3. DISEASE THREATS POSED BY TRADE

Diseases associated with cage birds, both wild-caught and captive-bred, pose an additional threat to native species as well as to domestic poultry. The most frequently cited avian disease associated with the international bird trade, and perhaps the most dreaded by government personnel and poultry farmers, is viscerotropic velogenic Newcastle disease (also known as VVND; exotic Newcastle disease). This viral disease is found most frequently in birds imported from tropical regions, especially those of Southeast Asia and South and Central America. VVND spreads rapidly in captive flocks, and results in high levels of mortality among captive bird populations.

A second disease, the bacterial infection chlamydiosis (also known as psittacosis; ornithosis), can spread rapidly through a captive bird population, often resulting in tremendous losses. Chlamydiosis can also be spread from birds (including domestic poultry and native birds) to humans. This disease is readily cured in humans through administration of antibiotics. However, it can prove fatal if not diagnosed, with the elderly, small children and others with weaker immune systems.

In addition to threatening domestic bird flocks, and in some cases humans, diseased cage birds have the potential to transmit exotic diseases to indigenous avian populations. While escaped birds are the most obvious vectors of disease, infection could spread from captive birds held in outdoor aviaries to wild visitors, for instance sparrows and pigeons. With no means to treat wild avian populations for introduced diseases, the potential for harm to indigenous avian wildlife from exotic birds could be significant if such an event were to occur.

5. TRADE ECONOMICS

5.1. ECONOMICS AND HABITAT CONSERVATION

Rural people will do what they can to fulfill their basic needs of food, clothing, shelter and health care. Throughout the world, this includes clear-cutting and other types of habitat alteration to grow crops. Furthermore, many lesser-developed countries burdened with mounting international debts, will seek to convert natural resources into hard currency. At present, the only options available often involve radical alterations in local ecosystems, such as farming of cash crops, logging and mining to produce materials for export.

The bird trade and other types of wildlife utilisation are believed by many to provide a mechanism for generating income, both at the rural and national level, without substantially altering natural habitat. Sustainable wildlife utilisation is perhaps one of the most contentious junctures of conservation and economics, and therefore has become the focus of considerable study and debate.

The potential to derive income directly from relatively undisturbed areas could provide an incentive for maintaining existing habitat. Controlled harvests of native birds, in conjunction with more sophisticated wildlife management techniques, could form an important component of broader natural resource utilisation schemes. Such schemes could encompass consumptive, as well as non-consumptive (eg, tourism) utilisation of wildlife.

5.2. DISTRIBUTION OF REVENUES

Few studies have examined the economic importance of the international bird trade at various stages in the trade process. It was estimated that trappers in Neotropical countries earned US\$ 33 million (gross) for parrots exported from 1982 to 1986. Equally, middlemen earned US\$ 114 million (gross) from the sale of these same birds (Thomsen and Brautigam, 1991). The gross retail value of these birds in importing countries was estimated to be US\$ 1.6 billion.

Information on the economics of the bird trade in Irian Jaya, Indonesia shows that bird trappers sell birds to traders who collect them for subsequent sale to exporters (Nash, 1990). Exporters located in Jakarta then sell the birds to importers in the United States and other countries. Trappers receive only a small fraction (from US\$1-14 per bird, depending on species) of what wild-caught birds ultimately sell for in the United States (from US\$100-550 per bird, depending on species). However, this does not mean that trappers receive no financial benefit from this trade. In 1988, the average annual per capita income in Indonesia was US\$ 435, or approximately US\$ 8.37 per week (Hoffman, 1990). The average income of the rural population may have been considerably less. Therefore, the sale of even a few birds to a trader can provide significant income for rural trappers.

Depending on the species, exporters paid traders from two to six times the amount traders had paid to trappers for the same birds. Traders' net revenues would have been reduced by the cost of caring for and transporting the birds and mortality. It was estimated that from 5% to 40% of the birds purchased by traders died prior to being shipped to exporters (Nash, 1990). In addition, traders were not paid for any birds that died within 15 days of arrival at the exporters' facilities. Traders may have been paid for as little as one-third to one-half of the birds shipped to exporters, and traders speculate that exporters are claiming higher mortalities than actually occur (Nash, 1990).

Information regarding the prices paid to Jakarta exporters for birds was not available. However, import data collected by the United States Fish & Wildlife Service (USF&WS) gives some indication of the value of the birds. US importers are required to provide the USF&WS with the *declared value* of the wildlife they import. However, declared value has not been defined by USF&WS, and therefore may be variously interpreted. Interviews with USF&WS personnel and others indicated that importers most often declared the price paid for the birds as written on accompanying invoices (Meyers pers. comm; Mulliken and Thomsen, 1993). Declared values may also include the cost of transport and insurance (Meyers pers. comm). A comparison of average declared values for birds imported from Guyana with minimum export values established by the Guyana Government showed declared values to be an average of 33% higher than minimum export values. Therefore, it appears that USF&WS declared values provide a very general idea of the prices paid for birds by US importers.

USF&WS declared values suggest that US importers paid from one to eighteen times the price exporters paid to traders for birds, depending on the species traded. Exporters charged an average of eight times their own purchase price for the birds they exported. This price may or may not have included shipping and insurance costs, depending on the arrangement between the exporter and the importer (Clubb pers. comm; Meyers pers. comm). In addition, exporters may only have been paid for birds that survived transport and the minimum 30-day quarantine required by the US Government, again, depending on the arrangement between exporters and importers (Meyers pers. comm). Approximately 18% of the birds of the species commonly imported to the US died during transport to or quarantine in the United States.

Quarantine costs are paid by importers, who subsequently either act as wholesalers and/or retailers themselves, or sell birds to other entities for subsequent resale. Comparison of declared values with one importer's wholesale prices indicated that importers may receive from two and a

half to nine times more than the declared value of the birds. On average, the wholesale price for birds was five times the declared value.

These data demonstrate that trappers may receive less than 1% of the gross wholesale value of the birds they trap. The tremendous increase in the value of wild birds between trapping and final sale occurs in the process of several intermediate sales. Exporters and importers appear to realise the greatest increases in value (Swanson, 1992). However, without additional information, it is not possible to determine accurately the economic benefits realised at each stage in the trade.

5.3. TRADE ECONOMICS AND EXPORTING COUNTRIES

USF&WS declared value data also give a general indication of the potential monetary value of bird exports to range countries (Table 1). The total declared value of birds imported by the United States from Indonesia during 1986 and 1987 was approximately US\$ 4.4 million, with an average of \$78.75 per bird (Mulliken and Thomsen, 1993). Other countries with relatively high declared values, and relatively high values per bird, include Guyana, Honduras and Cameroon.

Not surprisingly, US declared values were highest for those countries exporting relatively large numbers of the more valuable species, such as larger psittacines. The total declared value of birds imported by the United States from Senegal, its largest supplier, was only US\$ 515,000 from 1986 to 1987, and averaged only US\$ 1.37 per bird. The relatively low sums received reflect Senegal's exports of finches and primarily smaller, less valuable psittacines. Similarly, Tanzania, second largest supplier to the United States, had an average declared value of only US\$ 3.08/bird for exports from 1986 to 1987.

Table 1: Declared value of US bird imports in US dollars by country of export, for top ten countries in 1986 and 1987)

Country	Declared value			Average value per bird exported
	1986	1987	TOTAL	
Indonesia	2,093,903	2,343,610	4,437,513	78.75
Argentina	1,185,085	1,350,597	2,535,682	13.99
Honduras	1,031,421	1,322,156	2,353,577	78.34
Guyana	1,435,357	451,064	1,886,421	96.06
Belgium	629,416	591,092	1,220,508	7.83
Cameroon	216,308	414,647	630,955	89.45
Tanzania	299,418	259,531	558,949	3.08
Senegal	317,464	197,742	515,206	1.37
Peru	233,817	147,945	381,762	14.17
South Africa	333,358	3,701	337,059	12.55

It is difficult to judge the importance of foreign currency generated by the bird trade to these and other countries. For example, it would not appear that exotic bird exports are critical to the overall economy of Indonesia, whose total exports during 1988 had an estimated value of US\$ 19.2 billion (Hoffman, 1990). The annual average declared value of US\$ 2.2 million for birds exported to the United States in 1986 and 1987 represents only 0.01% of total exports.

Bird exports appear to be relatively more important to the economy of Guyana. USF&WS data shows that the total declared value of birds exported to the United States from Guyana in 1986 was US\$ 1.4 million. This figure is equivalent to approximately 0.6% of the total value of Guyana's exports of US\$ 242 million for that year (Hoffman, 1990).

It could be argued that the trade is economically important to individuals, especially in rural areas. However, current export values show that the trade is not important to the national economies of most range countries. To address this situation, some take the view that range countries should establish policies to maximise the economic potential of their wild bird exports. This latter approach has been taken by the Governments of Surinam and Guyana.

Following a review of data available on the status and distribution of native bird species, the Government of Surinam established what appear to be conservative export quotas for 27 of their 30 indigenous parrot species (Thomsen and Bräutigam, 1991). Surinam's exporters are required to

secure a minimum amount of foreign currency for each indigenous bird exported, for example, a minimum of US\$ 140 in the 1989 figure for each specimen of Blue and Yellow Macaw. Revenues acquired from exports are required to be paid in foreign currency into the Government's central bank. If demand remains steady or grows, the exporter is effectively ensured a reliable source of income and Surinam a steady source of foreign currency.

As in Surinam, the Government of Guyana has set minimum acceptable values for birds exported. In addition, the Government has established an export duty system to provide revenues for wildlife conservation (Edwards, 1992).

5.4. THE EFFECTS OF SUPPLY AND DEMAND

If wild bird resources are not being managed sustainably, exports of live birds will be neither economically nor biologically viable in the long term. However, development of sustainable utilisation schemes may not be feasible without a significant investment of financial and human resources. These resources may be lacking in many range countries. Even when appropriate trapping levels have been established, the goal of sustainable wildlife utilisation may be undermined by a lack of adequate trade controls in both exporting and importing countries. The effectiveness of sustainable utilisation schemes could additionally be undermined by a decline in the demand for birds produced by such programmes.

An increase in commercial captive breeding of species popular in trade could decrease the demand for wild-caught birds, assuming that captive-bred birds were not prohibitively expensive. As a result, much of the economic value of the wild bird trade could be lost to range states. For example, non-range countries may breed Blue and Yellow Macaw in sufficient numbers to meet demand. At this point, the species will have lost nearly all value as an export commodity to the range countries of Guyana and Surinam (other range countries have prohibited commercial exports of this species). This in turn could reduce the potential of sustained use programmes in these countries. In the case of Guyana, this would reduce an important source of funds for wildlife conservation. Many contend that range countries have a right to maintain control of their resources, including their genetic resources. Hence, such a system of captive breeding might be construed as an example of developed countries exploiting the resources of lesser-developed countries, with little or no benefit to the latter.

The demand for wild-caught specimens of some species may have already reduced in the United States (Allen pers. comm). Indeed, US imports have fallen dramatically in the last several years. The comparison of US wholesale pricelists from 1988 and 1991 shows that this reduction in supply does not appear to have resulted in a corresponding increase in wholesale prices, as would be expected if demand had remained stable or increased.

Demand for wild-caught birds may also decline in response to increased import controls imposed by consumer countries, or trade controls established through international treaties. If current trade-ban initiatives are successful in the United States or the European Community, then the market for wild-caught birds will either decline or shift to other consumer countries. It may be expected that export values for many more common species of wild-caught birds will then decrease. In turn, this will result in a decline in the economic value of the birds to range states. The values of these birds within importing countries would be likely to increase, with a corresponding increase in the incentive for smuggling.

5.5. TRADE ECONOMICS AND IMPORTING COUNTRIES

Imports of wild-caught birds appear to be unimportant to the overall economies of the principal consumer countries. The total declared value of all birds imported into the United States from 1986 to 1987 was approximately US\$ 18.4 million (Mulliken and Thomsen, 1993). The average mark-up of imported birds calculated for Irian Jaya species suggests that the wholesale value of these birds could be roughly estimated at US\$ 68 million. This estimate does not account for losses due to mortality prior to sale. However, a relatively small number of importers and wholesalers are responsible for the vast majority of birds imported and revenues earned from their subsequent sale. Some 150 importers were listed in US import data for 1986 and 1987. Nevertheless, only 10 companies were responsible for 82% of all birds imported during those years (Mulliken and Thomsen, 1993).

The annual retail value of the US exotic bird trade and related product market has been estimated at US\$ 800 million (Dempsey, 1989). However, most trade comprises birds that were captive-bred within the United States, and products related to keeping and breeding birds, rather than to imported wild-caught birds (Mulliken and Thomsen, 1993). Therefore, declining availability of wild-caught specimens does not appear to have a severe impact on the pet industry as a whole. However, individual importers would obviously be affected. A similar situation appears to exist in Europe, where birds are also captive-bred in large numbers.

6. ANIMAL WELFARE AND TRADE-ASSOCIATED MORTALITY

Much of the current debate regarding the international trade in wild-caught birds revolves around the welfare and mortality of birds in trade. These related issues are a source of concern from the perspectives of both animal cruelty and conservation.

Native wild birds have been maintained historically in captivity as pets and for other purposes in many countries. More recently, exotic species have become readily available to those interested in keeping birds. At the same time a number of countries have prohibited the use of native species for this purpose. The resulting international trade in live birds has drawn the criticism of what appears to be a growing number of people, especially in the United States and northern Europe. Arguments are presented about the typical 'quality of life' or lifespan of a species in the wild. However, the fact that birds die or are unduly stressed as a result of trade and captivity has caused great concern. This concern is often not well understood by people in countries exporting wild birds. They are aware that species used locally as pets and traded internationally are often also consumed as food, killed for their feathers or exterminated in agricultural protection programmes (Mundy pers. comm; Redford and Robinson, 1987; Yost and Kelly, 1983). Hence, harvesting for export may not seem unethical, even if considerable mortality is involved.

Those concerned with conservation note that trade-associated mortality increases the number of birds removed from the wild to meet demand. As a result, this mortality may itself be considered a factor contributing to the decline of wild bird populations.

Trade-associated mortality has been linked to inadequate provision of food and water, exposure to extreme temperatures, lack of adequate ventilation, disease, aggression and other causes. It should be possible to alleviate many of the conditions leading to mortality given the current knowledge of avian husbandry. However, the material resources and/or incentives necessary to facilitate such changes are lacking in both exporting and importing countries.

Requirements for the care and health of birds trapped for export are, for all practical purposes, limited to those imposed by exporting countries. Similarly, the welfare of birds following import is the responsibility of the governments of importing countries. CITES only specifies conditions for ensuring the welfare of birds and other animals during international transport.

Unfortunately, there is very little information available on a number of key parameters. These include: mortality during the various stages of the trade process; conditions contributing to mortality; or, species-sensitivity to trade-associated stress. As a result, much of the discussion on trade-associated mortality has been based on anecdotal information. Information on pre-export mortality is especially scarce. The available data appear to be based primarily on conversations with traders and isolated observations of birds during the trapping, transport and/or holding process.

6.1. PRE-EXPORT MORTALITY

As noted above, establishing acceptable levels of care and mortality for birds intended for export is the responsibility of the governments of exporting countries. Importing countries may be able to influence the standards applied immediately prior to export. They may make the following requirements: birds are held for a set amount of time prior to export; birds pass a veterinary inspection prior to export; and, a reaction to instances where animals arriving from another country are not shipped in compliance with domestic and/or CITES transport requirements.

Estimates of pre-export mortality rates have varied from study to study and country to country. A study of exports from India estimated that 5% of the birds trapped for international trade died prior to export (Inskipp, 1983). An analysis of 1978 trade data estimated that between 45% and 62% of

the birds trapped for export from Senegal died prior to export (Bruggers, 1982). Furthermore, an average of 7% of the birds trapped for export from South-West Africa/Namibia died prior to export (Panagis and Stutterheim, 1984). Around 55% of Mexican parrots trapped for trade died prior to being sold in that country (Iñigo-Elias and Ramos, 1991). More recent estimates suggest that 30% to 40% of some species trapped for trade in Irian Jaya died between trapping and shipping to Jakarta for export (Nash, 1990).

The available estimates of pre-export mortality suggest that the pressure on wild populations from international trade is much higher than indicated by trade figures collected by exporting countries, the TRAFFIC Network and others. Most national trade control mechanisms are related to the number of birds exported, rather than the number removed from the wild. Hence, those birds dying prior to export may not figure in overall management schemes, if such schemes exist at all.

Strictly speaking, it is not important for the remaining wild population whether a specimen lives or dies, once it has been removed from the wild. Therefore, pre-export mortality and other trade-associated mortality are not important from a biological perspective unless it causes harvests for trade to exceed sustainable levels.

Some species, such as the more prolific and widespread African passerines, have reproductive strategies that can readily compensate for the loss of large numbers of individuals. Therefore, it could be argued that trade-associated mortality for these species is of little biological importance. This is especially true for species subject to eradication campaigns in their countries of origin. For these species, reducing trade-associated mortality could simultaneously reduce the number of specimens trapped to meet existing demand, but would be unlikely to influence significantly wild population levels. However, the cost of reducing mortality (eg, treating for infectious disease) might be outweighed by the ease (and low cost) of collecting sufficient birds to compensate for losses.

The situation is quite different for some of the rarer, larger or otherwise more valuable species, including many psittacines. Demand for these species may be equal to or greater than the number of birds currently available in international trade. Therefore, pre-export mortality for these species appears to be economically as well as biologically much more significant. Reduction of pre-export mortality could increase the number of birds available for export and/or reduce the number of birds taken from the wild to maintain existing supply levels.

Because financial incentives exist to reduce mortality of more highly valued species, greater attention may be paid to their welfare prior to export. The relatively lower transport mortality rates for many psittacine vs. passerine species may partially reflect better care received prior to export (Mulliken and Thomsen, 1993).

6.2. ANIMAL WELFARE AND MORTALITY DURING INTERNATIONAL TRANSPORT

As noted above, conditions of international transport are subject to CITES controls. The Articles of the Convention require exporting Management Authorities to be...*satisfied that any living specimen will be so prepared and shipped so as to minimise the risk of injury, damage to health or cruel treatment.* CITES transport guidelines were accepted at the second meeting of the Conference of the Parties. The Live Animals Regulations of the International Air Transport Association (IATA) were accepted as meeting CITES requirements for air transport at the fifth meeting of the Conference of the Parties (Resolution Conf. 5.18).

CITES Parties recognised that many countries were not fully implementing CITES transport requirements. A Resolution called for the institution of a checklist to monitor the welfare of live animals prior to and following shipment, and this was adopted at the fourth meeting of the Conference of the Parties (Resolution Conf. 4.21). However, the Parties failed to implement this checklist, which was subsequently amended during both the sixth (Resolution Conf. 6.24) and seventh (Resolution Conf. 7.13) meetings of the Conference of the Parties. Very few Parties, including some of those that were the checklist's strongest proponents, are known to have implemented the checklist requirement.

A number of countries have adopted national animal welfare legislation to protect the welfare of animals in captivity. In some cases, domestic animal welfare legislation also covers international transport of animals being imported, exported or trans-shipped through the country in question. In

addition, some countries have developed domestic rules specific to the transport of wildlife and/or domestic animals. The European Community is currently considering live animal transport regulations for implementation by member countries, and the United States has recently revised its humane transport regulations for wildlife imported into the country.

The most comprehensive data regarding transport-associated mortality have been compiled for imports into the United States and the United Kingdom. Data from US Department of Agriculture (USDA) show that approximately 4.6% of all birds shipped from 1980 to 1985 were dead on arrival (DOA) in the United States (Nilsson, 1989). After reaching a peak of 7.2% in 1982, DOA rates declined to 3.8% in 1986 and 3.4% in 1988 (Mulliken and Thomsen, 1993; Nilsson, 1989). Data available from the UK Ministry of Agriculture, Fisheries and Food (MAFF) show that 3% of all birds imported into the United Kingdom from 1976 to 1989 were DOA. Mortality upon arrival reached its highest point in 1976, when 4.9% of imported birds were DOA, then fluctuated around 3% in the following years. The 1989 DOA rate of 2.2% was lower than that of any other year.

Mortality rates for large, long-lived and expensive birds, such as some parrot species, are generally lower than for smaller, inexpensive birds, such as some passerine species. A preliminary review of mortality data for exotic bird imports into the United States suggests a relationship between mortality during transport and the following: the conditions of transport; the birds' physiology and behaviour; and, the economic value of birds in trade.

It appears that the relatively low mortality rates for many of the larger species during transport reflect differences in physiology. Larger birds generally have more efficient thermoregulatory capabilities and greater energy reserves. These increase their ability to survive stresses such as temperature variation and/or a lack of food during transport. The relatively long lifespan, and associated low natural mortality rates, of larger birds also probably reflect the lower mortality rates during transport of many larger species. By contrast, smaller species lack such reserves and have an average lifespan of only one or two years in the wild. Hence, small species exhibit relatively high mortality rates during transport. In addition, species with highly specialised feeding needs, such as nectar feeders, more commonly suffer relatively high mortality.

Transport mortality rates are also almost certainly linked to the value of the birds being shipped, which again is related to the species in trade. Because air freight charges are generally based on the volume rather than the weight of a shipment, there is an incentive to pack smaller, less valuable species in greater densities (Mulliken and Thomsen, 1993). This increases the potential for smothering or trampling during shipment, and appears to be a factor in relatively higher mortality rates for some passerines and smaller psittacines. For very valuable species, it appears that much greater care is taken to reduce the potential for mortality during transport.

6.3. MORTALITY FOLLOWING IMPORT

As noted above, the welfare of birds following arrival in the country of import is the responsibility of national governments rather than of CITES. Very little information is available regarding the welfare and mortality rates of birds once they have been imported. Data collected during quarantine required by the United States and the United Kingdom provides some of the only quantitative information available on this subject.

As with mortality during transport, variation in the mortality rates for species during quarantine probably reflects the physiology and value of the species in trade. Infectious disease also appears to be a significant cause of mortality during quarantine.

According to information provided by USDA, 12.8% of all birds imported into the United States from 1986 to 1988 died during the 30-day quarantine period required by US law (Mulliken and Thomsen, 1993). The percentage of birds dying during quarantine (DDQ) declined from 14.7% in 1986 to 10.9% in 1988. According to MAFF statistics, 11.2% of all birds imported into the United Kingdom during 1988 and 10.6% of those imported during 1989 died during the 35-day quarantine period required in that country.

6.4. MORTALITY AND THE SOURCE OF BIRDS IN TRADE

As noted above, the physiology and value of a species in trade appear important factors in determining survival rates. These two factors may outweigh other factors, such as whether birds are captive-bred or wild-collected. According to USDA data, only 0.13% of the approximately 62,000 cockatoos of the genus *Cacatua* imported into the United States from 1986 to 1988 were DOA. By comparison, 0.41% of the approximately 64,000 Cockatiels, an inexpensive species exclusively captive-bred for trade, imported during that period were DOA. Cockatoos had an overall quarantine mortality rate of 3.23%, less than one-half that for captive-bred Cockatiels, which had an average DDQ rate of 7.94%. The average DOA rate for imported Amazons, 1.05%, was similar to that for captive-bred Rosellas, 1.02%. While the DDQ rate for imported Amazons was 10.77%, it was 20.41% for imported captive-bred Rosellas.

Unfortunately, there are insufficient data available to compare the mortality rates of wild-caught and captive-bred specimens of the same species. It seems likely that captive-bred specimens would be more likely to survive the stress of transport and quarantine than wild-caught specimens of the same species, due to their generally higher values and acclimation to captivity. However, the effects of artificial diets, inbreeding and other conditions often associated with captive production may be shown to reduce hardiness of captive-bred birds. Furthermore, competition for food and other environmental stresses are all but eliminated in captivity. Hence, captive production will allow weaker birds that would have died in the wild to survive, and therefore to pass along their weaknesses to subsequent generations.

6.5. POST-QUARANTINE MORTALITY

Although few if any data have been collected on post-quarantine mortality in imported birds, information available from the United States indicates that mortality may be significant, at least for some species (Mulliken and Thomsen, 1993). Furthermore, for a few species, as many birds died in the two months following release from quarantine as died during the one-month quarantine period (Mulliken and Thomsen, 1993).

There are similarly few data available to determine mortality of wild-caught birds following purchase by an end-user. No comprehensive studies have been performed to determine the lifespan of wild-caught birds in captivity. Similarly, few studies have quantified the average lifespan of birds in the wild. Because bird owners may be unfamiliar with avian care and behaviour, it seems likely that some birds die in captivity from preventable causes. At the same time, many captive birds are relieved of many pressures that they would face in the wild, including competition for food resources and predation, and may therefore have longer individual lifespans.

7. CAPTIVE BREEDING

Captive breeding is being promoted by some as a viable and even preferable alternative to removing birds from the wild to supply the pet trade. Indeed, a number of NGOs in the United States and the European Community have advocated that international trade in birds for the pet market be limited to captive-bred specimens. Such an approach would almost certainly have the initial effect of reducing the harvest of wild birds for international trade, and thereby alleviate the pressure on certain wild populations detrimentally affected by trade.

Captive breeding could potentially provide an important source of income to range countries. However, at present captive breeding operations are located almost exclusively in consumer countries. The difficulties of obtaining the material resources and expertise necessary to establish successful breeding programmes are likely to limit captive breeding operations in lesser-developed countries for some time to come. As a result, it seems likely that captive breeding will offer little if any economic benefit to those countries with wild populations of species in trade. This is despite the fact that the 'raw material' for such breeding originated within their borders. Such a situation might be alleviated somewhat if trade in wild-caught birds for the avicultural market was to continue, in conjunction with a strong demand from that market. Range countries could theoretically capitalise on the avicultural demand for birds by severely restricting exports and greatly increasing the export price of individual birds.

Whether in range states or consumer countries, captive breeding does not address a more fundamental problem posed to wild bird populations. The most important threat facing many bird populations is habitat

loss through conversion of wild lands for agriculture and other income-producing purposes. Captive breeding offers little incentive to maintain bird populations in their natural habitat. Instead, captive breeding operations in consumer countries effectively reduce the potential for individuals in range countries to produce revenues from their wildlife resources. Therefore, captive breeding operations remove what could be an important incentive to protect remaining habitat.

Captive breeding would address many of the current animal welfare concerns associated with trapping, trading and keeping wild animals as pets. Advocates of captive breeding assume that captive breeding facilities and transport of captive-bred birds would involve more humane conditions than those presently associated with the wild-bird trade. As noted above, US trade data show that some species of wild-caught birds in trade exhibit lower mortality during transport and quarantine than do some species supplied solely by captive breeding.

Many advocates of limiting the pet trade to captive-bred birds assert that these birds are accustomed to humans. Therefore, they will not be prone to the same level of stress found in wild-caught birds. It is important to note that habituation to humans, whether of wild-caught or captive-bred birds, depends to a large extent on the age of the birds and regularity with which they are handled. Wild-caught birds removed from the wild as chicks are likely to respond to humans in a manner similar to that of captive-bred birds handled by humans at the same age.

Finally, even if the knowledge, resources and technology necessary for captive breeding were readily available, it would be some time before aviculture could meet the current demand for many bird species.

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2. CITES AND THE TRADE IN WILD-CAUGHT BIRDS

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1. INTRODUCTION

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) entered into force in July 1975. Tanzania became a Party on 27 February 1980, and is one of 112 countries that have agreed to regulate their wildlife trades in accordance with the provisions of the Convention. This presentation will focus on the basic fundamentals of CITES as they relate to the trade in wild-caught birds. Much of the material presented is well known, and is discussed in more detail elsewhere (Bräutigam, 1989). However, it is worth reviewing the Convention as a basis for discussions taking place at this workshop.

2. BASIC CONCEPTS

2.1. ADMINISTRATIVE INSTITUTIONS

CITES regulates international trade in wildlife through a system of permits and certificates that are issued by designated government authorities when certain conditions have been met. Parties are obliged to create two new institutions (Article IX), as follows:

- a CITES Management Authority, with responsibilities for issuing permits and certificates; and,
- a CITES Scientific Authority, to provide advice and scientific expertise during the permit-issuing process and to monitor the effects of trade on the status of species over time.

In Tanzania, the Wildlife Department is the designated Management Authority and the Serengeti Wildlife Research Unit is the Scientific Authority.

2.2. SPECIES AND THE CITES APPENDICES

Under the Convention, *species* means any species, subspecies, or geographically separate population (Article I). Species that fall under the purview of CITES are divided into three appendices.

Appendix I includes species that are *threatened with extinction which are or may be affected by trade* (Article II). Only two indigenous Tanzania bird species are currently listed among the 146 avian taxa on Appendix I, the Imperial Eagle and the Peregrine Falcon (see Table 1).

Appendix II includes *all species which although not necessarily now threatened with extinction may become so unless trade...is subject to strict regulation in order to avoid utilization incompatible with their survival* (Article II). Appendix II also contains the so-called 'look-alike' species, which are included because of their close resemblance to other listed species. Many Tanzanian bird groups and species are found among the 1,214 taxa listed on Appendix II. These include all diurnal birds of prey (other than the two species on Appendix I), all owls, all but one species of parrot, all cranes, all bustards, both flamingo species, and five species of turacos (see Table 1).

Appendix III includes species that are subject to regulation within the jurisdiction of a Party and for which the cooperation of other Parties is needed in order to prevent or restrict their exploitation (Article II). Although Tanzania has not listed any indigenous bird species on Appendix III, many birds native to the country have been listed by Ghana. These include one heron, three egrets, two storks, two ibises, eleven ducks and geese, eight pigeons and doves, one parrot, one turaco, and 42 passerine species.

2.3. CONDITIONS FOR THE ISSUANCE OF PERMITS AND CERTIFICATES

2.3.1. Appendix I Species: Under CITES, Appendix I species are prohibited from commercial international trade. Trade for non-commercial purposes is only allowed under exceptional circumstances and requires both importing and exporting countries to use CITES permits (Article III). (As there is no evidence of trade in Appendix I bird species from Tanzania, details of the conditions for legal trade in species on Appendix I is not made here.)

2.3.2. Appendix II Species: Commercial trade in Appendix II species is allowed with a CITES export permit. Before an export permit is granted, the Convention obliges the Scientific Authority of

an exporting country to advise the Management Authority *that such export will not be detrimental to the survival of that species* (Article IV[2a]). This requires a basic level of knowledge on the status of species in the wild. In addition, the Management Authority is required to establish *that the specimen was not obtained in contravention of the laws of that State for the protection of fauna and flora* (Article iv[2b]), and *that any living specimen will be so prepared and shipped as to minimise the risk of injury, damage to health or cruel treatment* (Article IV[2c]). This requirement clearly links CITES with animal welfare concerns regarding ensuring humane conditions of captivity and transport. An export permit should only be issued once all of these conditions have been met.

Table 1: A list of Tanzanian species on Appendices I and II of CITES

Scientific Name	Common name	Appendix
Ostrich		
<i>Struthio camelus</i>	Ostrich	II
Shoebill		
<i>Balaeniceps rex</i>	Whale-headed stork	II
Flamingos		
<i>Phoeniconaias minor</i>	Lesser Flamingo	II
<i>Phoenicopterus ruber</i>	Greater Flamingo	II
Ducks, Geese		
<i>Sarkidiornis melanotos</i>	Knob-billed Duck	II
Secretary Bird		
<i>Sagittarius serpentarius</i>	Secretary Bird	II
Birds of Prey		
<i>Gypohierax angolensis</i>	Palm-nut Vulture	II
<i>Gyps africanus</i>	African White-backed Vulture	II
<i>Gyps rueppellii</i>	Ruppell's Vulture	II
<i>Neophron monachus</i>	Hooded Vulture	II
<i>Neophron percnopterus</i>	Egyptian Vulture	II
<i>Torgos tracheliotus</i>	Lappet-faced Vulture	II
<i>Trionocephus occipitali</i>	White-headed Vulture	II
<i>Gypaetus barbatus</i>	Lammergeyer	II
<i>Circus aeruginosus</i>	Eurasian Marsh Harrier	II
<i>Circus macrourus</i>	Pallid Harrier	II
<i>Circus pygargus</i>	Montagu's Harrier	II
<i>Circus ranivorus</i>	African Marsh Harrier	II
<i>Polyboroides radiatus</i>	Harrier Hawk	II
<i>Circaetus cinerascens</i>	Banded Snake Eagle	II
<i>Circaetus cinereus</i>	Brown Snake Eagle	II
<i>Circaetus fasciolatus</i>	Southern Banded Snake Eagle	II
<i>Circaetus gallicus</i>	Short-toed Snake Eagle	II
<i>Terathopius ecaudatus</i>	Bateleur	II
<i>Accipiter melanoleucus</i>	Great Sparrowhawk	II
<i>Accipiter minullus</i>	Little Sparrowhawk	II
<i>Accipiter nisus</i>	Eurasian Sparrowhawk	II
<i>Accipiter ovampensis</i>	Ovampo Sparrowhawk	II
<i>Accipiter rufiventris</i>	Rufous Sparrowhawk	II
<i>Accipiter tachiro</i>	African Goshawk	II
<i>Aquila heliaca</i>	Imperial Eagle	I
<i>Aquila nipalensis</i>	Steppe Eagle	II
<i>Aquila pomarina</i>	Lesser Spotted Eagle	II
<i>Aquila rapax</i>	Tawny Eagle	II
<i>Aquila verreauxi</i>	Verreaux's Eagle	II
<i>Aquila wahlbergi</i>	Wahlberg's Eagle	II
<i>Butastur rufipennis</i>	Grasshopper Buzzard	II
<i>Buteo augur</i>	Augur Buzzard	II
<i>Buteo buteo</i>	Common Buzzard	II
<i>Buteo rufinus</i>	Long-legged Buzzard	II
<i>Buteo tachardus</i>	Mountain Buzzard	II
<i>Hieraetus dubius</i>	Ayre's Hawk Eagle	II
<i>Hieraetus pennatus</i>	Booted Eagle	II
<i>Hieraetus spilogaster</i>	African Hawk Eagle	II
<i>Kaupifalco monogrammicus</i>	Lizard Buzzard	II
<i>Lophaetus occipitalis</i>	Long-crested Eagle	II
<i>Melierax gabar</i>	Gabar Goshawk	II
<i>Melierax metabates</i>	Dark Chanting Goshawk	II
<i>Melierax poliopterus</i>	Pale Chanting Goshawk	II
<i>Polemaetus bellicosus</i>	Martial Eagle	II
<i>Stephanoaetus coronatus</i>	Crowned Eagle	II

Scientific Name	Common name	Appendix
<i>Milvus migrans</i>	Black Kite	II
<i>Aviceda cuculoides</i>	Cuckoo Hawk	II
<i>Pernis apivorus</i>	Honey Buzzard	II
<i>Elanus caeruleus</i>	Black-shouldered Kite	II
<i>Macheiramphus alcinus</i>	Bat Hawk	II
Osprey		
<i>Pandion haliaetus</i>	Osprey	II
Falcons		
<i>Falco alopex</i>	Fox Kestrel	II
<i>Falco amurensis</i>	Eastern Red-footed Falcon	II
<i>Falco ardosiaceus</i>	Grey Kestrel	II
<i>Falco biarmicus</i>	Lanner Falcon	II
<i>Falco cherrug</i>	Saker Falcon	II
<i>Falcon chicquera</i>	Red-necked Falcon	II
<i>Falcon concolor</i>	Scooty Falcon	II
<i>Falcon cuvieri</i>	African Hobby	II
<i>Falcon dickinsoni</i>	Dickinson's Kestrel	II
<i>Falcon eleonorae</i>	Eleonora's Falcon	II
<i>Falcon fasciinucha</i>	Taita Falcon	II
<i>Falcon naumanni</i>	Lesser Kestrel	II
<i>Falcon peregrinus</i>	Peregrine Falcon	I
<i>Falcon rupicoloides</i>	White-eyed Kestrel	II
<i>Falcon subbuteo</i>	Hobby	II
<i>Falco tinnunculus</i>	Kestrel	II
<i>Falco vespertinus</i>	Red-footed Falcon	II
<i>Polihierax semitorquatus</i>	Pygmy Falcon	II
Cranes		
<i>Balearica regulorum</i>	Crowned Crane	II
<i>Grus carunculatus</i>	Wattled Crane	II
Bustards		
<i>Eupodotis hartlaubii</i>	Hartlaub's Bustard	II
<i>Eupodotis melanogaster</i>	Black-bellied Bustard	II
<i>Eupodotis ruficristata</i>	Buff-crested Bustard	II
<i>Eupodotis senegalensis</i>	White-bellied Bustard	II
<i>Neotis denhami</i>	Denham's Bustard	II
<i>Otis kori</i>	Kori Bustard	II
Parrots		
<i>Agapornis cana</i>	Grey-headed Lovebird	II
<i>Agapornis fischeri</i>	Fischer's Lovebird	II
<i>Agapornis personata</i>	Yellow-collared Lovebird	II
<i>Agapornis pullaria</i>	Red-headed Lovebird	II
<i>Poicephalus cryptoxanthus</i>	Brown-headed Parrot	II
<i>Poicephalus guliemi</i>	Red-fronted Parrot	II
<i>Poicephalus meyeri</i>	Brown Parrot	II
<i>Poicephalus robustus</i>	Brown-necked Parrot	II
<i>Poicephalus rufiventris</i>	Orange-bellied Parrot	II
<i>Psittacula krameri</i>	Rose-ringed Parakeet	II
<i>Psittacus erithacus</i>	Grey Parrot	II
Turacos		
<i>Tauraco fischeri</i>	Fischer's Turaco	II
<i>Tauraco hartlaubi</i>	Hartlaub's Turaco	II
<i>Tauraco livingstonii</i>	Livingstone's Turaco	II
<i>Tauraco schalowi</i>	Schalow's Turaco	II
<i>Tauraco schuetti</i>	Black-billed Turaco	II
Owls		
<i>Tyto alba</i>	Barn Owl	II
<i>Tyto capensis</i>	Cape Grass Owl	II
<i>Asio capensis</i>	African Marsh Owl	II
<i>Bubo africanus</i>	Spotted Eagle Owl	II
<i>Bubo capensis</i>	Cape Eagle Owl	II
<i>Bubo lacteus</i>	Verreaux's Eagle Owl	II
<i>Bubo poensis</i>	Fraser's Eagle Owl	II
<i>Ciccaba woodfordii</i>	African Wood Owl	II
<i>Glaucidium capense</i>	Barred Owlet	II
<i>Glaucidium perlatum</i>	Pearl-spotted Owlet	II
<i>Otus leucotis</i>	White-faced Scops Owl	II
<i>Otus rutilus</i>	Madagascar Scops Owl	II
<i>Otus scops</i>	Scops Owl	II
<i>Scotopelia peli</i>	Pel's Fishing Owl	II

Under the Convention, the Scientific Authority is also obliged to monitor *both the export permits granted by that State for specimens of species included in Appendix II and the actual exports of such specimens*. This monitoring function is to ensure that species are maintained throughout their range at a level consistent with their role in the ecosystems in which they occur, and well above the level at which they might become eligible for inclusion in Appendix I.

The ability of many countries of origin to make the required non-detriment finding and to fulfil their monitoring requirements under Article IV of the Convention has been an important issue at CITES for some time. As early as the second Conference of the Parties, in 1979, concerns were expressed that trade in certain Appendix II and III species may be detrimental to their survival. Resolution Conf. 2.6 (Trade in Appendix II and III Species) specifically urged importing parties to apply stricter domestic measures to curtail such trade where it could be identified. In 1983, it was recognised that many countries of origin lack the necessary scientific data on the status of heavily-traded species to adequately make the non-detriment finding. Hence, the Conference of the Parties approved Resolution Conference 4.7 (Regulation of trade in species in Appendix II and implementation of Article IV[3]) to identify those Appendix II species that are subject to significant levels of international trade and for which there is insufficient scientific data to ensure sustainability. The following investigation, commonly known as the CITES Significant Trade Study, identified four Appendix II bird species that were *problems* and 46 species for which trade could be a *possible problem*. All of the former and two of these latter species have been moved to Appendix I; none were indigenous to Tanzania. Finally, in a related development, in 1990, the CITES Animals Committee formed a Working Group on Bird Trade to examine the international trade in wild-caught birds with respect to non-detriment findings and issues of sustainability. These developments have all been discussed elsewhere (Mulliken *et al.*, 1992).

2.3.3. Appendix III Species: Commercial trade in Appendix III species is also permitted under CITES. Where trade originates directly from the Party that listed the species, an export permit can be issued when the Management Authority is satisfied that the specimens were not obtained in contravention of the laws of that State and that the specimens will be prepared and shipped as to minimize the risk of injury, damage to health or cruel treatment (Article V). All other countries must issue a certificate of origin for the export of Appendix III species. In Tanzania, this is achieved through the issuance of an export permit, either a CITES permit or a Trophy Export Certificate, that identifies the specimens as having originated in the country.

2.4 CITES ANNUAL REPORTS

Among the administrative obligations CITES imposes upon contracting states is the maintenance of accurate trade records for species listed in the Appendices (Article VIII). These data should include the names and addresses of exporters and importers, the number and type of permits or certificates granted, the importing countries, the number of specimens, and the names of species. Annual reports that summarise these data are to be submitted to the CITES Secretariat on an annual basis. A number of resolutions have been approved by the Conference of the Parties to standardise the system and format of CITES trade statistics and to establish the guidelines for the preparation of CITES annual reports. Since joining CITES, Tanzania has issued annual reports on only four occasions.

3. CONCLUSIONS

This brief overview aims to set in context for workshop participants, the obligations to which Tanzania has committed by becoming a signatory to CITES. As the premier treaty regulating international trade in wildlife specimens, its intent is to achieve conservation of species within a framework of protection, where necessary, and of sustainable utilisation where population numbers allow. In expressing its wish to reform its practices with respect to the trade in wild-caught birds, Tanzania should seek to improve a number of its permitting and monitoring procedures, as a basis upon which to better regulate its trade.

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3. PERCEPTIONS AND MANAGEMENT OF THE WILD BIRD TRADE IN THE UNITED REPUBLIC OF TANZANIA

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1. LEGAL AND ADMINISTRATIVE STRUCTURE

1.1. GOVERNMENT POLICY

The policy of the Government of Tanzania is to use wildlife sustainably, according to the Director of Wildlife. To this end, Government has established a number of control mechanisms and procedures designed to provide for sustainable harvest of wild species of birds for international trade (see section 2). The Wildlife Department is strongly committed to conserving Tanzania's wildlife for Tanzanians and for the larger world community. However, there is equally strong desire to use wildlife resources as a means of generating foreign exchange to finance wildlife management programmes. The Government has no desire to stop exports of wild-caught birds.

Even a few years ago Government officials reported that wildlife conservation was not considered a high priority within the Government. However, there is now a broad base of support, with the implication that wildlife can earn desperately needed foreign exchange from tourism and hunting fees. There is a general public awareness of the importance of wildlife and concern for conserving the environment.

1.2. LEGAL FRAMEWORK

The Wildlife Conservation Act of 1974 provides the legal authority for Tanzania's implementation of CITES. This Act also introduces rules regarding transport conditions for live animals, including cage size standards and other requirements. While the Act pre-dates the country becoming a signatory to the Convention, it specifically delegates authority for wildlife to the Director of Wildlife and to the Minister responsible for wildlife. Functionally, changes in the Convention, such as new listings of species, are accommodated under the law by the issuance of a Government Notice. Such notices are prepared by the Director, passed to the Minister, and, with his endorsement, circulated to the Cabinet for final approval. Once approved, they serve as law.

1.3. ALLOCATION OF GOVERNMENT RESPONSIBILITY

Government authority for management and conservation of wildlife is vested in the Wildlife Department in the Ministry of Tourism, Natural Resources and Environment. The Ministry includes four other Departments in addition to the Wildlife Department: Fisheries (both freshwater and marine); Forestry; Environment; and Tourism. The Environment Department was added in November 1990. Prior to that time it had been organised as an independent Commission. The Directors of the five Departments meet regularly to ensure coordination and resolve conflicts of authority in implementing government policies.

The Wildlife Department is divided into six sections: Licensing; Research, Training and Extension; Development and Management; Tourist Hunting; Preventive Actions (including the Anti-Poaching Unit); and Administration and Finance. The Wildlife Department employs a total of 4700 people. However, only 40 are located at headquarters in Dar es Salaam. Furthermore, 1905 Wildlife Department employees located in individual districts are presently required to report to their individual District Executive Directors, appointed by the President. Steps are being taken to change the present reporting system. In future it is hoped that Wildlife Department employees in the districts will report directly to the Wildlife Department.

The Wildlife Department is the designated CITES Management Authority. The Director of Wildlife is the head of the Management Authority, with a CITES Unit reporting directly to him. There are two CITES offices in Tanzania, one in Dar es Salaam, and one in Arusha. The Arusha office reports to the office in Dar es Salaam.

The CITES Unit is responsible for all licensing of wildlife capture and export (whether of CITES-listed species or not). In future, the Director of Wildlife hopes to establish an investigative arm of the CITES Unit to ensure that licence holders are operating within new regulations for sustainable wildlife use currently being developed.

The Ministry of Agriculture and Livestock Development and the Ministry of Finance (which includes the Customs Department) also have some dealings with wildlife-related matters. If there were a conflict between the Ministry for Agriculture and Livestock Development and the Wildlife Department, the latter would reportedly have precedence. This precedence appears to stem from the fact that the Wildlife Department took the lead in seeking Tanzanian membership in CITES. Such precedence might be important, for example, with respect to a CITES-listed species that was considered an agricultural pest. Even if a non-CITES species was involved, the Wildlife Department would be contacted before a decision was taken by the Ministry for Agriculture and Livestock Development. However, the Wildlife Department would find it difficult to argue for the continued protection of a non-CITES species being considered for notification as an agricultural pest unless that species had some export value.

At present, the Wildlife Department in Tanzania can best be described as being in a state of transition. Considerable effort is being directed at acquiring the technical capacity to better manage wildlife resources. Until the Department has the technical basis for implementing more rigorous controls, it is taking what steps it can to provide the best controls possible within the context of broader government policies.

The Serengeti Wildlife Research Unit, based in Arusha, is the designated CITES Scientific Authority. However, it does not fulfil functions required by the Convention. In the past year, plans have been developed to establish a formal Scientific Authority within the Ministry of Tourism, Natural Resources and Environment. Funds are needed to establish the unit. When formed, the Scientific Authority would advise the Management Authority as well as other Sections and Departments in the Ministry.

1.4. BUDGET AND REVENUES

The Wildlife Department submits an annual budget to the Minister, and the Ministry budget is submitted to the Cabinet for approval. The Department may also apply for special project funding from the Tanzania Wildlife Protection Fund (TWPF). TWPF derives its income from a percentage of hunting licence fees and CITES export permit fees, and from penalties paid in cases of non-compliance with wildlife regulations and trade controls. The percentage allocated to the fund varies depending on the activity and source. At present between 10% and 25% of the sport hunting licence fees, depending on the species involved, go to TWPF. Hunting fee income in 1990 was approximately Tsh 565 million (US\$ 2.5 million), of which approximately 25% was deposited in TWPF.

Seventy-five per cent of the CITES export permit fee of Tsh 600, or US\$ 2.65 per permit, goes to TWPF. The total number of export permits issued is difficult to calculate. However, in one example in 1989, 161 permits were issued for export of Fischer's Lovebird *Agapornis fischeri*, providing Tsh 96,600 (US\$ 427) income, of which TWPF received Tsh 72,450 (US\$ 320).

All other funds generated through licence and permit fees go to the Treasury. The Wildlife Department is working with the Government Planning Commission to try to retain a larger percentage of the funds earned from use of wildlife.

TWPF can only be used to support activities related to the conservation of wildlife and the environment. When special needs arise within the Wildlife Department, project proposals are submitted to the Board of Trustees of TWPF. The Director of Wildlife serves as the Chief Executive Officer of the Fund. In the past TWPF has supported purchase of vehicles, training and uniforms for game scouts; field surveys; travel to meetings; and even printing of CITES export permits.

1.5. OTHER SOURCES OF CONSERVATION SUPPORT

The actions of the Wildlife Department over the past two years have demonstrated a desire to collaborate with conservation and development organisations where technical assistance is needed. A number of such organisations are implementing programmes in Tanzania. The major organisations are:

- World Wide Fund for Nature (WWF) has recently established an office in Tanzania, based in Dar es Salaam, to oversee the implementation of WWF-funded projects in the country. The

WWF Tanzania office is co-managing a US Agency for International Development (USAID) project being implemented by the Wildlife Department (see 2.2). WWF staff in Tanzania are concerned about the need for improved monitoring of wild bird exports to ensure control and a fair level of income to the country.

- IUCN - The World Conservation Union oversees its projects in Tanzania from its regional office in Nairobi. The most important project presently being implemented is in the Serengeti National Park. This project gives attention to developing mechanisms for sharing revenues from wildlife-use schemes with local villagers.
- African Wildlife Foundation is co-managing the USAID funding allocated to the Wildlife Department (see also under WWF and in 2.2).
- Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) has a large on-going project in the Selous Game Reserve focusing on rural community management of wildlife.
- Frankfurt Zoological Society supports conservation projects in Tanzania, particularly the aerial monitoring undertaken by the Tanzania Wildlife Conservation Monitoring (TWCM) project.
- The Wildlife Conservation Society of Tanzania is the principal national conservation organisation in the country. This organisation has adopted a policy of helping the Wildlife Department to gain better control over wildlife utilisation. However, as noted by the Wildlife Department, the Society believes that the wild bird trade should be subject to a moratorium (Wildlife Conservation Society of Tanzania, 1991).

2. CONSERVATION AND TRADE CONTROLS

2.1. LAND OWNERSHIP AND HABITAT STATUS

All land is owned by the Government. Individuals are granted rights to use land for specific purposes approved through a government process, and can own structures on the land as well as agricultural improvements. Under Tanzanian law the right to use land can be revoked.

There are four categories of protected lands under the management of the wildlife sector.

- National Parks: Human habitation is prohibited and total protection is provided to the habitat and all wildlife. Management is directed at protecting the resources and using them for tourism, education and research. Consumptive use of the wildlife is not allowed.
- Game Reserves: These were primarily established to conserve areas with high concentrations of game or that are important for migratory species. Human habitation is prohibited, but tourist hunting is permitted under special licences issued by the Wildlife Department headquarters. These lands are managed to promote tourist hunting and, to some extent, wildlife viewing.
- Game Controlled Areas: Both resident and tourist hunting are allowed under licences issued by the Wildlife Department's headquarters. All other forms of land and natural resource use (eg, agriculture, grazing and logging) are permitted and human habitation is allowed. Wildlife populations are declining in many Game Controlled Areas because of the human impact and loss of habitat. Consideration is being given to de-gazetting some Game Controlled Areas and upgrading others.
- Partial Game Reserves: These are areas in which Game Reserve status has been applied in regard to certain species that need special protection.

Tanzania National Parks (TANAPA) is a parastatal organisation, and retains all entrance fees. However, TANAPA reports its income to the Government and pays taxes, as do all other business parastatals. TANAPA is governed by an independent Board of Directors, of which the Director of Wildlife is a member.

Game Reserves and Game Controlled Areas are under the authority of the Wildlife Department. Wildlife outside these designated areas is the responsibility of the Wildlife Department. However, resident hunting licences may be issued by District Game Officers.

An additional area with special status, the Ngorongoro Conservation Area, was established and is managed under a special Act of Parliament. The area is managed to conserve the ecosystem,

promote tourism and enhance the welfare of the Maasai people. Multiple use of the area is allowed. However, certain activities are prohibited or confined to designated zones.

2.2. ASSESSMENT OF WILD POPULATIONS AND EFFECTS OF TRADE

From a scientific and technical standpoint, the Wildlife Department claimed to be taking a number of steps to enhance its capacity to manage wild populations for sustainable harvests. The Wildlife Department is embarking on the Planning and Assessment for Wildlife Management (PAWM) project. This project aims to correct deficiencies in the present system and to provide a technically sound basis for making decisions about management and harvest of all wildlife in Tanzania. Funding is provided by USAID through AWF and WWF (see 1.5), and a special unit has been established to report directly to the Director. The wild bird trade figures as a high priority in this assessment, and the PAWM project aims to provide the Department with the data necessary to determine the status of wild populations, and whether trade levels are sustainable.

The Tanzanian Wildlife Exporters Association claimed to have cooperated with Regional Game Officers to undertake a survey of the Masked Lovebird *Agapornis personata* in 1989. The survey aimed to determine the status of the wild population, and concluded that the population was large enough to sustain a harvest. However, in reviewing the survey procedures, Wildlife Department staff decided that the surveys were not sufficiently rigorous. Therefore, the Department has not reversed its decision to ban harvest and export of this species.

The Wildlife Department convenes an annual meeting of all of the Regional Game Officers at which each reports on the status of wildlife in his region. If a particular species is considered to be threatened by over-harvesting, the Department claimed that it would remove that species from the list for which harvests are authorised. Furthermore, headquarters staff visit most regions throughout each year, and review the situation directly.

The Regional Game Officers and District Game Scouts could possibly provide an effective mechanism for Tanzania to make *non-detriment findings* as required by Article IV of CITES. These Wildlife Department officials are located throughout the country and could play an important role in monitoring the status of wild populations that are harvested for export. Monitoring and reporting procedures would have to be established for such a system to be effective, and would require more sophisticated data management systems than are available to the Department at this time.

2.3. QUOTAS

Species harvest quotas were introduced after a period of large-scale, unregulated trade in the early 1980s. The Director of Wildlife reported that the total quota for each species is established by the CITES Unit in the Wildlife Department. This quota is then divided by the number of licensed trophy dealers (see 2.5). However, public documents stipulating the annual quota show the number of specimens of each species (or taxon) permitted to be harvested/exported per licensed trophy dealer. The total allowable harvest/export quota may then be calculated by multiplying the number of licensed trophy dealers by the total number of birds authorised per dealer.

Trophy dealer quotas established for 1990 are provided in Table 1. Ninety-three taxa were authorised for harvest during that year, with individual trophy dealers having the potential to export a total of 13,103 specimens. Taking into account that 125 trophy dealers were licensed to export birds in 1990, a maximum of 1,637,875 specimens was authorised for harvest/export during that year.

As currently established, individual dealer quotas provide an unclear picture of the actual allowable harvest. It is difficult to calculate and compare total annual quotas, and to compare quotas with international trade records.

The current quota system does not appear to address biological considerations that might influence the number of birds that could be harvested sustainably. Further, some quotas are established for broad taxon categories such as *finches*, *waxbills* and *doves*. The category *other* is used in some cases, such as *other plovers*. Therefore, it is impossible to determine the number of specimens of individual species authorised for harvest/export, and to compare harvest levels from year to year.

Table 1. Tanzania 1990 wild bird harvest quotas (per trader)

Species	Common Name	Quota
	Finch	4,500
	Other weaver	3,000
Estrididae	Waxbill	1,500
<i>Agapornis fischeri</i>	Fischer's Lovebird	800
Charadriidae	Other Plover	750
Columbidae	Dove	300
<i>Serinus</i> spp.	Canary	300
<i>Euplectes</i> spp.	Bishop	150
Pycnonotidae	Bulbul	150
<i>Phoenicopterus minor</i>	Lesser Flamingo	100
Capitonidae	Barbet	90
<i>Numida meleagris</i>	Helmeted Guineafowl	80
	Whydah	75
<i>Francolinus sephaena</i>	Crested Francolin	74
<i>Agapornis pullaria</i>	Red-headed Lovebird	50
Nectariniidae	Sunbird	45
<i>Phoenicopterus ruber</i>	Greater Flamingo	40
<i>Colius macrourus</i>	Blue-naped Mousebird	30
<i>Colius striatus</i>	Speckled Mousebird	30
<i>Francolinus afer</i>	Red-necked Spurfowl	30
<i>Lamprotornis chalybaeus</i>	Blue-eared Glossy Starling	30
<i>Platalea alba</i>	African Spoonbill	27
<i>Acryllium vulturinum</i>	Vulturine Guineafowl	22
<i>Aapaloderma narina</i>	Narina's Trogan	22
<i>Apaloderma vittatus</i>	Bar-tailed Trogan	22
<i>Francolinus coqui</i>	Coqui Francolin	22
<i>Francolinus leucoscepus</i>	Yellow-necked Spurfowl	22
<i>Francolinus rufopictus</i>	Grey-breasted Spurfowl	22
Alcedinidae	Kingfisher	20
<i>Ciconia abdimii</i>	Abdim's Stork	20
<i>Cinnyricinclus leucogaster</i>	Violet-backed Starling	20
Coraciidae	Roller	20
<i>Corythaixoides</i> spp.	Go-away-bird	20
<i>Cosmopsarus regius</i>	Golden-breasted Starling	20
<i>Creatophora cinerea</i>	Wattled Starling	20
<i>Leptoptilos crumeniferus</i>	Marabou Stork	20
Meropidae	Bee-eater	20
<i>Onychognathus mono</i>	Red-winged Starling	20
<i>Pelecanus onocrotalus</i>	White Pelican	20
<i>Pelecanus refescens</i>	Pink-backed Pelican	20
<i>Ploceus intermedius</i>	Masked Weaver	20
<i>Ploceus ocularis</i>	Spectacled Weaver	20
<i>Ploceus subaureus</i>	Golden Weaver	20
<i>Poicephalus cryptoxanthus</i>	Brown-headed Parrot	20
<i>Poicephalus gularis</i>	Red-fronted Parrot	20
<i>Poicephalus meyeri</i>	Meyer's Parrot	20
<i>Poicephalus rufiventris</i>	Red-bellied Parrot	20
<i>Spreo hildebrandti</i>	Hildebrandt's Starling	20
<i>Spreo surperbus</i>	Superb Starling	20
<i>Terosiphone viridis</i>	Paradise Flycatcher	20
<i>Threskiornis aethiopicus</i>	Sacred Ibis	20
<i>Himantopus himantopus</i>	Black-winged Stilt	15
<i>Lamprotornis purpuropterus</i>	Ruppell's Starling	15
<i>Lamprotornis splendidus</i>	Splendid Starling	15
<i>Recurvirostra avosetta</i>	Avocet	10
<i>Actophilornis africana</i>	Africana Jacana	10
<i>Chrysococcyx cupreus</i>	African Emerald Cuckoo	10
<i>Francolinus hildebrandti</i>	Hildebrandt's Francolin	10
<i>Francolinus levaillantii</i>	Red-winged Francolin	10
<i>Francolinus shelleyi</i>	Shelly's Francolin	10
<i>Francolinus squamatus</i>	Scaly Francolin	10
<i>Fulica cristata</i>	Red-knobbed Coot	10
<i>Gallinula chloropus</i>	Common Moorhen	10
<i>Gyps bengalensis</i>	White-backed Vulture	10
<i>Bostrychia hagedash</i>	Hadada Ibis	10
<i>Limnecorax flavirostra</i>	Black Crake	10
<i>Milvus migrans</i>	Black Kite	10
<i>Musophaga rossae</i>	Ross's Turaco	10

Table 1. Tanzania 1990 wild bird harvest quotas (per trader). (Cont'd.)

Species	Common Name	Quota
<i>Necrosyrtes monachus</i>	Hooded Vulture	10
<i>Picidae</i>	Woodpecker	10
<i>Podica senegalensis</i>	African Finfoot	10
<i>Porphyrio alleni</i>	Alton's Gallinule	10
<i>Porphyrio porphyrio</i>	Purple Gallinule	10
<i>Porzana marginalis</i>	Striped Crake	10
<i>Sarothrura pulchra</i>	White-spotted Pygmy Crake	10
<i>Tauraco fischeri</i>	Fischer's Turaco	10
<i>Tauraco hartlaubi</i>	Hartlaub's Turaco	10
<i>Tauraco livingstonii</i>	Livingstone's Turaco	10
<i>Tockus alboterminatus</i>	Crowned Hornbill	8
<i>Bucorvus caffer</i>	Ground Hornbill	6
<i>Bycanistes brevis</i>	Silvery-cheeked Hornbill	6
<i>Bycanistes bucinator</i>	Trumpeter Hornbill	6
<i>Tockus deckeni</i>	Von der Decken's Hornbill	6
<i>Tockus erythrorhynchus</i>	Red-billed Hornbill	6
<i>Tockus flavirostris</i>	Yellow-billed Hornbill	6
<i>Tockus nasutus</i>	Grey Hornbill	6
<i>Accipter badius</i>	Shikra	4
<i>Aquila rapax</i>	Tawny Eagle	4
<i>Elanus caeruleus</i>	Black-shouldered Kite	4
<i>Scopus umbretta</i>	Hammerkop	4
<i>Upupa epops</i>	Hoopoe	4
<i>Micoparra capensis</i>	Lesser Jacana	
TOTAL		13,103

Source: Wildlife Department

Adjustments in the annual harvest quota for individual taxa are reportedly made on the basis of information provided by Regional Game Officers and Game Scouts. As mentioned above, the Wildlife Department has taken action in the past to prohibit harvest of certain species. In 1983, *Agapornis personata* was banned from harvest and export. This decision was communicated to the CITES Secretariat and subsequently to all Parties to CITES requesting their assistance in stopping trade in this species (Notification 283 of 15 March 1984). In 1990, the following species were removed from the harvest quota list: South African Crowned Crane *Balearica regulorum*, Kori Bustard *Ardeotis kori*, Yellow-billed Stork *Mycteria ibis*, Whale-headed Stork *Balaeniceps rex* and Secretary Bird *Sagittarius serpentarius*. These prohibitions on harvest and export had not been communicated to the CITES Secretariat in 1991.

2.4. PERMITS

Capture Permits are required to trap wild birds. These are issued by the Licensing Section in Dar es Salaam or Arusha upon application by a licensed trophy dealer. Capture permits specify the taxa and number of specimens allowed to be harvested, as well as the areas and times within which birds must be collected.

Trophy dealers applying for a capture permit must specify the taxa (eg, species, genera, as required) and numbers of each they wish to collect, and provide photos of their trappers. When capture permits are issued, trophy dealers are given a form listing the taxa and the number of birds of each they are authorised to capture. These forms provide the basis for monitoring individual dealer performance over the year. Dealers are also provided with identity cards for their trappers.

Capture permit fees are assessed based on the number of specimens of each species authorised for capture. The amount assessed varies by species. Fees are deposited in the Treasury.

Capture permit holders are required to report regularly to the Regional Game Officers in the areas where they are authorised to capture birds.

Once birds are trapped, they are required to be inspected by a member of the Anti-Poaching Unit. Subsequent to this inspection, trophy dealers are issued with Ownership Certificates, no sooner than seven days after a capture permit has been issued. These certificates are issued for a nominal fee of Tsh 100 (US\$ 0.44).

Trophy dealers must acquire a CITES Export Permit or a Trophy Export Certificate (TEC) from the Licensing Section before exporting wild birds. All birds must be held in trophy dealers' holding facilities for a minimum of 14 days before such permits or certificates will be issued. During this time the birds must be inspected by a veterinarian from the Ministry of Agriculture (who issues a health certificate) and a member of the Anti-Poaching Unit. CITES Permits and TECs are issued upon verification that these requirements have been met. A maximum of seven CITES-listed species may be listed on a single CITES export permit and ten non-CITES species on TEC. Exporters are charged an export permit fee of Tsh 600 (US\$ 2.65) per permit or certificate.

2.5. LICENCES

The basic licence required of all businesses involved in wildlife trade is a Trophy Dealer Licence (TDL), issued by the Licensing Section of the Department of Wildlife. There are 18 different classes of TDL, of which Class 12 is for *commercial dealing in live or stuffed birds*. This licence is required of individuals wishing to obtain capture permits for the capture of wild birds. The cost for a TDL varies according to the classes of activities authorised. The fee for a licence authorising harvests of wild birds is Tsh 2500 (US\$ 11.06).

Trophy dealers must meet several requirements before they are issued a TDL for live birds. Applicants must have a holding facility that has been inspected by a Regional Game Officer. Applicants must have the minimum capital necessary to sustain their operation, and provide a copy of their tax return. This return must show that the appropriate amount of foreign exchange generated by previous exports was deposited in the Bank of Tanzania (see 3.1). Applicants must be free from violations of wildlife regulations during the previous year, and provide a photograph of themselves with their application.

TDLs are issued annually. The licensing process begins in October when Regional Game Officers circulate application forms to those wishing to apply for a licence. In November, Regional Game Officers submit completed applications and their recommendations to the CITES Unit in Dar es Salaam. Normally, from 300 to 400 applications are submitted annually. The CITES Unit reviews all applications, consults with the Licensing Section, and decides who will be issued licences. Failure to meet one or more of the licence requirements stated above is the principal reason for rejecting applications.

In 1988, 282 trophy dealer licences were granted of which 193 authorised harvest of wild birds. In 1989 over 600 applications were received; 184 licences were issued of which 108 authorised wild bird harvests. In 1990 a total of 139 trophy dealer licences were granted for all categories of wildlife utilisation, of which 125 were authorised for commercial activities related to live and stuffed birds. By July 1991, 166 trophy dealer licences had been granted, of which about 90 authorised harvests of wild birds for export. Additional licences authorising wild bird harvests were granted later in the year.

During 1990, three trophy dealer licences were revoked because of violations. The Wildlife Department is proceeding with prosecutions of all three trophy dealers.

2.6. EXPORT INSPECTION

There are only two authorised airports for international export: Dar es Salaam and Kilimanjaro near Arusha. CITES Unit personnel often go to the airport when a wildlife shipment is being exported. To assist the Customs Department of the Ministry of Finance, members of the Anti-Poaching Unit inspect all export shipments of wildlife before they are allowed out of the country. A member of the Anti-Poaching Unit is stationed at each airport at all times. Exporters are required to notify the Anti-Poaching Unit of their intent to ship wildlife three days before the date of shipping.

Controls at Kilimanjaro International Airport are reportedly not as rigorous as those at Dar es Salaam. In the past year exporters have found that they can avoid some of the reporting requirements by loading their shipments at Kilimanjaro International Airport for shipment to Europe or the United States. These shipments are considered *in transit* during their stop-over in Dar es Salaam. The Wildlife Department has addressed this loophole by working with the private company responsible for managing the two airports. Henceforth, company personnel will notify the Wildlife

Department of any pending shipments of wild birds, and not allow such shipments until the Department has given its approval.

3. COMMERCIAL ACTIVITIES

3.1. TRAPPING AND TRADE

According to exporters, each dealer has an average of 25 traders from whom they buy birds. Each trader may use from 5 to 10 villagers (trappers) to help collect birds. All collecting in the vicinity of villages requires permission from the village council.

Exporters provided the following examples of prices paid for birds in Tanzania:

- Meyer's Parrot *Poicephalus meyeri*: Trappers are paid Tsh 500 (US\$ 2.21) per bird by traders, and traders are paid Tsh 700 (US\$ 3.10) per bird by licensed trophy dealers; and,
- Finches: Trappers are paid an average of Tsh 40 (US\$ 0.18) per bird; traders are paid Tsh 70 (US\$0.31) per bird.

When collected from the wild, birds are first transported to a way-station. When sufficient numbers have accumulated at the way station, birds are transported to the trophy dealer's holding facility. Most holding facilities are located in the vicinity of Dar es Salaam and Arusha, to facilitate compliance with export requirements. However, a few are located in other cities such as Dodoma and Mwarza. In a few cases the Wildlife Department has authorised movement of birds from a dealer's holding facility some distance from the designated ports-of-exit to another dealer's holding facility nearer to the airport. This is only allowed if there are assurances that the birds owned by the different dealers can be separated.

As noted above, birds must be held in the exporter's holding facility for a minimum of 14 days prior to export. In practice, according to the Wildlife Department, birds are held for a month to six weeks, which is the time required to process export documents, such as export certificates and permits. During this period, the birds must be inspected by a member of the Anti-Poaching Unit and a veterinarian from the Ministry of Agriculture. Exporters are required to notify the Anti-Poaching Unit three days prior to the date of export of any bird shipments.

An immediate concern of the wild bird exporters is the fact that a number of the major airlines, such as British Airways, KLM and Lufthansa, no longer accept live bird cargo shipments from Tanzania. This has caused exporters to use alternative airlines such as Egypt Air, Air Tanzania and Bond Air Freight to carry their shipments to the principal markets of the United States and Europe.

Upon receipt of payment for exported birds, trophy dealers are required to deposit all or some of the funds received in foreign currency in the Bank of Tanzania. Under Tanzanian law, an exporter may be approved by the Bank of Tanzania to hold up to 35% of his foreign exchange earnings in a registered foreign bank account. The remainder must be deposited in the Bank of Tanzania. If not authorised to maintain a foreign account, 100% of foreign exchange earnings must be deposited in the Bank of Tanzania. The amount to be deposited is determined by the value of the exports, which are established by the Bank of Tanzania. Normally values are based on the figures provided in the exporter's billing invoice and currency declaration form (CD3). It appears that exporters are undervaluing their exports, based on figures cited in their own price lists circulated in Europe and the United States.

3.2. WILDLIFE EXPORTERS ASSOCIATION

The Tanzanian Wildlife Exporters Association (TWEA) was formed in 1990. According to its chairman, TWEA does not yet have bye-laws or rules of membership, but there are plans to prepare them. TWEA has about 200 members. While TWEA embraces all forms of wildlife utilisation, Wildlife Department personnel noted that the wild bird exporters were the most active members. Four TWEA members claimed that, although not all members were active in the bird trade, all had expressed an interest in participating in the trade. Only 90 trophy dealer licences authorising the capture and export of wild birds had been issued as of July 1991 (see 2.5).

Most traders feel that the Wildlife Department would prefer to have the trade in wild birds stopped, a point that does not appear to be truly based on information provided by the Department. TWEA has some influence with the Government, and has exerted pressure on the Wildlife Department through the President's office.

TWEA had not provided any funding for field surveys or research at the time of this writing. However, a few years ago individual traders contributed funding towards their claimed survey of *Agapornis personata* mentioned above (see 2.2).

3.3. EXPORT VOLUMES

Export data are sometimes maintained by common name, eg, flamingos, bee-eaters, and so on, which makes comparison with other trade records, such as CITES Annual Report data, very difficult.

Reported exports of specimens of CITES-listed non-psittacines and psittacines, respectively, are available from 1983 to 1990 (Tables 2a, 2b). Data covering 1983 to 1988 are from CITES Annual Reports, while 1989 and 1990 data were provided by the Wildlife Department.

During this 8-year period, a total of 535,399 specimens of CITES-listed birds was reportedly exported from Tanzania. Some 28,629 (5%) of the specimens represented 66 taxa (including species and higher taxonomic groupings) of non-psittacines. Of these non-psittacine exports, 95% were of five species: Lesser Flamingo *Phoenicopterus minor*, Greater Flamingo *P. roseus* (= *P. ruber*), Crowned Crane *Balearica pavonina* (= *B. regulorum*) and Ostrich *Struthio camelus*.

Eighteen species of psittacines were recorded as exported from Tanzania from 1983 to 1990. Three, *Agapornis fischeri*, *Poicephalus meyeri*, and Red-bellied Parrot *Poicephalus rufiventris*, accounted for over 95% of all psittacines exported from 1983 to 1990. *Agapornis fischeri* alone accounted for over 85% of psittacine exports. In addition, significant numbers of birds were reported simply as the genus *Poicephalus*. Several species, eg, Red Lory *Eos bornea* and Senegal Parrot *Poicephalus senegalus*, probably represented re-exports, as neither species occurs in the country. In all cases, the number of specimens reported as exported in 1990 was significantly less than the number reported in previous years. For most species, exports peaked in 1987.

Reported exports of *Agapornis fischeri* in 1990 were less than 50% of those reported in 1987. Exports of two species, Red-faced Lovebird *Agapornis pullaria* and *A. personata*, were stopped in 1988 and 1989, respectively. The only psittacine in which exports increased after 1988 was Jardine's Parrot *Poicephalus gulielmi*, and even exports of this species were significantly reduced in 1990.

A total of 323,500 specimens, including CITES-listed and non-CITES species, were reportedly exported from Tanzania in 1990. This figure reflects approximately 20% of the total authorised harvest/exports for that year. Sixty-seven different taxa, including species and species groups, were exported, according to information provided by the Wildlife Department (Table 3). Only 15 (or 22%) of these 67 species (or species groups) are listed in the CITES Appendices, with exports of CITES-listed species accounting for less than 15% of total exports.

Nineteen countries were recorded as importing birds from Tanzania during 1990. Four countries alone imported 196,511 specimens, accounting for 60.7% of the total specimens exported. The Netherlands (72,677 specimens), Denmark (59,992 specimens), United States (31,959 specimens) and United Kingdom (31,953 specimens) were the largest importers.

3.4. BENEFITS

The Wildlife Department believes that a number of benefits to Tanzania and wildlife conservation in general are linked to the wild bird trade. Government personnel report that the trade provides employment for a large number of people, and through the wages earned a large segment of the population receives direct economic benefits.

According to representatives of TWEA, each dealer retains an average of 25 trappers and each trapper works with 5 to 10 villagers. If there were 100 dealers, from 12,500 to 25,000 Tanzanians are directly involved in the wild bird trade [100 x (25 x 5 or 10)]. Taking into account that only about one-third of the dealers appear to be active, a conservative estimate of the

Table 2a: Reported exports of live CITES listed non-psittacines from Tanzania from 1983-1990 (Data from CITES Annual Reports for 1983-1988, and Wildlife Department for 1989-1990)

Species	1983	1984	1985	1986	1987	1988	1989	1990	Total	Average	%	Cumulative %
<i>Phoenicopus minor</i>	7	918	834	3138	2882	2822	2596	1560	14757	1845	51.5	51.5
<i>Phoenicopus roseus</i>	25	112	843	1529	1457	1421	1247	799	7433	929	26.0	77.5
<i>Balearica pavonina</i>	0	20	136	1080	743	155	0	0	2134	267	7.5	84.9
<i>Balearica regulorum</i>	20	34	381	296	359	338	60	0	1488	186	5.2	90.1
<i>Struthio camelus</i>	0	0	0	0	0	0	840	0	840	105	2.9	93.0
Phoenicopteridae	0	280	20	73	25	0	0	0	398	50	1.4	94.4
<i>Sagittarius serpentarius</i>	3	24	94	119	55	7	0	0	302	38	1.1	95.5
<i>Terathopus ecaudatus</i>	18	43	34	48	31	11	0	0	185	23	0.6	96.1
<i>Platalea alba</i>	0	0	0	0	0	0	57	75	132	17	0.5	96.6
<i>Tauraco porphyreolophus</i>	0	0	0	26	52	53	0	0	131	16	0.5	97.1
<i>Aquila rapax</i>	17	25	41	2	7	8	0	12	112	14	0.4	97.4
<i>Haliaeetus vocifer</i>	10	0	2	35	23	18	0	0	88	11	0.3	97.8
<i>Gyps africanus</i>	0	26	13	14	7	23	0	0	83	10	0.3	98.0
<i>Necrosytes monachus</i>	13	0	16	10	7	25	0	0	71	9	0.2	98.3
<i>Gyps rueppellii</i>	22	2	14	15	2	8	0	0	63	8	0.2	98.5
Falconiformes	33	11	0	0	0	0	0	0	44	6	0.2	98.7
<i>Trigonoceps occipitalis</i>	5	8	2	1	7	12	0	0	35	4	0.1	98.8
<i>Torgos tracheliotus</i>	4	0	2	10	5	11	0	0	32	4	0.1	98.9
<i>Neophron percnopterus</i>	5	1	6	11	1	7	0	0	31	4	0.1	99.0
<i>Polyerax semitorquatus</i>	0	0	0	0	25	0	0	0	25	3	0.1	99.1
<i>Buteo rulinus</i>	0	0	0	21	0	0	0	0	21	3	0.1	99.2
<i>Aquila</i> spp.	0	0	12	0	3	3	0	0	18	2	0.1	99.2
<i>Tauraco corythaix fischeri</i>	0	0	0	0	15	0	0	0	15	2	0.1	99.3
<i>Accipiter</i> spp.	0	0	13	0	0	0	0	0	13	2	0.0	99.3
Falconidae	0	0	0	0	13	0	0	0	13	2	0.0	99.4
<i>Milvus migrans</i>	0	0	9	0	2	2	0	0	13	2	0.0	99.4
<i>Falco biarmicus</i>	0	0	0	10	1	1	0	0	12	2	0.0	99.5
<i>Hieraaetus spilogaster</i>	0	0	0	10	0	0	0	0	10	1	0.0	99.5
<i>Gyps bangalensis</i>	0	1	0	0	0	0	0	9	10	1	0.0	99.5
<i>Aquila wahibergi</i>	9	0	1	0	0	0	0	0	10	1	0.0	99.6
<i>Phoenicopus</i> spp.	0	0	0	0	0	0	10	0	10	1	0.0	99.6
<i>Gyps fulvus</i>	0	0	8	0	0	0	0	0	8	1	0.0	99.6
<i>Gypaetus barbatus</i>	0	0	8	0	0	0	0	0	8	1	0.0	99.7
<i>Bubo africanus</i>	0	0	0	6	0	0	0	0	6	1	0.0	99.7
<i>Buteo rugifuscus</i>	1	0	0	4	0	1	0	0	6	1	0.0	99.7
<i>Buteo bufo</i>	0	0	5	1	0	0	0	0	6	1	0.0	99.7
<i>Platalea leucorodia</i>	0	6	0	0	0	0	0	0	6	1	0.0	99.7
<i>Pandion haliaetus</i>	0	0	0	0	5	0	0	0	5	1	0.0	99.8
<i>Bubo ilaetus</i>	0	0	1	1	3	0	0	0	5	1	0.0	99.8

Table 2a: Continued

Species	1983	1984	1985	1986	1987	1988	1989	1990	Total	Average	%	Cumulative %
Accipitridae	0	0	0	5	1	0	0	0	5	1	0.0	99.8
<i>Glaucidium perlatum</i>	0	0	0	4	0	0	0	0	4	1	0.0	99.8
<i>Polemaetus belliosus</i>	0	0	4	0	0	0	0	0	4	1	0.0	99.8
Strigiformes	0	0	0	0	3	0	0	0	3	0	0.0	99.8
<i>Lophoaelus occipitalis</i>	0	0	0	3	0	0	0	0	3	0	0.0	99.8
<i>Bugeranus carunculatus</i>	0	0	0	0	0	0	0	0	0	0	0.0	99.9
<i>Ciccaba woodfordii</i>	0	0	0	2	0	0	0	0	2	0	0.0	99.9
<i>Falco chicquera</i>	0	0	0	0	2	0	0	0	2	0	0.0	99.9
<i>Falco cherrug</i>	0	2	0	0	0	0	0	0	2	0	0.0	99.9
<i>Circus aeruginosus</i>	2	0	0	0	0	0	0	0	2	0	0.0	99.9
<i>Buteo rufofuscus augur</i>	1	0	0	0	1	0	0	0	2	0	0.0	99.9
<i>Tyto alba</i>	0	0	1	0	1	0	0	0	2	0	0.0	99.9
<i>Tyto</i> spp.	0	0	0	0	0	2	0	0	2	0	0.0	99.9
<i>Nyctea scandiaca</i>	0	0	0	0	0	2	0	0	1	0	0.0	99.9
<i>Falco dickinsoni</i>	0	0	0	0	1	0	0	0	1	0	0.0	99.9
<i>Buteo</i> spp.	0	0	0	1	0	0	0	0	1	0	0.0	99.9
<i>Accipiter rufiventris</i>	1	0	0	0	0	0	0	0	1	0	0.0	99.9
<i>Kaupifaico monogrammicus</i>	0	0	0	1	0	0	0	0	1	0	0.0	99.9
<i>Hieraaetus</i> spp.	0	0	1	0	0	0	0	0	1	0	0.0	99.9
<i>Melierax canorus</i>	0	0	0	0	1	0	0	0	1	0	0.0	99.9
<i>Melierax metabates</i>	1	0	0	0	0	0	0	0	1	0	0.0	99.9
<i>Melierax gabar</i>	0	0	0	0	1	0	0	0	1	0	0.0	99.9
<i>Gypohierax angolensis</i>	0	0	0	0	1	0	0	0	1	0	0.0	99.9
<i>Falco rupicoloides</i>	0	0	0	1	0	0	0	0	1	0	0.0	99.9
<i>Accipiter tachiro</i>	0	0	0	0	1	0	0	0	1	0	0.0	99.9
<i>Hieraaetus fasciatus</i>	0	0	1	0	0	0	0	0	1	0	0.0	100.0
<i>Haliaeetus</i> spp.	0	0	0	1	0	0	0	0	1	0	0.0	100.0
TOTAL	197	1513	2502	6477	5745	4930	4810	2455	28629	3578.6	0.0	

Table 2b: Reported exports of live CITES-listed psittacines from Tanzania from 1983-1990 (Data from CITES Annual Reports for 1983-1988, and Wildlife Department for 1989-1990)

Species	1983	1984	1985	1986	1987	1988	1989	1990	Total	Average	%	Cumulative %
<i>Agapornis fischeri</i>	43315	39332	59218	71784	87566	55147	33634	37879	427875	53484	84.4	84.4
<i>Poicephalus meyeri</i>	3332	3169	8374	7202	11764	5555	1412	1175	41983	5248	8.3	92.7
<i>Poicephalus rufiventris</i>	244	1980	2532	4663	3918	2001	237	559	16134	2017	3.2	95.9
<i>Agapornis personata</i>	5077	250	0	0	450	0	0	0	5777	722	1.1	97.0
<i>Poicephalus cryptoxanthus</i>	0	197	245	702	1550	1702	126	466	4988	624	1.0	98.0
<i>Poicephalus guillemi</i>	1	390	279	248	379	646	1575	954	4472	559	0.9	98.9
<i>Agapornis pullaria</i>	1000	0	0	200	600	200	0	0	2000	250	0.4	99.3
<i>Agapornis cana</i>	0	294	0	400	0	0	800	0	1494	187	0.3	99.6
<i>Poicephalus spp.</i>	50	74	370	191	35	88	38	0	846	106	0.2	99.7
<i>Poicephalus senegalus</i>	0	0	500	0	0	0	0	0	500	63	0.1	99.8
<i>Poicephalus robustus</i>	0	0	0	169	71	102	0	0	342	43	0.1	99.9
<i>Agapornis roseicollis</i>	0	83	20	0	12	0	0	0	115	14	0.0	99.9
<i>Psittacula alexandri</i>	0	0	0	0	88	0	0	0	88	11	0.0	99.9
<i>Polytelis alexandrae</i>	0	46	0	0	0	0	0	0	46	6	0.0	99.9
<i>Eos bornea</i>	0	40	0	0	0	0	0	0	40	5	0.0	100.0
<i>Trichoglossus haematodes</i>	0	35	0	0	0	0	0	0	35	4	0.0	100.0
<i>Psittacus erithacus</i>	5	8	7	6	7	1	0	0	34	4	0.0	100.0
<i>Agapornis spp.</i>	0	0	1	0	0	0	0	0	1	0	0.0	100.0
TOTAL	53024	45898	71546	85565	106440	65442	37822	41033	506770	63346	0.0	0.0

Table 3: Wild birds reported as exported from Tanzania, by country of import (1990)

Species	IT	NL	DE	FR	PR	DK	BE	GB	SE	ES	JP	US	AE	SG
Finch	10,400	48,180	28,600	14,110	4,300	3,800	8,200	16,70	2,800	7,657	4,140	22,100	4,670	9,800
<i>Agapomis fischeri</i>	1,341	6,200	10,440	4,500	3,590	400	2,050	3,100	0	200	300	2,800	570	1,688
Estrildidae	4,200	1,440	5,700	1,400	3,220	0	3,100	6,680	3,100	0	0	4,200	0	0
Ploceidae	0	3,200	5,400	1,260	0	0	4,180	4,100	0	0	1,418	0	0	0
<i>Serinus</i> spp.	0	7,450	0	0	0	0	0	0	0	0	6,000	0	0	0
<i>Euplectes</i> spp.	898	2,400	2,990	870	563	400	0	0	0	0	0	500	0	0
Whydah	460	680	2,140	0	0	300	0	106	0	0	0	300	0	0
<i>Ploceus intermedius</i>	0	900	880	430	300	0	500	50	0	0	200	300	0	0
<i>Phoenicopterus minor</i>	160	0	480	98	200	0	44	135	0	0	12	0	18	94
<i>Spreo superbus</i>	80	280	420	0	92	0	0	0	0	0	0	200	0	120
<i>Poicephalus meyeri</i>	80	219	470	80	45	0	74	84	0	0	0	70	0	33
<i>Poicephalus guilfordi</i>	27	214	320	65	0	20	95	114	0	0	0	64	15	20
Columbidae	0	46	13	0	50	23	60	0	0	0	0	320	0	0
<i>Phoenicopterus ruber</i>	68	141	108	20	35	0	45	30	0	0	28	0	0	150
Capitonidae	0	188	0	0	170	0	0	0	0	0	0	280	0	72
<i>Cosmopsarus regius</i>	100	220	140	0	0	0	0	0	0	0	0	208	0	27
<i>Tauraco harilaubii</i>	0	0	0	0	280	0	0	0	0	0	50	142	0	130
Nectariniidae	0	0	180	0	0	0	451	0	0	0	0	0	0	0
Charadriidae	286	0	300	0	0	0	0	0	0	0	0	0	0	0
<i>Poicephalus rufiventris</i>	36	110	80	30	20	0	70	68	0	0	0	100	0	45
<i>Threskiornis aethiopicus</i>	0	35	223	0	0	0	0	125	0	81	0	0	0	30
<i>Poicephalus cryptoxanthus</i>	30	88	110	38	26	0	48	34	0	0	0	38	0	51
<i>Tauraco livingstonii</i>	48	0	0	0	124	0	0	0	0	0	0	90	0	80
<i>Pelecanus rufescens</i>	46	0	160	26	0	0	3	0	1	0	0	0	30	0
Coraciidae	80	0	124	0	0	0	100	0	0	0	0	0	0	0
<i>Acryllium vulturinum</i>	0	30	20	21	41	0	44	5	30	0	24	0	0	0
<i>Corythaixoides</i> spp.	0	47	0	0	0	0	38	0	0	0	0	0	0	70
<i>Cinnyricinclus leucogaster</i>	25	48	30	0	0	0	0	0	0	0	0	22	0	0
<i>Ploceus subaureus</i>	0	0	80	0	0	0	70	0	0	0	0	0	0	0
Pycnonotidae	0	75	0	0	38	40	0	0	12	0	0	15	0	60
<i>Leptoptilos crumeniferus</i>	35	0	85	45	0	0	0	20	0	0	0	0	0	16
<i>Bostrychia hagedash</i>	0	15	125	30	0	0	0	0	0	60	0	0	0	0
<i>Tauraco fischeri</i>	0	22	0	0	59	0	0	0	0	0	20	54	0	72
<i>Ciconia abdimii</i>	0	20	60	40	0	0	0	0	0	0	0	0	0	30
<i>Colius macrourus</i>	0	35	20	0	52	0	20	0	0	0	0	0	0	53
<i>Colius striatus</i>	0	42	14	20	10	0	0	18	0	0	0	0	0	0

Table 3: Continued

Species	IT	NL	DE	FR	PR	DK	BE	GB	SE	ES	JP	US	AE	SG
<i>Onychognathus morio</i>	10	40	20	0	0	0	0	0	0	0	0	30	0	50
<i>Numida meleagris</i>	10	22	49	0	0	8	12	8	0	0	0	10	0	0
<i>Spreo hiidebrandtii</i>	0	80	22	0	0	0	0	20	0	0	0	20	0	0
Meropidae	0	96	0	44	0	0	0	0	0	0	0	0	0	0
<i>Creatophora cinerea</i>	30	40	40	0	0	0	0	0	0	0	0	0	0	0
<i>Pelecanus onocrotalus</i>	15	8	25	11	10	0	0	10	0	0	4	0	0	10
<i>Francolinus leucosceplis</i>	0	16	10	0	0	0	28	0	0	22	8	0	0	12
<i>Ploceus ocularis</i>	0	0	0	0	0	0	0	58	0	4	0	20	0	0
<i>Bucorvus leadbeateri</i>	0	0	0	30	0	0	6	4	0	17	0	12	0	0
<i>Platalea alba</i>	0	0	38	0	0	0	0	20	0	0	0	0	0	0
<i>Tockus erythrorhynchus</i>	0	0	4	8	0	0	18	3	0	0	0	16	0	0
<i>Francolinus afer</i>	0	0	0	0	0	0	36	0	0	18	0	0	0	0
<i>Scopus umbretta</i>	18	12	6	20	0	0	0	0	0	14	0	0	0	2
<i>Francolinus rufopictus</i>	0	0	8	0	6	0	4	0	0	0	0	0	0	0
<i>Lamprotomis splendidus</i>	0	20	0	0	0	0	0	0	0	0	0	26	0	0
<i>Musophaga rossae</i>	0	0	0	0	0	14	8	0	0	0	0	8	0	4
<i>Lamprotomis purporopterus</i>	0	0	30	0	0	0	0	0	0	0	0	0	0	0
<i>Bycanistes bucinator</i>	0	0	14	0	0	0	0	5	0	0	0	6	0	0
Muscipapidae	0	0	0	0	23	0	0	0	0	0	0	0	0	0
<i>Francolinus sephaena</i>	0	18	0	4	0	0	0	0	0	0	0	0	0	0
<i>Tockus flavirostris</i>	0	0	6	0	0	0	0	2	0	0	0	0	0	0
<i>Bycaanistes brevis</i>	0	0	8	3	0	0	4	3	0	0	0	0	0	0
<i>Himantopus himantopus</i>	14	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aquila rapax</i>	0	0	0	0	0	0	0	0	0	0	10	2	0	0
<i>Porzana marginalis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gyps bengalensis</i>	0	0	0	0	0	0	0	0	0	0	2	2	0	0
<i>Actophilornis africanus</i>	8	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tockus deckeni</i>	0	0	0	0	0	0	0	0	0	0	0	4	0	0
Alcedinidae	3	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Agapornis pullaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lamprotomis chalybaeus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	18,508	72,677	59,992	23,203	13,254	5,040	18,857	31,953	5,943	8,073	12,216	31,959	5,303	12,719

Table 4. Estimated maximum and potential values of live birds exported from Tanzania in 1990 (based on Wildlife Department sources and US bird dealer price lists)

Species group	Dealer Quota	Maximum specimens for export	Average value (US\$) per export	Maximum potential value (US\$)	Actual specimens exported	Potential realised value (US\$)	% Maximum potential value
Pelicans	40	5,000	80.00	400,000	449	35,920	9.0
Storks	40	5,000	102.50	512,500	428	43,870	8.6
Flamingos	140	17,500	80.00	1,400,000	2,359	188,720	13.5
Ibises	30	3,750	60.00	225,000	724	43,440	19.3
Hornbills	50	6,250	71.88	449,250	212	15,239	3.4
Vultures and Birds of Prey	42	5,250	125.00	656,250	21	2,625	0.4
Francolins	136	17,000	30.00	510,000	22	660	0.1
Doves	300	37,500	5.00	187,500	950	4,750	2.5
Lovebirds	850	106,250	5.00	531,250	37,879	189,395	35.7
Parrots	80	10,000	41.25	412,500	3,154	130,103	31.5
Turacos	40	5,000	66.00	330,000	1,240	81,840	24.8
Finches	4,500	562,500	3.00	1,687,500	185,457	556,371	33.0
Weavers	3,060	382,500	2.75	1,051,875	24,876	68,409	6.5
Waxbills	1,500	187,500	2.50	468,750	33,040	82,600	17.6
Plovers	750	93,750	5.00	468,750	586	2,930	0.6
Trogans	44	5,500	50.00	275,000	0	0	0.0
Canaries	300	37,500	5.00	187,500	13,450	67,250	35.9
Barbets	90	11,250	20.00	225,000	710	14,200	6.3
Mousebirds	60	7,500	20.00	150,000	330	6,600	4.4
Guineafowl	102	12,750	65.00	828,750	424	27,560	3.3
Starlings	180	22,500	15.00	337,500	2,490	37,350	11.1
Whydahs	75	9,375	2.00	18,750	3,986	7,972	42.5
Bishops	150	18,750	3.00	56,250	8,621	25,863	46.0
Other birds	544	68,000	18.50	1,258,000	1,967	36,390	2.9
TOTAL	13,103	1,637,875	878.38	12,627,875	323,375	1,670,056	13.2

people directly benefiting would number from 4150 to 8300. With an average family size of 10 individuals, it would follow that from 40,000 to 80,000 Tanzanians receive some economic benefit from the trade. These numbers are impossible to verify, but they almost certainly overestimate the actual number of people deriving economic benefits.

Export figures for 1990, and the values for *Poicephalus meyeri* and finches, suggest that field collectors earned a minimum of Tsh 8 million (US\$ 35,400) from exporting these species, and trappers a minimum of Tsh 5.8 million (US\$ 25,700).

The Wildlife Department is cooperating with a number of NGOs to determine the most equitable methods of sharing income from wildlife uses with rural communities. They are also encouraging licensed trophy dealers to invest more of their profits back into maintaining the wild populations.

At present, 75% of the export permit fee goes back to support conservation of wildlife. However, in actual terms the amount of money raised is small, based on the fee of Tsh 600 (US\$ 2.65) per permit. No money from the other licence and permit fees that are assessed for the wild harvest of birds can be construed as going directly to wildlife conservation. However, the Wildlife Department is discussing various options with the Planning Commission under which a percentage of this income could be made available for conservation activities.

The maximum potential value of 1990 exports (i.e. 100% of the authorised harvest/exports) has been compared with the potential realised value (i.e. actual exports) in Table 4. Values of the different species are based on published dealer price lists circulated in Europe (FOB Tanzania). Using these figures, if all licensed dealers exported 100% of their authorised quota for each species, the total potential value of these exports would be about US\$ 13 million. The potential value of the actual exports was estimated to be about US\$ 1.7 million.

From the perspective of the dealers, each of the 125 licensed bird trophy dealers was authorised a harvest quota of 13,103 specimens in 1990. The total potential income that could be earned by each trophy dealer would be about US\$ 98,000, if 100% of export quotas were utilised. Based on the estimated value of actual exports, the potential income was approximately US\$ 12,230 per dealer. Only about one-third of the dealers are responsible for the bulk of the exports and therefore their income in 1990 could have been on the order of US\$ 30,000 each. Given the high diversity in taxa and great variation in their value, some dealers are likely to make considerably more money by concentrating on higher-valued specimens. It should be noted that the prices cited in dealer price lists may not be what importers actually pay for birds. Actual prices paid to dealers will be subject to changes in the demand for individual species and the volume purchased.

3.5. DOMESTIC MARKET

There is reportedly very little trade in wild-harvested birds for the domestic market. There are no bird markets in Tanzania and bird-keeping is largely restricted to a small number of non-African residents. If there were any domestic trade, it would be subject to the same capture and ownership requirements applied to birds harvested for export.

3.6. CAPTIVE BREEDING

Some of the larger licensed trophy dealers have talked about the need to set up captive management facilities for birds. This is actively being promoted by the Director of Wildlife. A few indicated their desire to submit proposals for developing captive breeding facilities as a component of a multiple use plan for agricultural lands. If these dealers are serious about developing such facilities they will no doubt require technical assistance from outside the country.

4. FUTURE OF TRADE

4.1. SUSTAINABILITY

At present, there are no means for determining if current harvest levels are sustainable or not. The Wildlife Department recognises this deficiency and is moving as quickly as it can to develop a model programme for utilisation. The Director of Wildlife believes that the PAWM project will permit the Wildlife Department to introduce more rigorous controls over wildlife utilisation schemes and ensure that the species involved are being used sustainably. With regard to the wild bird trade, the following are of particular concern:

- the need to develop procedures for surveying and monitoring the distribution and status of wild populations used in trade;
- determining biological requirements of different species;
- clarifying the qualifications for licensed dealers; and,
- developing procedures for establishing and allocating quotas more equitably in terms of dealers' capacities.

The Director of Wildlife feels that the biggest problem is low departmental morale. His field staff lack uniforms and have not received adequate training. Because of the present reporting requirements, many are disillusioned and lack a sense of departmental unity. In addition to addressing the problem of reporting lines, the Department is trying to provide meal allowances for field personnel and is recruiting staff from the Tanzania military to provide needed training and discipline.

The Director of Wildlife is planning a 2-day workshop for the wild bird dealers to provide them with instruction in proper handling and shipping of the wild birds. He believes this workshop will educate the dealers about the regulations and the need for such regulations to ensure that use of the wildlife resources is sustainable. The Department will prepare a position paper for circulation to the principal importing countries in the near future.

4.2. CONSEQUENCES OF TRADE BANS

Interviews suggest that a ban on wild bird imports into the principal consumer countries would not have a major impact on the country in strict economic terms. However, it could have very serious repercussions on the relative status of the Wildlife Department in the Government. All Government Agencies are obliged to generate foreign exchange. Wildlife Department personnel well understand the need to demonstrate that the Department is generating income to Treasury. The Wildlife Department has argued very successfully that use of Tanzania's wildlife, whether as an attraction for tourists, for sport hunting and for harvest for export, will provide needed foreign exchange earnings for the country. There is a danger that the banning of wildlife exports for any form of trade would negatively influence the Wildlife Department's negotiations with the Treasury and Planning Commission. Such negotiations relate to making some share of wildlife-derived income available for the conservation of wildlife and habitat.

A related concern focuses on the relatively high status enjoyed by the Ministry of Agriculture. This Ministry now generates the largest percentage of foreign exchange earnings in the country. Concern was expressed that many of the species that are presently harvested for export could be designated agricultural pests if their numbers increased and they seriously threatened export crops. Today, the Wildlife Department maintains authority over these species because they represent a value to the country. If exports of wild-caught birds were curtailed because of import bans in the principal market countries, Wildlife Department officials believe that they could lose this authority, in deference to the needs of the agricultural community. At the very minimum the Wildlife Department's authority would be limited to only those species listed under CITES. Under any circumstances it is highly likely that a number of the species presently authorised for harvest and export would be targeted for extermination as crop pests.

INDIVIDUALS INTERVIEWED

E.B. Alilemwa, Director, Expo Alliance Centre, Ltd; N.E. Baker, Wildlife Conservation Society of Tanzania; J.I. Boshe, World Wide Fund for Nature, Tanzania Office; J.D. Kibebe, Officer, CITES Management Authority, Wildlife Department; V.S. Kotedia, Silver Curio Shop, Ltd; Dr N. Leader-Williams, Project Leader, Planning and Assessment for Wildlife Management; Z. Masiaga, Chairman, Tanzania Wildlife Exporters Association; H. Mbonde, Tanzania Wildlife Exporters Association; C.J. Mdoe, Wildlife Department; C.A. Mlay, Director of Wildlife; E. Salehe, Tanzania Wildlife Exporters Association; H. Salum, Tanzania Wildlife Exporters Association; E.L.M. Severre, Wildlife Department.

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4. TANZANIAN BIRD TRADE: THE TRADERS' PERSPECTIVE

Tanzania Wildlife Exporters Association

Dar es Salaam, Tanzania

1. INTRODUCTION

Tanzania is a third world nation that has large numbers of birds, among which many are deemed to be agricultural pests. Many of the birds exported are fruit and seed-eaters, which in the course of feeding, damage large amounts of cereal crops. Surveys conducted by the Tanzania Wildlife Exporters Association (TWEA) reveal increasing numbers of birds, and about ten regions are affected by crop damage, including Kilimanjaro, Arusha, Mwanza, Tabora, Shinyanga, Singida, Dodoma, Mbeya, Morogoro, and Coast Regions.

Due to the continuous damage to farmers' crops, a national bird control unit was established in 1954, and now has operated for around 37 years. Most of the birds killed by spraying are finches, including *Quelea*, and other different species including lovebirds. A recent report shows that over 1 million birds were killed by spraying in the Arusha Region during four days in July 1991.

Under these circumstances, TWEA believes that it should support present economic reforms, but through appropriate future options. TWEA believes that a number of species should not be captured for export, including Secretary Birds, Saddle-bill Storks, Wattled Cranes and Shoebill Storks. However, TWEA believes that the ban should be lifted on Masked Lovebirds, Crowned Cranes, Openbill Storks, Black Herons, Goliath Herons, Reef Herons, Kori Bustards, Lesser Bustards and Yellow-billed Storks. Furthermore, TWEA believes there should be no quota for finches, and that an adequate quota be provided for other species.

Of particular concern to TWEA is the unexpected trade embargo imposed by almost all international airlines in shipping live birds from Tanzania. Furthermore, a ban on wild-caught birds from Tanzania by Britain this year has resulted in a very unfavorable economic climate both for TWEA's budget and for the performance of individual exporters.

2. FUTURE OF TWEA

TWEA intends to streamline its organisational structure by making sure that it becomes a strong entity with sound domestic and international recognition. It is our immediate future plan to cooperate strongly with the international community and the Tanzanian Wildlife Department in establishing proper levels of trade. TWEA also wishes to ensure that it works concurrently with the Wildlife Department in matters pertaining to licensing of eligible exporters, training of new exporters and trappers. We hope that this will give TWEA the mandate to recommend to the Wildlife Department a list of honest or faithful exporters from the previous year. This will entail the termination of unscrupulous businessmen.

It is our expectation, constant desire and commitment that the Government and the TWEA administration will wish to see the live bird trade continue, and that export proceeds from this industry will benefit this country. Turning to the international community, and especially the conservation NGOs, we hereby appeal to you to conduct and implement the following plan of action to ensure that TWEA has a sound economic base. Accordingly, we request funds for the following:

- captive breeding of rare species, like birds of prey, owls, Saddle-bill Stork, talking parrots and so on;
- establishment of monitoring centres to studying reproductive performance for key species in the wild, to make an assessment on which species to attempt captive breeding;
- sponsoring training programmes and workshops for trappers and exporters, in order to create awareness among local communities in matters relating to the conservation of Tanzania's flora and fauna; and,
- to liaise with the national bird control unit of the Ministry of Agriculture, to work out modalities that avoid affecting the entire wild bird populations in spraying areas.

It is imperative to note that the time is now opportune for all forces in the wildlife sector to join hands in working together to enhance a better future for the trade in live birds.

5. THE BIRD TRADE IN TANZANIA: THE QUOTA SYSTEM

N.E. Baker

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1. INTRODUCTION

The export trade in wild-caught birds in Tanzania was growing out of control during the 1980s. Hence, a quota system was imposed in 1988 to limit the number of certain species caught for export. This quota limited the number of various species and species groups available to each dealer, but not the number of dealers. It included several species that have never been traded and some that should not be traded. The original quota has changed little since it was introduced in terms of its format or the species and species groups that can be traded (see Table 1 of Edwards and Broad, 1992).

The 1989 bird quota was assessed to assist the Department of Wildlife to formulate a more scientific basis for its bird exports, with the ultimate aim of ensuring the future sustainability of the trade (Baker and Boswell, 1989). Thirteen specific points of concern were highlighted and detailed comments were made against the 93 species listed in the quota. This paper expands and updates that review for the species at risk from the trade. Some general principles are made about deficiencies in the original quota (Section 3), while recommendations about certain species follow (Section 4).

2. TANZANIA'S AVIFAUNA

There are 1016 species of bird admitted to the Tanzanian avifauna. Of these, 864 are breeding species and mainly resident. There are 19 endemic species, and a further 16 species are considered as East African endemics. Tanzania bears most responsibility to ensure the survival of viable populations of these endemic species. Rather alarmingly, 4 endemic species are actually named on the quota and a fifth has been exported in large numbers.

The African Red Data Book (Collar and Stuart, 1983) lists 19 species for Tanzania that are considered threatened, and several of these are at risk from the bird trade (Table 1).

Table 1: List of threatened species for Tanzania (* indicates those species most at risk from the bird trade).

	Scientific name	Common name
*	<i>Balaeniceps rex</i>	Shoebill
	<i>Bubo vosseleri</i>	Nduk Eagle Owl
	<i>Bugeranus carunculatus</i>	Wattled Crane
*	<i>Dryocichloides loweii</i>	Iringa Ground Robin
*	<i>Dryocichloides montanus</i>	Usambara Ground Robin
*	<i>Anthus sokokensis</i>	Sokoke Pipit
*	<i>Mondulatrix orostruthus</i>	Dappled Mountain Robin
	<i>Anthreptes pallidigaster</i>	Amani Sunbird
	<i>Anthreptes rubritorques</i>	Banded Green Sunbird
	<i>Nectarinia rufipennis</i>	Rufous-winged Sunbird
	<i>Sheppardia gunningi</i>	East Coast Akalat
	<i>Malaconotus alius</i>	Uluguru Bush Shrike
*	<i>Apalis moreaui</i>	Long-billed Apalis
*	<i>Swynnertonia swynnertonia</i>	Swynnerton's Forest Robin
	<i>Turdus fischeri</i>	Spotted Ground Thrush
*	<i>Apalis karamojae</i>	Karamoja Apalis
	<i>Apalis argentea</i>	Kungwe Apalis
*	<i>Bathmocercus winifredae</i>	Mrs Moreau's Warbler
	<i>Ploceus nicolli</i>	Usambara Weaver

This list should also now include the recently described Kilombero Weaver *Ploceus burnieri* (Baker and Baker, 1990) and probably the White-winged Apalis *Apalis chariessa*. A new and larger population of the East Coast Akalat has recently been discovered in southern Tanzania, and the Dappled Mountain Robin is now known to be locally common in the Udzungwa Mountains. The known range of the Iringa Ground Robin (see Table 1) has been extended northwards to the Ukaguru Mountains, and there have been recent records of the Sokoke Pipit from Kiono and Vikindu Forest Reserves. However, the recent data on distribution have not changed the threatened status of these species.

3. PROBLEMS WITH THE QUOTA

A number of problems are evident with the quota as was designed and formatted from 1988 to 1993, and these problems are grouped below under a set of main headings. The first 13 headings amplify points made in Baker and Boswell (1989). Additional remarks made in section 3.14 are based on ongoing studies of the avifauna of Tanzania, that have highlighted further problems with the quota system and its implementation.

3.1. DIFFERENT RACES OF BIRDS AND POSSIBLE LOCAL EXTINCTIONS

The following birds are at risk under the present quota:

3.1.1. Bishops: Marsh Widowbird *Euplectes hartlaubi* is a widespread species in Africa, and could be exported from Tanzania. However, it is represented by the distinctive race, the Mountain Marsh Widowbird *E.h. psammocromius*, in Tanzania. This is a highland grassland species whose habitat is threatened, and which requires rigorous protection if it is to survive. The whims of scientific nomenclature recently elevated its status to that of a full species which hopefully will allow protection under CITES.

3.1.2. Green Pigeon *Treron australis*: This is a widespread African species, but the race endemic to Pemba Island requires protection. This race has also recently been elevated to specific status.

3.1.3. Usambara Weaver *Ploceus (olivaceps) nicolli*: A similar situation exists for this species, and even for the Tanganyika Masked Weaver *Ploceus (velatus) reichardii*, another endemic of Tanzania. Both are at risk under the two categories of *Other weavers* and of the Masked Weaver *Ploceus intermedius*, which is a similar species.

3.1.4. Other races: Many other races are also at risk, some of which will probably be elevated to full species in the future, as shown in Table 2.

Table 2: List of races that are at risk as a result of imprecise terminology on the quota

Scientific name of race	Common name
<i>Poicephalus cryptoxanthus zanzibaricus</i>	Brown-headed Parrot
<i>Poicephalus meyeri matschiei</i>	Brown Parrot
<i>Tauraco livingstonii schalowi</i>	Livingstone's Turaco
<i>Centropus cupreicaudus</i>	Coppery-tailed Coucal
<i>Bubo poensis vosseleri</i>	Fraser's Eagle Owl
<i>Buccanadon olivaceum woodwardi</i>	Green Barbet
<i>Chersomanes albofasciata beesleyi</i>	Spike-heeled Lark
<i>Oriolus chlorocephalus amani</i>	Green-headed Oriole
<i>Lamprotomis corruscus vaughni</i>	Black-breasted Glossy Starling
<i>Zosterops poliogaster winifredae</i>	Montane White-eye
<i>Euplectes afer niassenis</i>	Yellow-crowned Bishop
<i>Euplectes gierowii friederichseni</i>	Black Bishop
<i>Euplectes macrourus canradsi</i>	Yellow-mantled Widowbird
<i>Laganosticta rufo picta nitidula</i>	Bar-breasted Firefinch
<i>Estrilda paludicola marwitzi</i>	Fawn-breasted Waxbill

3.2. BREEDING SEASONS POSE SPECIAL DANGERS TO CERTAIN POPULATIONS

It is well documented that the Greater Flamingo *Phoenicopterus ruber* requires isolation free from disturbance if the colony is to breed successfully. Conditions suitable for breeding do not occur each year, and populations may go several years without breeding. Disturbance can also cause

desertion among mixed colony nesters, such as Black Heron *Egretta ardesiaca* and African Spoonbill *Platalea alba*, even when Sacred Ibis *Threskiornis aethiopica* are the target species in the colony.

The use of mist nets is indiscriminate and female birds feeding young can easily be trapped and held for several hours before release as non-target species. During this period, the young could die from exposure and are more prone to the dangers of predation. This is of special concern for rare and threatened species such as the Karamoja Apalis *Apalis karamojae* on the Wembere Steppe, and many endemic montane forest birds that inhabit areas favoured by bird trappers.

3.3. REGIONAL DISTRIBUTION AND THREATS AT THE EDGE OF RANGE

Little is known of the breeding biology and population limitations of any of Tanzania's birds. Regions where the birds are rare should not be allocated quotas. Special care must be taken to ensure that eruptive or wandering species are not disturbed at a time when they are trying to establish breeding populations in new areas. The African Spoonbill and the Sacred Ibis will leave traditional nesting grounds as these dry out and lose their food stocks. It is vital they are allowed some safe haven to establish further breeding colonies. Many species of bird will adapt to changes in their environment, such as climatic change, but they need time to do so.

3.4. HIGH NUMBERS OF CERTAIN SPECIES EXPORTED IN RECENT YEARS

There is no doubt that Fischer's Lovebird *Agapornis fischeri* and Fischer's Turaco *Tauraco fischeri* are endangered by the bird trade. The Yellow-collared Lovebird *Agapornis personata* is also still at risk, as is the Orange-bellied Parrot *Poicephalus rufiventris* and the Golden-breasted Starling *Cosmosparus regius*. These are all species of restricted range and habitat. The range of each is contracting and the habitat is at risk. As lovebirds are easily bred in captivity, there can be no excuse for continuing to export these two endemic species.

From the 1940s to the late 1980s, a large feral population of *A. fischeri*, *A. personata* and hybrids could be found in Dar es Salaam. This population remained viable because a large number of birds escaped or were released. Since the trade in *A. personata* stopped, this species has disappeared around Dar es Salaam and even the hybrids are becoming scarce. Data collected during the 1980s for the Tanzania Bird Atlas suggests that both *A. fischeri* and *A. personata* showed a perceptible shift in their range. Equally, the decline in numbers away from protected areas is most noticeable and is often commented upon by observers residing in areas of former abundance. Fischer's Lovebird is now only common in the Serengeti National Park and the adjacent Ngorongoro Conservation Area and Maswa Game Reserve. Accounts of poaching for this species in these protected areas point to a widespread drop in numbers. The Yellow-collared Lovebird is being very slow to recover in traditional core areas around Dodoma and Kondoa. Recent road surveys have reported less than one sighting per day.

Fischer's Turaco is restricted to forest habitat from the Juba River in Somalia south to Zanzibar. The endemic race from the Jozani Forest in Zanzibar is probably already extinct. The forests of the Juba and Tana Rivers are greatly reduced in extent and under severe pressure. The only viable populations of Fischer's Turaco are in the Sokoke and Shimba Hills forests in Kenya and in the East and West Usambara in Tanzania. The species does not occur in the Tanzania coastal forests (being replaced by Livingstone's Turaco) or the Pare Mountains. It is not protected and even the removal of a few birds could seriously affect the population.

The Golden-breasted Starling is a Somali arid zone species extending south through Kenya to extreme north eastern Tanzania. It is only reasonably common to the north of the Pare and Usambara Mountains. During the dry season, Kenyan birds wander south passing through the Mkomazi Gap and between the North Pares and Kilimanjaro to the Maasai Steppe, where the species is uncommon. Heavy trapping in the Lake Jipe area has seriously reduced that population. A recent survey counted only two birds in eighty man hours of observation.

3.5. NO POPULATION CENSUS TO ESTABLISH A VIABLE ANNUAL OFFTAKE FOR ANY SPECIES

It is important that a serious attempt is made to understand the breeding biology and population limitations of any species before it can be harvested on a sustainable basis. This is a difficult and

expensive process for which the Department of Wildlife has neither the expertise nor the finance. Simple counting and sampling techniques must be taught with an emphasis on the correct identification, assessment of breeding status and feeding requirements. Unless this can be achieved, then a real quota with obvious low numbers on a regional rotation system must be imposed to avoid endangering any species.

3.6. INCLUSION OF TANZANIAN ENDEMICS

It is disturbing that a number of endemics, for which Tanzania has sole responsibility, are included on the quota (Table 3). These endemics are either included in their own right (e.g. Fischer's Lovebird), or through being part of a group (e.g. Sunbird). It is recommended that endemic species are included on CITES Appendix I to ensure that they are not traded. Correct identification of all *Ploceus* and *Euplectes* weavers is essential if they are to be traded.

Table 3: Endemic species included on the quota from 1988 to 1993

Scientific name	Common name
<i>Fringilla monticola</i>	Grey-breasted Spurfowl
<i>Agapornis fischeri</i>	Fischer's Lovebird
<i>Agapornis personata</i>	Yellow-collared Lovebird
<i>Dryocichloides lowei</i>	Iringa Ground Robin
<i>Dryocichloides montanus</i>	Usambara Ground Robin
<i>Bathmocercus winifredii</i>	Mrs Moreau's Warbler
<i>Malaconotus alius</i>	Uluguru Bush Shrike
<i>Cosmopsarus unicolor</i>	Ashy Starling
<i>Antheptes rubritorques</i>	Banded Green Sunbird
<i>Nectarinia moreaui</i>	Moreau's Sunbird
<i>Nectarinia rufipennis</i>	Rufous-winged Sunbird
<i>Ploceus nicolli</i>	Usambara Weaver
<i>Ploceus reichardi</i>	Tanganyika Masked Weaver
<i>Ploceus burnieri</i>	Kilombero Weaver
<i>Hirundo ruficauda</i>	Rufous-tailed Weaver

3.7. INCLUSION OF SPECIES FROM THREATENED HABITATS SUCH AS MONTANE FOREST

It is equally disturbing that a number of species from threatened habitats, such as montane forests, are included on the quota (Table 4). There is no case for exporting any of these or other threatened habitat species.

Table 4: Species from threatened habitats included on the quota from 1988 to 1993

Scientific name	Common name
<i>Sarothrura pulchra</i>	White spotted Pygmy Crake
<i>Bycanistes brevis</i>	Silvery-cheeked Hornbill
<i>Bycanistes bucinator</i>	Trumpeter Hornbill
<i>Fringilla squamatus</i>	Scaly Francolin
<i>Turtur tympanistria</i>	Tambourine Dove
<i>Poicephalus guliemi</i>	Red-fronted Parrot
<i>Tauraco hartlaubii</i>	Hartlaub's Turaco
<i>Tauraco livingstonii</i>	Livingstone's Turaco
<i>Tauraco fischeri</i>	Fischer's Turaco
<i>Musophaga rossae</i>	Ross's Turaco
<i>Onychognathus mono</i>	Red-winged Starling
<i>Apaloderma vitatum</i>	Bar-tailed Trogon

3.8. NO RESTRICTION ON TRAPPING AREAS

There appears to be no restriction upon trapping areas, apart from National Parks and Game Reserves. Many of Tanzania's rarer birds occur in Forest Reserves, which should also be included as restricted areas for trappers. Indiscriminate trapping for such species as Tambourine Dove and Green-backed Twinspot *Mandingoa nitidula* using mist nets puts many other species at risk. It must be realised that unwanted species are often eaten and these would include several endemics and many of those listed in the Red Data Book.

3.9. NO RESTRICTION ON THE NUMBER OF EXPORTERS

There appears to be no restriction on the number of exporters. Therefore, the quota system does not provide a limitation to the numbers of birds harvested. The quota should be expressed as a

total number for any given species. Furthermore, this should apply to the capture licence not the export permit. Mortality should come from the quota and not be additional to it.

3.10. NOMENCLATURE DOES NOT FOLLOW INTERNATIONAL STANDARDS

The quota does not follow standard nomenclature practices. Even though the Department of Wildlife was provided with reference books and the published lists of Tanzania birds, no attempt has been made to conform with international nomenclature. Thus, many species are at risk because they are not categorised or identified correctly.

3.11. USE OF FAMILY NAMES OFFERS NO PROTECTION FOR THE RARER SPECIES WITHIN THAT FAMILY

There are 15 species of Dove, 3 species of Go Away Bird, 4 species of Mousebird, 25 species of Barbet, 23 species of Greenbul, 25 species of Starling, 41 species of Sunbird, 52 species of Finches, 68 species of Weaver, 5 species of Whydah, 13 species of Bishops, 13 species of Cuckoo, 11 species of Kingfisher, 5 species of Roller, 12 species of Bee-eater, 13 species of Woodpecker, and 35 species of Flycatcher in Tanzania. It is essential that each and every species is clearly identified on the quota, and that all concerned understand to which species reference is being made.

3.12. USE OF "OTHERS" OFFERS NO PROTECTION TO RARE SPECIES

Other weavers could include the 3 species referred to in section 3.13, plus many rare and restricted species especially in the Lake Victoria Basin.

Other plovers is a very confusing category especially in that no plovers are actually named on the quota. There are 22 members of the family Charadriidae occurring in Tanzania and none should be considered for export.

3.13. NO SYSTEM FOR EXPORTERS TO REPORT THE ORIGIN OF THEIR BIRDS

There is no system for exporters and trappers to report the origin of the birds they catch in relation to the quota. To prevent any one district or region from being over exploited, there should be a well-defined sequence of areas in which trappers are allowed to operate.

3.14. EXPORTS OF SPECIES NOT ON THE QUOTA

In 1989 it was understood that the quota did have some restrictions on the species being exported. In fact, almost any species can be exported and the quotas are easily exceeded. Some examples follow:

3.14.1. Crowned Crane *Balearica regulorum*: This species is the national bird of Uganda, where it is afforded total protection. In Kenya, the western species occurs and is protected throughout its range. It is likely that some of these birds move south after breeding. Despite not being on the quota (and therefore protected!) Cranes from Mara Region are being exported through Kenya and recently it was learned that 30 arrived dead in Italy.

3.14.2. Shoebill *Balaeniceps rex*: This is a rare bird restricted to large wetlands. In Tanzania it is confined to the Kagera and the Moyowosi swamps. It is listed in the IUCN Red Data Book for African Birds, yet they are still caught for sale and recently one died in Shinyanga while waiting for permits.

3.14.3. Diurnal raptors: The international community is particularly concerned about the problems facing diurnal raptors. They are given full protection in many countries, yet Tanzania continues to export them. Several species are migrants from Eurasia and it will not benefit international relationships if this trade continues.

3.14.4. Entrepot for illegal shipments: A further disturbing factor is that Tanzania is now seen as an entrepot for illegal shipments from neighbouring countries. This is in much the same way as South Africa and Burundi have behaved in the ivory trade and will no doubt sour relations with our neighbours. Data from Ministry of Agriculture, Fisheries and Food in UK details several species arriving from Tanzania that do not occur here in the wild. These birds are being smuggled into

Tanzania from Kenya and Zambia, and possibly Uganda and even Zimbabwe. Therefore, it would appear that the 'quota' is totally ignored by the traders and wildlife officials responsible for monitoring shipments.

4. COMMENTS ON INDIVIDUAL SPECIES

This section passes comments upon some individual species that are included on the present bird quota. The BN number refers to the numbering system used by all East African countries (Britton, 1981).

Pink-backed Pelican *Pelicanus rufescens* BN12: This species should only be taken outside its breeding areas. The total number should be restricted to around 100 per annum. It should only be sold to *bona fide* zoos or large institutions. It should not be kept in captivity locally in gardens of shops and offices in Tanzania, as the species requires a large area of open water to ensure good health.

White Pelican *Pelicanus onocrotalus* BN11: A more restricted species than *P. rufescens*, but it occurs in larger numbers especially when breeding. If they are only taken outside their breeding areas, then a quota of 200 per annum seems reasonable.

Abdim's Stork *Ciconia abdimii* BN44: An Afrotropical migrant that breeds in the lower Sahel belt of the northern tropics and winters south of Tanzania. A quota of 100 would be sufficient to meet the requirements of *bona fide* zoos and other collections, but Tanzania should consult first with the countries that have this bird as a breeding species.

Marabou *Leptoptilos crumeniferus* BN49: A widespread, but uncommon, species with very few breeding sites in Tanzania. The only viable colony, at Shinyanga, has been badly damaged by bird trappers. This species should not be exported. It could perhaps be included on special licence.

Hamerkop *Scopus umbretta* BN42: A widespread species that is nowhere common. It could only appeal to specialist zoological gardens and collections. A quota of 40 per annum is considered adequate.

Lesser Flamingo *Phoeniconaias minor* BN58: Although occurring in large numbers, its breeding sites are few. Providing all trapping takes place well away from breeding colonies, a quota of 500 is allowable. A high percentage of these should be immature birds.

Greater Flamingo *Phoenicopterus ruber* BN58: A much rarer and more restricted species than Lesser Flamingo. It should not be exported from Tanzania except under special licence for *bona fide* breeding establishments.

Hadada Ibis *Bostrychia hagedash* BN51: A widespread species that could possibly sustain an offtake of 100 per annum providing the offtake was distributed among different regions.

Sacred Ibis *Threskiornis aethiopica* BN54: A widespread and reasonably common species. Some 200 per annum could be allowed.

African Spoonbill *Platalea alba* BN55: A rare bird outside its preferred Rift Valley habitat. It could probably sustain an offtake of 50 per annum providing these were non breeding individuals from within the Rift Valley.

Purple Gallinule *Porphyrio porphyrio* BN203: This and all other members of the family Rallidae (which includes the following five species) are specialised swamp and water birds. They are difficult to keep in captivity and require spacious enclosures and specialised diet. Demand for these birds will be restricted to very few species and should only come from large institutions such as national zoos. This species should not be exported.

Striped Crake *Porzana marginalis* BN204: An extremely rare and restricted species in Tanzania that should be removed from the list.

White-spotted Pygmy Crake *Sarothrura pulchra* BN213: An extremely rare species found throughout the western world. There can be no demand for this species from Tanzania, and it should be removed from the list.

Common Moorhen *Gallinula chloropus* BN199: A cosmopolitan species common throughout the western world. There can be no demand for this species from Tanzania and it should be removed from the list.

Allen's Gallinule *Porphyrio alleni* BN202: A widespread but uncommon Afrotropical migrant that should be removed from the list.

Black Crake *Limocorax flavirostra* BN201: A widespread and fairly common species for which there may be a demand from specialised centres. However, no more than 20 should be exported per annum.

African Finfoot *Podica senegalensis* BN216: A very rare species that is restricted to clean, fast flowing streams with over-hanging trees. Its habitat is threatened in Tanzania by riverside clearance and siltation. This species should not be on the list.

Red-knobbed Coot *Fulica cristata* BN215: Found only on highland lakes. There would be little demand for this species and a maximum of 40 per annum could be considered

Hornbills, Family Bucerotidae: Large, mainly arboreal birds with specialised nesting habits and unusual diets. Demand will be restricted to large zoos and institutions.

Ground Hornbill *Bucorvus caffer* BN528: A widespread species that could be taken in small numbers, to a maximum of 40 birds per annum.

Yellow-billed Hornbill *Tockus flavirostris* BN520: A northern dry country species that is not common in Tanzania, and should be removed from the list.

Von der Decken's Hornbill *Tockus deckeni* BN517: A widespread species that could be taken in small numbers. A maximum of 40 per year should be considered.

Red-billed Hornbill *Tockus erythrorhynchus* BN518: A widespread dry country species that could be taken in small numbers. A maximum of 40 per year should be considered.

Grey Hornbill *Tockus nasutus* BN524: A dry woodland species with drab plumage for which demand will be low. It should not be considered for export.

Crowned Hornbill *Tockus alboterminatus* BN515: A forest and rich woodland species that is widespread in Tanzania. A few could be taken to a maximum of 40 per annum.

Trumpeter Hornbill *Bycanistes bucinator* BN510: An uncommon forest species that should be protected. This species should be removed from the list.

Silvery-cheeked Hornbill *Bycanistes brevis* BN509: An uncommon highland forest species that requires large mature trees for nesting. The species should be protected and removed from the list.

Francolins and Spurfowl, Family Phasianidae: There are 14 members of this family in Tanzania, most of which are dull coloured, appealing only to specialised collections.

Red-necked Spurfowl *Francolins afer* BN167: A common and widespread species, but two of the five races are endemic and restricted. A maximum of 500 should be considered.

Yellow-necked Spurfowl *Francolins leucoscepus* BN175: A common dry country species that has been over-exploited in the past and needs to be carefully monitored to prevent a population decline. A maximum of 1000 should be considered.

Grey-breasted Spurfowl *Francolinus rufopictus* BN181: An endemic species in Tanzania found in an area of habitat degradation. It should not be exported and accurate identification of consignments is necessary to avoid confusion with the somewhat similar Yellow-necked Spurfowl.

Coqui Francolin *Francolinus coqui* BN170: A widespread species that is nowhere common. A maximum of 40 could be considered.

Hildebrandt's Francolin *Francolinus hildebrandtii* BN171: A locally restricted species that should not be considered for export.

Red-winged Francolin *Francolinus levillantii* BN176: A rare and restricted highland grassland species that is suffering from human encroachment and should not be exported.

Crested Francolin *Francolinus sephaena* BN182: A widespread and reasonably common species. A maximum of 100 per year could be considered.

Shelley's Francolin *Francolinus shelleyi* BN183: A rare and restricted species occurring in upland grassland. Under threat from agricultural encroachment. It should not be considered for export. Separation of this species from Scaly and Red-winged Francolin can be very difficult.

Scaly Francolin *Francolinus squamatus* BN184: A montane forest species of very local distribution. It should not be considered for export.

Birds of Prey: It is considered that birds of prey should not be exported. Many are difficult to identify in immature plumage and have specialised feeding and habitat requirements. Tanzania is one of the few remaining countries in the world with a healthy population of birds of prey. This is largely as a result of restricted use of pesticides. The majority of countries would be pleased to see Tanzania continue to be a safe refuge for these birds.

Vulturine Guineafowl *Acryllium vulturinum* BN187: A locally common dry country species found in the Maasai steppe that is attractive to bird dealers. A maximum of 500 per year is sustainable.

Helmeted Guineafowl *Numida meleagris* BN187: A common and widespread species. 3000 birds per year could be considered for export.

Doves, Family *Colombidae*: There are 15 species of doves and pigeons in Tanzania, some of which are restricted montane forest species. The Tambourine Dove has been common among consignments of birds for export, but this is a declining forest species and should not be exported. However, other species are extremely common and the following could be considered. No other species of *Colombidae* than those listed below should be considered for export, especially not the Tambourine Dove.

Ring-necked Dove *Streptopelia capicola* BN346: It should be considered to a maximum of 5000 per annum.

Mourning Dove *S. decipens* BN347: It should be considered to a maximum of 5000 per annum.

Red-eyed Dove *S. semitorquata* BN350: It should be considered to a maximum of 2000 per annum.

Laughing Dove *S. senegalensis* BN351: It should be considered to a maximum of 2000 per annum.

Emerald-spotted Wood Dove *Turtur chalcospilos* BN356: Care should be taken not to confuse the similar but much rarer Blue-spotted Wood Dove. It should be considered to a maximum of 2000 per annum.

Green Pigeon *Treron australis* BN358: It should be considered to a maximum of 500 per annum.

Parrots and Lovebirds, Family Psittacidae: Lovebirds are the most popular birds for the pet trade. Tanzania has 4 species, 2 of which are endemic, and one is very rare, being restricted to west of Lake Victoria. These birds have all been reduced in numbers for the pet trade, and careful studies of the remaining populations must be conducted before any further exports are permitted. Furthermore, these birds are now bred successfully in western Europe and the USA, so there is no requirement to supply the market with wild-caught birds. There are 6 species of Parrot in Tanzania, some of which are very popular cage birds, so exports should be carefully monitored. The Grey Parrot and Red-fronted Parrot only occur in very small numbers in special forest areas in Tanzania, and trade in these species from Tanzania should be banned. Other parrots occur in woodland and population surveys are required before numbers for export can be established.

Fischer's Lovebird *Agapornis fischeri* BN361: This should be removed from quota.

Red headed Lovebird *Agapornis pullaria* BN363: Rare and restricted to west of Lake Victoria. It should not be considered for trade.

Brown Parrot (Meyer's) *Poicephalus meyeri* BN367: A widespread species in dry country. Population studies are required before export quotas can be established. A possible maximum of 200 per annum might be considered.

Brown-headed Parrot *Poicephalus cryptoxanthus* BN365: A widespread species in the coastal lowlands. Population studies are required before export quotas can be established. A possible maximum of 200 per annum might be considered.

Orange-bellied Parrot *Poicephalus rufiventris* BN369: A widespread species in dry country in northern Tanzania. Population studies are required before export quotas can be established. It should not be considered for export at present.

Red-fronted Parrot *Poicephalus guliemi* BN366: This species is found only in the juniper forests of the Usambara Mountains, Mt Kilimanjaro and Mt Meru where it should be protected. No exports should be considered.

Turacos, Family Musophagidae: There are 7 species of Turaco. All are found in forests or woodland and are threatened by habitat damage. Turacos should not be trapped in any of the lowland forests where district races occur.

Livingstone's Turaco *Tauraco livingstonii* BN382: This species occurs in both lowland and highland forest, where different races occur. Up to a maximum of 300 birds could be considered, provided they are taken from lowland forests.

Hartlaub's Turaco *Tauraco hartlaubi* BN379: This species should not be considered for export, as it has been heavily exported in the past.

Fischer's Turaco *Turaco fischeri* BN378: This species is an East African endemic restricted to lowland forests in the Usambara Mountains, where it faces considerable threat due to commercial forest destruction. It should not be considered for export.

Ross's Turaco *Musophaga rossae* BN377: This is a rare and restricted species of woodland and riverine strip in north west Tanzania. It should not be exported.

Go Away Birds, Family Musophagidae: Three species of Go Away Bird occur in Tanzania, and all are rather rare and restricted to certain parts of the country.

Go Away Bird *Corythaixoides concolor* BN373: Very rare and restricted to parts of the Selous Game Reserve only.

White-bellied Go Away Bird *C. leucogaster* BN374: This is a species of dry country in northern Tanzania, where it is nowhere common.

Bare-faced Go Away Bird *C. personata* BN375: This is restricted to dry country in central Tanzania.

Mousebirds, Family Coliidae: Four species of Mousebird occur in Tanzania, of which two are reasonably common and two are rather rare and restricted. Care should be taken that rare species are not exported in error.

Blue-naped Mousebird *Urcolius macrourus* BN461: A common species of dry country. A maximum of 1000 could be considered.

Speckled Mousebird *Colius striatus* BN459: This is a common and widespread species that could be exported up to a maximum of 3000 per annum. They should be taken mainly from fruit producing areas where they centre and are an agricultural pest.

Barbets, Family Capitonidae: There are 25 species of Barbet in Tanzania and all are forest or woodland species with specialised nesting and feeding habits. This family should not be considered for export.

Bulbuls, Family Pycnonotidae: The family Pycnonotidae includes Bulbuls and Greenbuls and there are a total of 23 species in Tanzania. They are usually dull green in colour and not attractive to bird dealers. **Common Bulbul *Pycnonotus barbatus*** occurs throughout Tanzania and is very common. A maximum of 5000 of this species can be considered but no others.

Starlings, Family Sturnidae: Starlings are noisy and brightly coloured birds that are very popular as caged birds. There are 25 species of Starling in Tanzania some of which occur in mountain forests but mostly they are birds of open country. Trappers concentrate on some 7 or 8 of the brighter species.

Wattled Starling *Creatophora cinerea* BN1052: A gregarious species found in dry country in northern Tanzania, mainly in the northern parks. It is not common. Males develop brightly coloured wattles in the breeding season. A maximum of 300 can be considered for export.

Violet-backed Starling *Cinnyricinclus leucogaster* BN1048: An Afrotropical migrant, this species passes through Tanzania at certain times of year. Males are beautifully coloured, females are plain. A maximum of 300 can be considered for export.

Blue-eared Glossy Starling *Lamprotornis chalybaeus* BN1055: A common species throughout Tanzania but very easily confused with Lesser Blue-eared Glossy Starling that is a restricted woodland species. Care should be taken and experts called in for identification of consignments. A maximum of 1000 could be considered for export.

Splendid Glossy Starling *Lamprotornis splendidus* BN1061: Possibly a mis-identification, this bird only occurs in extreme northwestern Tanzania in Kagera region. It should not be considered for export.

Ruppell's Long-tailed Glossy Starling *Lamprotornis. purpuropterus* BN1060: A reasonably common species occurring in northern Tanzania. A maximum of 200 can be considered for export.

Superb Starling *Spreo superbus* BN1076: A common, brightly coloured, gregarious bird of dry country closely resembling Hildebrandt's Starling. Care should be taken with identification of these birds. A maximum of 500 birds can be considered for export per annum.

Red-winged Starling *Onyclognathus morio* BN1064: Easily confused with 3 other species of Starling that have red in the wings. As these are all rare and of restricted distribution, this type of starling should not be exported.

Golden-breasted Starling *Cosmopsarus regius* BN1050: A colourful species that is already suffering from the attentions of the bird trade. The species occurs as a non-breeding visitor from Kenya, in the dry country of north-east Tanzania, but it is nowhere common. It should be withdrawn from the export list until population studies can be conducted to establish sustainable export numbers.

Hildebrandt's Starling *Spreo hildebrandti* BN1074: A northern species occurring in dry country. A maximum of 200 can be considered for export.

Sunbirds, Family Nectariniidae: There are 41 species in Tanzania, and all are tiny birds that feed on nectar from flowers. Three species are endemic to Tanzania, one of which was only recently discovered in 1981. Due to their small size and difficult feeding habits, these birds should not be exported, except to very specialised dealers who know how to take care of them.

Finches, Family Estrildidae and Fringillidae: Finches include Waxbills, Buntings, Canaries and Seed-eaters. Altogether 52 species are involved and many of these are rare and unusual forest birds that should not be considered for export. Better identification by the Wildlife Department is needed to prevent exploitation of rarer finches.

The following finches can be considered for export:

BN1226 Waxbill <i>Estrilda astrid</i>	200
BN1228 Black-cheeked Waxbill <i>E. erythronotus</i>	500
BN1241 Red-billed Firefinch <i>Lagonosticta senegala</i>	2000
BN1256 Green-winged Pytilia <i>Pytilia melba</i>	500
BN1261 Red-cheeked Cordon Bleu <i>Uraeginthus bengalus</i>	2000
BN1262 Blue-capped Cordon Bleu <i>U. cyanocephalus</i>	2000
BN1263 Purple Grenadier <i>U. ianthinogaster</i>	1000
BN1264 Cut-throat <i>Amadina fasciata</i>	1000
BN1266 Bronze Mannikin <i>Lonchura cucullata</i>	1000
BN1280 Yellow-rumped Seed-eater <i>Serinus atrogularis</i>	500
BN1290 Yellow-fronted Canary <i>S. mozambicus</i>	1000
BN1292 Streaky Seed-eater <i>S. stroilatus</i>	500
BN1293 Brimstone Canary <i>S. sulphuratus</i>	500

The following finches should not be exported:

BN1219 Zebra Waxbill <i>Amandava subflava</i>
BN1223 Red-faced Crimson-wing <i>Cytopspiza reichenovii</i>
BN1224 Abyssinian Crimson-wing <i>C. salvadorii</i>
BN1229 Yellow-bellied Waxbill <i>Estrilda melanotis</i>
BN1230 Black-crowned Waxbill <i>E. nonnula</i>
BN1231 Fawn-breasted Waxbill <i>E. palidicola</i>
BN1232 Lavender Waxbill <i>E. perreini</i>
BN1233 Crimson-rumped Waxbill <i>E. rhodopyga</i>
BN1235 Peter's Twinspot <i>Hypargos niveoguttatus</i>
BN1238 Jameson's Firefinch <i>Lagonosticta rhodopareia</i>
BN1239 African Firefinch <i>L. rubricata</i>
BN1242 Green-backed Twinspot <i>Mandingoa nitidula</i>
BN1246 Grey-headed Negrofinch <i>Nigrita canicapilla</i>
BN1249 Quailfinch <i>Ortygospiza atricollis</i>

BN1250 Black-chinned Quailfinch *O. gabonensis*
 BN1251 Locust Finch *O. locustella*
 BN1253 Lesser Seed-cracker *Pyrenestes minor*
 BN1254 Black-bellied Seed-cracker *P. ostrcinus*
 BN1255 Orange-winged Pytilia *Pytilia afra*
 BN1259 Red-headed Bluebill *Spermophaga ruficapilla*
 BN1260 Cordon-blue *Uraeginthus angolensis*
 BN1265 Black & White Mannikin *Lonchura bicolor*
 BN1267 Magpie Mannikin *L. fringilloides*
 BN1268 Grey-headed Silverbill *Lonchura griseicapilla*
 BN1269 Silverbill *L. malabarica*
 BN1270 Java Sparrow *L. oryzivora*
 BN1271 Cabani's Bunting *Emberiza cabanisi*
 BN1271 Southern Rock Bunting *E. capensis*
 BN1273 Golden-breasted Bunting *E. flaviventris*
 BN1276 Somali Golden-breasted Bunting *E. poliopleura*
 BN1278 Cinnamon-breasted Bunting *E. tahapisi*
 BN1279 Oriole Finch *Linurgus olivaceus*
 BN1281 Thick-billed Seed-eater *Serinus burtoni*
 BN1281 Yellow-crowned Canary *S. canicollis*
 BN1283 African Citril *S. citrinelloides*
 BN1284 Grosbeak Canary *S. donaldsoni*
 BN1285 White-bellied Canary *S. dorsostratus*
 BN1289 Black-eared Seed-eater *S. menelli*
 BN1291 Stripe-breasted Seed-eater *S. reichardi*

Weavers, Family Ploceidae: Weavers are usually bright yellow and fascinating birds because of the nests they weave. There are 68 species in the family Ploceidae that includes weavers, bishops, sparrows and whydahs. Many are very difficult to identify and some species are quite rare. Most have a breeding and non-breeding plumage. Only those common and easily identifiable species should be considered for export.

Golden Weaver *Ploceus subaureus* BN183: This brightly coloured species can be considered to a maximum of 300 per annum.

Masked Weaver *Ploceus intermedius* BN170: This is a bird of restricted distribution that should not be exported. However, the very similar **Black-headed Weaver *Ploceus cucullatus* BN1165** is very common, and a maximum of 5000 per annum of this species could be considered for export.

Spectacled Weaver *Ploceus ocularis* BN1177: This solitary and restricted species should not be considered for export.

Other Weavers: This category should not be included.

Whydahs, Family Ploceidae: There are 5 species of Whydah in Tanzania and all of them lay their eggs in the nests of other birds. Males have brightly coloured plumage and long tails in the breeding season and revert to small sparrow-like birds when the season is over. They should not be considered for export as they are only attractive during the breeding season and capture would result in the loss of only males.

Bishops and Widowbirds, Family Ploceidae: There are 7 species of Bishop and 6 species of Widowbird in Tanzania and all are included in Ploceidae. Males have brightly coloured plumage and long tails in the breeding season and revert to small sparrow-like birds when the season is over. The following species could be considered for export:-

BN1141 Yellow Bishop <i>Euplectes capensis</i>	200
BN1146 Black-winged Red Bishop <i>E. hordeaceus</i>	200

BN1149 Zanzibar Red Bishop <i>E. nigroventris</i>	200
BN1140 Fan-tailed Widowbird <i>Euplectes axillaris</i>	100
BN1138 White-winged Widowbird <i>E. albonotatus</i>	100

Plovers, Family Charadriidae: No such category should exist. A total of 22 species plovers occur in Tanzania, and the category of Other Plover should not continue to appear on the quota. No plovers should be considered for export:

Black-winged Stilt *Himantopus himantopus* BN282: This waterside species is threatened by habitat loss. Breeding is slow and pairs usually have only one chick per year. It should not be on the list.

Avocet *Recurvirostra avosetta* BN283: This cosmopolitan species has a specialised feeding technique that makes it difficult to keep in captivity. It occurs in northern and western Europe where it can be common. There can be little demand for this species from Tanzania and it should be removed from the list.

African Jacana *Actophilornis africanus* BN225: A specialised bird of lakes and swamps where it feeds among the water lilies. It is fairly common and could sustain export in small numbers up to a maximum of 100 per annum.

Lesser Jacana *Microparra capensis* BN226: A rare and restricted species occurring on highland swamps and lakes. It should be removed from the list.

African Hoopoe *Upupa epops* BN502: This is the only member of the Family Upupidae that occurs in Tanzania and it is difficult to separate from the European bird that is under threat and protected. This species should be removed from the list as the African species is no longer common in Tanzania.

Cuckoos, Family Cuculidae: There are 13 species of cuckoo occurring in Tanzania and all of them lay their eggs in the nests of other birds. The smaller cuckoos are brightly coloured and iridescent but some are quite rare and restricted. Only the **Didric Cuckoo *Chrysococcyx cupreus* BN388** should be considered for export in small numbers up to 50 birds per annum.

Emerald cuckoo *Chrysococcyx cupreus* BN389: This should not be considered for export.

Kingfishers, Family Alcedinidae: This category should be removed from the list. A total of 11 species of Kingfisher occur in Tanzania. However, they are specialist feeders and should not be exported.

Rollers, Family Coraciidae: This category should be removed from the list. Of the 5 species of Roller in Tanzania, only the **Lilac-breasted Roller *Coracias caudata* BN496** is common. This species can be exported to a maximum of 200 birds per annum.

Narina's Trogon *Apaloderma narina* BN462: Widespread but uncommon species that occurs in lowland forest and riverine strip. This habitat is now severely threatened in many parts of Tanzania. The species should be removed from the list.

Bar-tailed Trogon *Apaloderma vittatum* BN463: A rare and restricted species of highland forest. It should be removed from the list.

Bee-eaters, Family Meropidae: Of the 12 species of Bee-eater occurring in Tanzania, most are migratory and pass through at certain times of year. These birds are specialist feeders catching insects on the wing and are difficult to feed in captivity. This category should be removed from the list.

Woodpeckers, Family Picidae: There are 13 species of woodpecker in the family Picidae and many are extremely rare as well as being very difficult to identify. Members of this family should not be exported as their woodland and forest habitats are threatened throughout the country. This category should be removed from the list.

Flycatchers, Family Muscicapidae: There are 35 members of this family in Tanzania and the majority of these are forest dwelling and relatively rare.

Paradise Flycatcher *Terpsiphone viridis* BN968: A reasonably common member of the Muscicapidae. Males have long colourful tails and are attractive to bird trappers. Up to a maximum of 100 birds per annum could be considered for export.

5. CONCLUSIONS

If the international community is to continue to allow Tanzania to export its birds, then a sensible quota must be drawn up and adhered to. If a quota containing the species suggested above is accepted, it should be noted that earnings to Tanzania will be far greater than the US\$ 300,000 remitted from July 1990 to July 1991 (Planning and Assessment for Wildlife Management, 1996). Any future quota should be a list of species acceptable for trade with total limits imposed that are well within the confines of sustainability. Furthermore, the Government departments responsible for policing the trade should be familiar with the species involved.

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6. MORTALITY IN TANZANIA'S BIRD TRADE

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1. INTRODUCTION

The death of birds as a result of their capture, captivity and transport is of concern to many parties. Nevertheless, detailed data on mortality of birds in trade are very few. Ideally, the expected life-span and mortality for each species in the wild should be compared with what is observed in the trade. However, population life-history data are generally lacking for wild populations of birds in Tanzania. It is known that some of the small forest-dependent species such as sunbirds live at least 10 years, and there are data from zoo and captive bred species. Nevertheless, these data are not directly applicable to the issue at hand.

Probably no other issue has raised as much concern among those monitoring the trade as mortality, especially that in transport. The reason is that importing countries often have strict quarantine regulations, and enforce laws requiring the proper packing of animals from a humane viewpoint much more closely than exporting countries. Those with the duty of determining that any trade in wildlife is carried out on a truly sustainable, long-term basis also have a keen interest in mortality at various points in the capture-transport process. Finally, for those species traded but believed to be under imminent threat of extinction or drastic reduction, it is critical to know the role of any added threat of increased mortality caused by the trade. It is convenient to recognise pre-export and export mortality, emphasising the pressures under which birds are placed at different stages in the trade process.

2. PRE-EXPORT MORTALITY

2.1. OVERVIEW: PRE-EXPORT MORTALITY

Studies in Senegal, the largest exporter of birds from Africa, indicate a mortality of 10-50% during capture and holding by the trapper, 5-30% in primary transport, and 5-100% at the holding grounds (Jensen, 1991). Another study in Senegal estimated pre-export mortality as 45-62% (Carter, 1982). Similar levels of mortality have been reported in the South East Asia trade (Nilsson, 1987).

At present, there is no evidence to suggest that the pre-export mortality in the Tanzanian bird trade is any lower than reported for elsewhere.

2.2 CAPTURE

It has been extremely difficult to obtain accurate data on mortality during the capture process in Tanzania. However, studies are available from elsewhere, and limited observations and information from trappers are available from Tanzania. These suggest that the use of such techniques as bird lime and the cutting down of nest trees to obtain young birds are extremely damaging to birds. These capture methods often result in high levels of stress and injury, if not in immediate death. Even the more modern technique of mist-netting occasionally causes some species to go into shock and die simply from being netted and handled. Affected species include flycatchers, some sunbirds and, surprisingly, even much larger species. In many cases, birds may receive injuries that may not be apparent at the time, but may manifest themselves later. The mixing of birds in the net, and after capture, may also expose them to diseases that they would not ordinarily encounter in the wild.

2.3. HOLDING AT TRAPPER'S VILLAGE OR WAY STATION

Once captured, the birds are then held for varying lengths of time at the trapper's village or home. Often, conditions at these sites are relatively primitive, resulting in improper nutrition, mixing of species, exposure to disease, harsh conditions (cold, heat, drought), and overcrowding. The trapper may hold the birds for some time, or very quickly ship them or transport them or transport them himself to a dealer or his representative in the region. The speed of shipment depends on whether or not he has a firm order, cages at hand, instructions from the dealer to send the birds to a main holding ground, and so on.

2.4. TRANSPORT TO DEALER'S HOLDING GROUND: PRIMARY TRANSPORT

In Tanzania, the main trapping sites are located around Arusha, Tanga, Dodoma and to a lesser extent, Karagwe. Some dealers export from Arusha. However, more are based in Dar es Salaam, a distance of 350-650 km from the former and some 1500 km from the latter trapping site.

Unless the dealer has personally organised transport to collect the birds from trapping sites, this must be arranged by the trapper. Given usually limited resources and insensitivity to the animals, the birds are often transported in unsuitable, overcrowded containers, with inadequate ventilation, food, and water, and under improper conditions. The boxes of birds often travel by bus or in a lorry, in which the transporter has no control over temperature, ventilation, levels of noise, and so on.

2.5. CAPTIVITY AT THE HOLDING GROUNDS

At the holding ground, those birds that have survived the primary transport are kept until it is time for export. The conditions of heat and humidity at Dar es Salaam, virtually at sea level, differ from those of highland areas where many birds are captured. Birds also experience changes in diet and water, and may be kept with other species to which they will not have been previously exposed. Hence, it is not surprising that these conditions may cause many birds stress, disease and eventual death.

During announced visits to 6 holding grounds, dealers in Dar es Salaam would not give any details of primary transport, other than to state the major regions where birds were captured (Jensen, 1991). It was noted that smaller birds were held about two weeks before export. Although the cages were clean, drinking water troughs were sometimes placed immediately below the perches, and thus were contaminated with faeces. Problems in providing the correct food for many of the species were also reported. Exporters noted a loss estimated at 3-5% per day, and these birds were removed during daily inspection of the cages (Jensen, 1991).

Release of unwanted birds from the holding grounds is not usually mentioned as a source of mortality, but this is known to have occurred in Tanzania. For various reasons, a situation may arise where it is uneconomical to retain birds because of the expense of feeding and captivity, for example due to disease or a lost order. On several occasions in the past, thousands of birds were released in Dar es Salaam, and several species appear to have become established in this way (Harvey and Howell, 1987). Such releases are of potentially great danger, because they can drastically alter the local ecology and affect natural populations. Furthermore, such releases can spread avian diseases both to wild populations and to domestic fowl.

3. EXPORT MORTALITY

3.1. OVERVIEW

The available data on export mortality are derived from import data at the country of destination, or occasionally, in transit (Carter, 1987; Fowler, 1974; Nilsson, 1981, 1989, 1990; Jensen, 1991; TRAFFIC, 1991). This mortality is usually divided into two categories: *DOA* or those birds that were dead on arrival at the locality in question, and *DDQ*, those which died during quarantine. These categories do not indicate mortality between the holding ground and airport, nor mortality in transit (if dead birds have been removed in transit), both of which may be considerable.

It is difficult to generalise, and mortality can range from zero to 100%, depending on the particular species, and on particular species in particular shipments. Shipments are recorded with no mortality at all, as are those with 100% *DOA*, or with 100% *DDQ*. For at least some studies, results are incomplete, because mortality data were not available. Shipments to the USA were examined in detail in 1985, and high mortality was defined as greater than 40%. Over-crowding, Newcastle Disease, and the transport of disease-prone and delicate species were noted as probable reasons for 51%, and 26%, and 20%, respectively, of this high mortality (Nilsson, 1989). Shipments to Denmark have also been examined in detail (Jensen, 1991). It was concluded that several factors were related to transport mortality, including lack of water, feed and ventilation, singly or in combination. In 58.5% of the compartments examined, there was a deficiency in either, water, feed or ventilation in different combinations. In total 41% of the compartments there was a lack of water on arrival at the airport. It was concluded that two transport factors are directly proportional to air transport mortality, namely the density in each compartment and the transport time (Jensen, 1991).

It is difficult to determine the exact cause of mortality in transit for a number of reasons. These include: the lack of standardised cages; different conditions of packing and handling by the exporter; age of birds, illness, injury at time of loading; and, different handling procedures by airlines, to name but a few. The information available points to some requirements to reduce losses. These include: the importance of proper cages, with adequate ventilation, enough space per individual animals, adequate food and water; and, as short a shipping time as possible.

Evidence suggests that many birds that are not DOA have been sufficiently stressed, or are already infected with disease, that they will die DDQ. Mortality DDQ is much higher, usually at least 2-3 times greater, than that of mortality expressed as DOA (Nilsson, 1981, 1989, 1990; Jensen, 1991; TRAFFIC, 1991).

3.2 EXPORT MORTALITY OF TANZANIAN BIRDS

Table 1 gives data for birds arriving as imports in the USA and UK. Overall mortality in shipments from Tanzania is about 22% to the USA, but is less to the UK, and there is great variability among shipments, and among species.

Table 1: Mortality of birds imported from Tanzania.

	No Imported	DOA	DDQ
UK (MAFF, 1991)			
1988	46,485	3.7%	8.5%
1989	38,362	3.1%	15.0%
USA (TRAFFIC, 1991)			
1986-1990	332,047	5.8%	16.5%

The data indicate that there are very different mortality rates for different species, and/or groups of birds. However, it is not possible with the data available (MAFF, 1991; TRAFFIC, 1991) to explain these differences. Not surprisingly, insectivorous species birds are difficult to keep except under especially favourable conditions, and have high mortality rates, often as high as 100%. Affected groups include sunbirds, white-eyes, bee-eaters, barbets, and starlings. However, species such as go-away birds, hornbills, some birds of prey, and bustards also show mortality rates of greater than 60%. Even species that make up the bulk of the trade, such as some waxbills, sometimes have mortality rates of 40% and higher. Equally, not all shipments have such high mortality rates. Nevertheless, no analysis yet appears to relate mortality to such variables as: the exporter; how the shipment was made; time to reach destination; provision of food, water, ventilation and space allocated per bird. Such an analysis is needed as some species do not do well in transport, quarantine or captivity. Furthermore, even for those species that do seem suitable for trade, it is important to see that requirements as to their well-being are met.

3.3. EXAMPLES OF PROBLEM SHIPMENTS FROM TANZANIA

The following examples show how shipments leaving Tanzania are improperly prepared.

3.3.1. Destination USA: In December 1989, 8,000 birds en route to the US arrived at Heathrow Airport, and 1,200, including flamingos, rollers, storks and lovebirds were DOA. The birds were poorly packed and overcrowded. On arrival in the US some of the surviving birds were seized because their numbers had been under declared. KLM was fined US\$ 40,000 for cruelty in carrying the shipment.

In September 1990, a consignment of 9,000 birds was detained at Nairobi while en route to the US. Within two days, over 1,200 of these were dead. Reports by KSPCA indicated severe overcrowding.

3.3.2. Destination Belgium: On 12 May 1991, a shipment of 4,500 birds arrived in Belgium on Egypt Air. Many of these were DOA. The shipment included bustards and Saddle-billed Storks. Some species in the shipment were not included on the required documents.

3.3.3. Destination Denmark (Jensen, 1991): 1,044 non-parrot species arrived after a shipping time of 17.5 hr. One crate contained 190 individuals of Estrilidae (waxbills and so on). An area of 14.8 sq cm was available for each bird, the crate was not ventilated, and there was no food on arrival. Of 87 Red-billed Fire Finches, 8 (9.2%) were DOA. The next day, 21 birds of this species died and a further 20 died in the weeks that followed. This was equivalent to the quarantine mortality of 47% for that species.

Another shipment contained 682 birds (length of transport time was not available). Some 80 larger birds, such as turacos and hornbills were present, as well as Estrilidae and Ploceidae (weavers). There was no feed. Up to 12 species were packed together in crates, each crate containing more than 200 birds. The average area per bird was 24 sq cm. Birds DOA were 7.5% within 3 days of arrival, another 430 birds died later, giving a total mortality of 63%.

3.3.4. Summary: These examples indicate that Tanzanian exports are in some cases overcrowded, poorly packed with inadequate food and water, and contain species not listed on required documents. Despite the accompanying documents, it is questionable whether all shipments are adequately inspected by veterinarians or by Wildlife Department staff. Furthermore, the airlines also bear responsibility for the cargo they transport. However, they have not taken an active role in checking as to the suitability of packing crates, the provision of adequate food, water, ventilation, and so on.

4. REDUCING MORTALITY IN THE BIRD TRADE

4.1. PRE-EXPORT MORTALITY

The level of education of the trapper with regard to the handling of the birds must be drastically improved. Furthermore, trapping needs to be much more closely supervised and monitored by the Government than has been the case in the past.

At present, there is no restriction on capturing birds in the breeding season. Birds in the breeding season, and birds already under physiological stress from breeding and/or moulting, may be greatly affected by the further stress of being captured and transported. If trapping methods and holding ground were to be improved, this would reduce mortality. Similarly, holding grounds need to be well-built, adequately designed and constructed, in such a way as to minimise stress on the birds. Expensive feed must be provided, especially for those birds with specialised diets, such as flamingoes.

4.2. EXPORT MORTALITY

Recommendations and regulations are already in place concerning proper cage and transport container construction, but these are not always followed. As noted above (see 3.3), food, water and ventilation are lacking in many cases. Overcrowding has been shown to be a major factor in mortality in transport. Birds must be packed with adequate space for each individual with a perch if necessary, and with some thought given to avoiding inter-specific reactions. Few details are available about disease in shipments. However, if birds from different geographic origins are mixed, this increases the chance of disease spreading. Certain species have been shown to have very high mortality rates, and these should be eliminated from the trade.

The Department of Wildlife, the veterinary service, and customs need to work closely together to monitor levels of mortality. At present, the level of control over monitoring the export of birds is totally inadequate. At a minimum, the carrier airline also has a responsibility to see that legal and humane regulations are followed.

Certain species appear unsuitable for trade. This could either be for reasons related to their distribution, population biology and conservation (Baker, 1996), and/or because of their high mortality rate or non-suitability for life in captivity. Some of these species, such as bustards, are already on the list of banned species (Planning and Assessment for Wildlife Management, 1996), but continue to be exported because dealers are issued Special Licences. This obviously defeats the purpose of the control measure already in place.

5. IMPLICATIONS OF PRESENT HIGH LEVELS OF PRE-EXPORT AND EXPORT MORTALITY

The exporters, both as a group and as individuals, must change the way they operate to prevent high levels of mortality that have become unacceptable to importing countries. The bird trade has

come to be viewed as a corrupt and uncontrollable business, despite national and international legislation that attempts to control it.

Already many major airlines refuse to carry wild birds for the pet trade. It is easier for them to do this than to try to police the exporters. Hence, it is not financially worthwhile to risk losing large numbers of passengers over the bird trade issue, which earns only relatively small amounts of money. Furthermore, the airlines are often legally liable in the importing countries for inhumane treatment, and have recently been heavily fined for improperly shipped birds.

Importing countries are now questioning the very basis of the bird pet trade. Many ask why the present system should be allowed to continue. Even with CITES legislation and international monitoring, high levels of mortality and much inhumane treatment of animals is still allowed. Many people argue that the demand for pet birds can be adequately met with captive-bred birds reared in what are now importing countries.

It is, of course, always possible to increase and improve regulations and inspections, but Tanzania does not suffer from a lack of legislation. However, present enforcement leaves much to be desired. Legally the burden of inspecting packing crates and cages falls on the Wildlife Department and the airline transporting the birds, and customs officers may be required to check the birds against correct documents. However, in the end it is the responsibility of the exporters to see that the correct number and species of birds are properly housed and packed for shipping. If, with the help of Government, they and their representative association cannot meet this responsibility, it is most unlikely that the trade will continue in its present form.

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7. THE BIRD TRADE IN TANZANIA: PROBLEMS AND FUTURE OUTLOOK

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1. INTRODUCTION

Conservation policy in Tanzania recognises both the primary conservation value of wildlife, and promotes sustainable use of wildlife resources for the benefit of Tanzanians. Despite these two policy aims, various forms of wildlife utilisation, such as Tanzania's involvement in the live bird trade, are being undertaken inappropriately. The trade is carried out at levels that are most probably not sustainable for some species, and in a manner that does not promote the conservation image of Tanzania overseas (Mulliken *et al.*, 1992). At the same time, those wishing to stop the trade completely are not following the guiding principles of the World Conservation Strategy, which promotes conservation through wise use.

This paper makes an assessment of Tanzania's involvement in the live bird trade, with respect to three main points: levels of trade; the regulatory system; and, economics of the trade. The paper illustrates some of the institutional problems faced by both the Department of Wildlife and other sectors of Government, if the trade in birds is to continue at sustainable levels that bring the greatest economic benefit to the nation. The findings of this study are presented in a positive spirit. They aim to identify some of the issues that require improvement, in partnership with those who are involved in the utilisation of live birds.

2. LEVELS OF TRADE

It has been suggested that Tanzania has been exporting an increasing number of birds during the 1980s (Mulliken *et al.*, 1992). Data for certain species have been compiled from individual CITES export forms from 1982 to 1990 (Figure 1). For 10 species with consistent records, mainly lovebirds, parrots, flamingoes, pelicans and spoonbills, levels of export have either been variable (Fischer's Lovebird, Meyer's Parrot and African Spoonbill), have decreased (Orange-bellied Parrot) or have tended to increase (the six others).

It does not yet appear possible to document accurately the total number of birds exported from Tanzania. At the start of this study, the CITES Section in the Department of Wildlife was requested to provide data on numbers of all bird species traded legally from Tanzania. Their figures suggested that the total volumes of birds traded had increased from 72,000 to 216,000 during 1988-1990, with the bulk of the trade being made up of finches, weavers, waxbills and lovebirds (Table 1). However, figures for the whole range of species traded over time were also given to TRAFFIC in July 1991 (Edwards and Broad, 1992) by the CITES Section of the Department. Nevertheless, the figures for 1989 and 1990 were very different (see Tables 2 and 3). Consequently, it appeared necessary to compile data from individual CITES Certificates, and this analysis produced yet another totally different set of figures (Tables 2 and 3).

Table 1: Total number of birds traded (data from Department of Wildlife records)

Year	Total no of birds exported
1988	72,455
1989	141,517
1990	216,734

These large discrepancies suggest that it will be necessary to computerise individual export certificates in CITES and Trophy Export books to obtain accurate data on the species and volumes involved in the bird trade. Because all records are compiled by hand at present, mistakes are inevitable. One other point is evident in Tables 2 and 3. For a number of species there are far fewer records actually in the CITES books than of birds exported. Some of these species are on the appendices of CITES. Therefore, all exports should be on CITES Certificates, but some are included on Trophy Export Certificates. Clearly, this is another area where the Wildlife Department needs to increase its capability, through training in certification by the CITES Secretariat and TRAFFIC.

Figure 1: Export records for various species, taken from CITES export certificates from 1982 to 1990 held by Department of Wildlife in Tanzania, by Howell (1982), WCST for 1984, 1987 and by PAWM for 1989 and 1990.

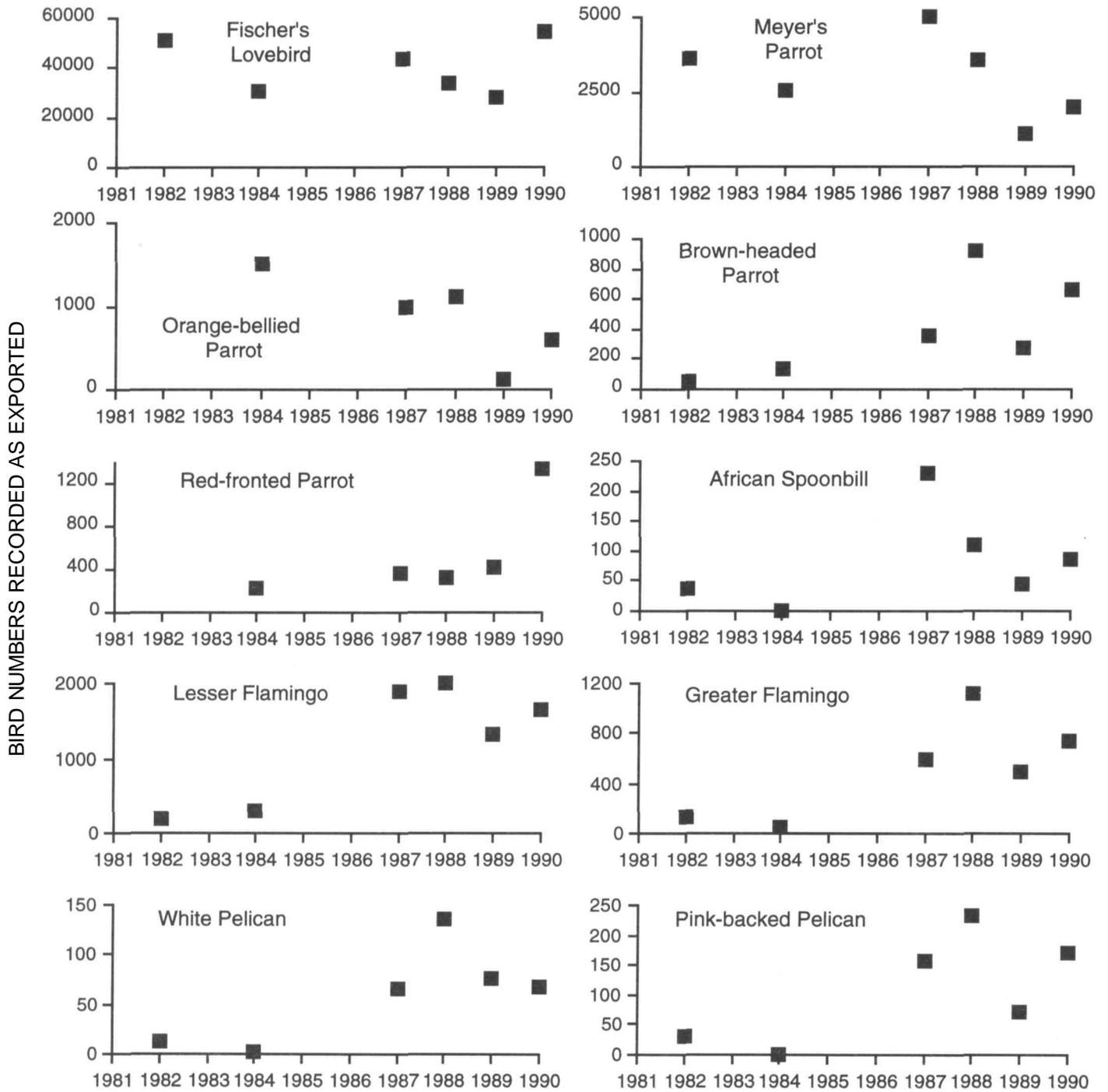


Table 2: Export records for various species from different sources in the Department of Wildlife for 1989 (brackets indicate records for two or more closely-related species)

CITES Appendix	Species	1989 figures given to PAWM	1989 figures given to TRAFFIC	1989 CITES books	1989 CITES Secretariat
II	Fischer's Lovebird (<i>A. fischeri</i>)	36715	33634	27600	33929
II	Meyer's Parrot (<i>P. meyeri</i>)	?	1412	1079	1329
II	Orange-bellied Parrot (<i>P. rufiventris</i>)	?	237	119	235
II	Brown-headed Parrot (<i>P. cryptoxanthus</i>)	?	126	279	126
II	Red-fronted Parrot (<i>P. gulllemi</i>)	?	1575	415	1657
II	Brown Parrot (<i>P. robustus</i>)	?		109	70
II	Lesser Flamingo (<i>P. minor</i>)	) 3309)	2596	1312	2162
II	Greater Flamingo (<i>P. ruber</i>)	)	1247	487	1237
-	White Pelican (<i>P. onocrotalus</i>)	) 274)	N/A	76)) 147)	-
-	Pink-backed Pelican (<i>P. rufescens</i>)	)		71))	
-	African Spoonbill (<i>Platalea alba</i>)	57	57	46	-
-	Hartlaub's Turaco (<i>T. hartlaubi</i>)	)	-	10	-
II	Fischer's Turaco (<i>T. fischeri</i>)	) 2436)	-	10	-
II	Livingstone's Turaco (<i>T. livingstonii</i>)	)	-	10	5
III	Sacred Ibis (<i>T. aethiopicus</i>)	0	0	5	10
III	Hadada Ibis (<i>B. hagedash</i>)	0	0	10	-
III	Marabou Stork (<i>L. crumeniferus</i>)	136	0	19	4
-	Abdim's Stork (<i>C. abdimii</i>)	?	-	2	0
III	Saddlebill Stork (<i>E. senegalensis</i>)	0	0	30	0
II	Crowned Crane (<i>B. pavonina</i>)	0	60	50	60
	Ground Hornbill (<i>B. cafer</i>)	?	0	2	0

Because the data are inaccurate within Tanzania, the most reliable data on volumes of birds traded from Tanzania at this time will come from records of imports admitted from Tanzania by importing nations. These records are not perfect either, and do not include records to countries not party to CITES (e.g. Saudi Arabia). However, for nearly all the species listed on Appendix II of CITES, the general picture emerges of an increasing trade that peaked in 1986, and that has subsequently declined (Figure 2). Only for two parrots is there a slightly different picture. It should be noted that import records also pick up several species that are not on quotas or indeed are now banned (see 3.1 and 3.2). These include Brown-necked or Cape Parrot, Crowned Crane, Secretary Bird, Violet-crested Turaco, African Fish Eagle and Bateleur.

Even when the Wildlife Department has fully put together its figures on legal levels of trade that have been permitted from Tanzania, it must be recognised that legal trade is often accompanied by a large illegal component. By its very nature, illegal trade is hard to monitor and the CITES figures available at present provide no clear evidence of the levels of illegal trade. This needs to be followed up by matching individual certificate numbers legally issued and/or exported, compared with those actually imported to particular countries.

Table 3: Export records for various species from different sources in the Department of Wildlife for 1990

CITES Appendix	Species	1990 figures given to PAWM	1990 figures given to TRAFFIC	1990 CITES books
II	Fischer's Lovebird (<i>A. fischen</i>)	29091	37879	54469
II	Meyer's Parrot (<i>P. meyeri</i>)	968	1175	1955
II	Orange-bellied Parrot (<i>P. rufiventris</i>)	346	559	589
II	Brown-headed Parrot (<i>P. cryptoxanthus</i>)	340	466	663
II	Red-fronted Parrot (<i>P. guliemi</i>)	756	954	1351
II	Lesser Flamingo (<i>P. minor</i>)	1000	1560	1657
II	Greater Flamingo (<i>P. ruber</i>)	417	799	732
-	White Pelican (<i>P. onocrotalus</i>)	69	108	67
-	Pink-backed Pelican (<i>P. refuses</i>)	265	341	170
-	African Spoonbill (<i>Plafalea alba</i>)	38	75	87
-	Hartlaub's Turaco (<i>T. hartlaubi</i>)	315	637	10
II	Violet-crested Turaco (<i>T. porphycolophus</i>)	0	0	4
-	Ross's Turaco (<i>M. rossae</i>)	22	34	2
III	Sacred Ibis (<i>T. aethiopicus</i>)	258	494	20
III	Hadada Ibis (<i>B. hagedash</i>)	170	230	10
III	Marabou Stork (<i>L. crumeniferus</i>)	165	236	12
-	Helmeted Guineafowl (<i>N. meleagris</i>)	101	149	8

In conclusion, it appears that there are no reliable data on the total number of birds traded from Tanzania for two main reasons. First, the record keeping requires great improvement and, second, there is no way of cross-checking trade levels for non-CITES species. In addition, the levels of illegal trade clearly need to be established.

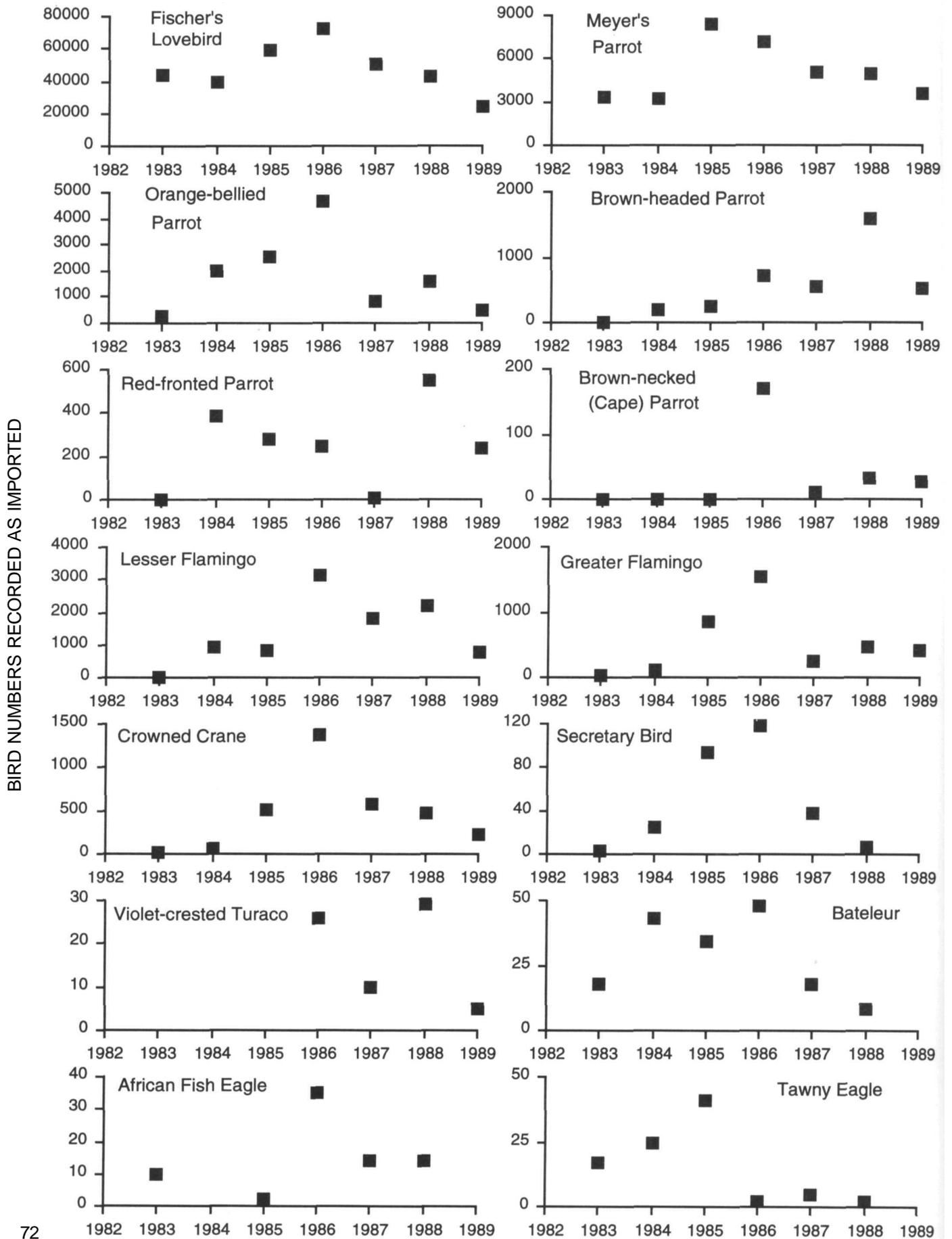
3. REGULATORY SYSTEM IN TANZANIA AS IT RELATES TO TRADE

In response to concerns expressed both inside and outside Tanzania on the levels of birds trade from the country (Edwards and Broad, 1992), the Wildlife Department introduced measures that aimed to control levels of trade. These measures comprise the banning of certain species from trade and the setting of quotas.

3.1. BANNED SPECIES

In November 1991, the Wildlife Department, as Tanzania's CITES Management Authority, informally requested the UK CITES Management Authority to help it monitor exports of certain species or species groups that Tanzania wished to ban from future trade (Figure 3). These species and species groups have not been included on quotas available for export since that time. These so-called *banned* species have no formal recognition in the Wildlife Conservation Act, which lacks a category of protected species. Nevertheless, it is of considerable interest to monitor the levels of trade in these banned species as an indication of the willingness of the traders not to include such species on their price lists and the ability of the Tanzanian Management Authority to regulate their trade.

Figure 2: Import records for CITES Appendix II species held by the CITES Secretariat and TRAFFIC (Mulliken *et al.*, 1992)

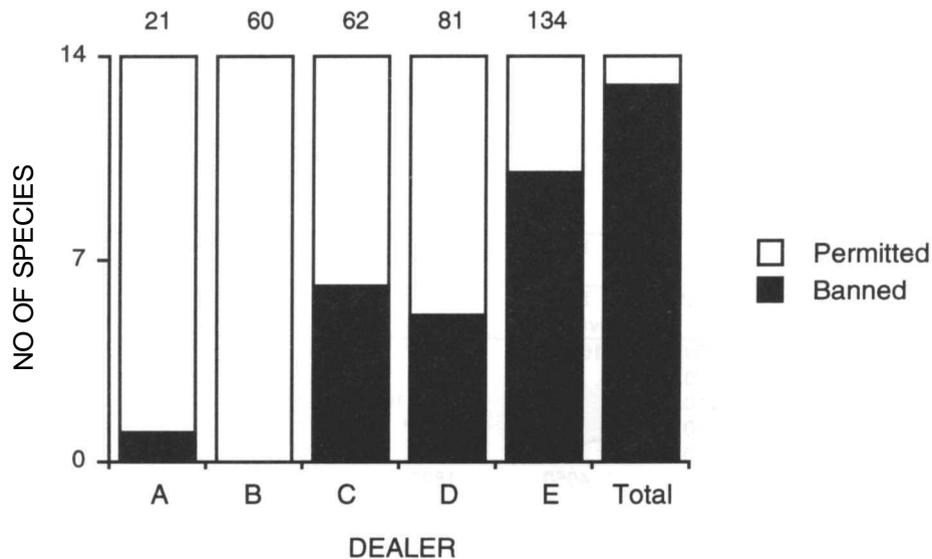


The list of banned birds comprises 14 species or species groups, as shown in Figure 3. Some birds in this category are allowed out on Special Licence. However, a number of Tanzanian bird traders openly advertise banned birds as being for sale, as evidenced from a sample of 5 price lists for 1990 available from Tanzanian traders. Of this sample, four traders advertised banned birds, varying from 1 to 10 of the total of 14 species or species groups (Figure 3). Indeed all the species or species groups except Whale-headed Storks were available from one or other trader. Clearly, this situation requires improvement, both within and outside Tanzania, with the assistance of importing nations who could monitor imports of banned birds.

Figure 3: A list of birds banned from export, and the numbers of those birds appearing on the 1990 price lists of 5 dealers

LIST OF TANZANIAN BANNED BIRDS

- | | |
|----------------------------------|--------------------------------------|
| 1. Yellow-collared Lovebird | <i>Agapornis personata</i> |
| 2. Crowned Crane | <i>Balearica pavonina</i> |
| 3. Brown-necked (Cape) Parrot | <i>Poicephalus robustus</i> |
| 4. African grey Parrot | <i>Psittacus erithacus</i> |
| 5. Saddle-billed Stork | <i>Ephippiorhynchus senegalensis</i> |
| 6. Whale-headed (Shoebill) Stork | <i>Balaeniceps rex</i> |
| 7. Violet-crested Turaco | <i>Tauraco porphyreolophus</i> |
| 8. Secretary Bird | <i>Saggittarius serpentarius</i> |
| 9. African Fish Eagle | <i>Haliaeetus vocifer</i> |
| 10. Bateleur | <i>Terathopius ecaudatus</i> |
| 11. Ostrich | <i>Struthio camelus</i> |
| 12. Bustards (all species) | <i>Eupodotis spp.</i> |
| 13. Crested Guineafowl | <i>Guttera edouardi</i> |
| 14. Goliath Heron | <i>Ardea goliath</i> |



3.2. THE QUOTA SYSTEM

The quota system was first imposed by the Department in 1987-88, but it introduced a number of problems. Potential problems were caused through the listing of a number of higher taxa or species groupings, which afforded little protection to threatened species included in the group. For example, the inclusion of *Other Weavers* could have allowed the capture of 3 endemic species, and many endangered or restricted species (Baker, 1996). This analysis will concentrate on the numerical aspect of problems caused by the present quota system. The first quota in 1988 offered 71 species or species groups, and a total of 7165 birds, together with a large category of *other birds* that numbered 2000 specimens. By 1989, this very unspecific category was sub-divided into a further 14 species or species groups, resulting in the offer of a total of 85 species or species groups. The numbers of birds available on the quota dropped between 1988 and 1989, as a result of the loss of the large category of *other birds*. However, since then, the total number of birds on offer has risen from 9615 to 16,267 in 1991 (Figure 4), a total rise of 69%. The quota has decreased for only 2 (2.3%) and remained the same for another 3 (3.5%) of the 85 species or species groups. The size of quota has increased by an average of 115% across the whole range of species.

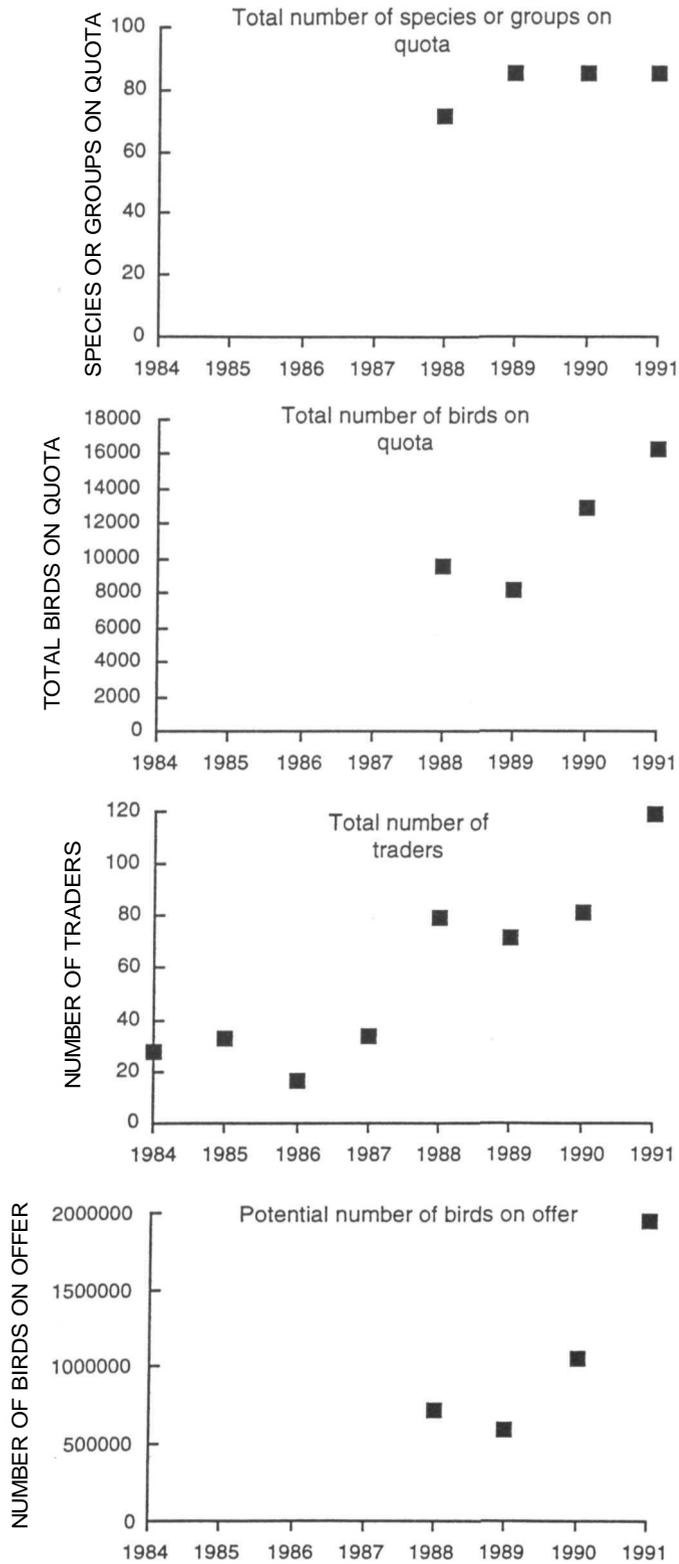
Except that certain species are not included on the quota, the regulatory power of the quota appears not to have been ideal. This problem is further compounded because each dealer receives a full quota. Dealers trading in birds are in Class 12, and there is a meeting each December between the Bank of Tanzania, Customs, Board of External Trade and the Department of Wildlife to determine the number of Class 12 dealers who will be licensed. The number of dealers has increased steadily from 28 to 119 from 1984 to 1991 (Figure 4). Therefore, the potential number of birds on offer to traders has risen from nearly 0.75 million to nearly 2 million, a rise of 167%, since the quota has been in operation (Figure 4). Hence, the quota system as presently designed does not regulate the total number of birds on offer.

The present quota system also does not appear to limit the numbers of birds actually traded. Using the only reliable data on trade volumes of imports (Figure 2), the number of birds actually traded have been compared with those allowed to be exported for 1988 and 1989. Trade levels exceed allowed quotas for a number of species in different years (Table 4). Again, certain species with zero quotas appear in 1988 and 1989 records. The dealer's price lists for 1990 also show that all five dealers continue to advertise species that were not on the quota (Figure 5).

Table 4: Comparison of the quotas available for CITES Appendix II species and numbers traded, taken from import records to parties CITES (* indicates where total number of birds traded exceeds the total number available on quota)

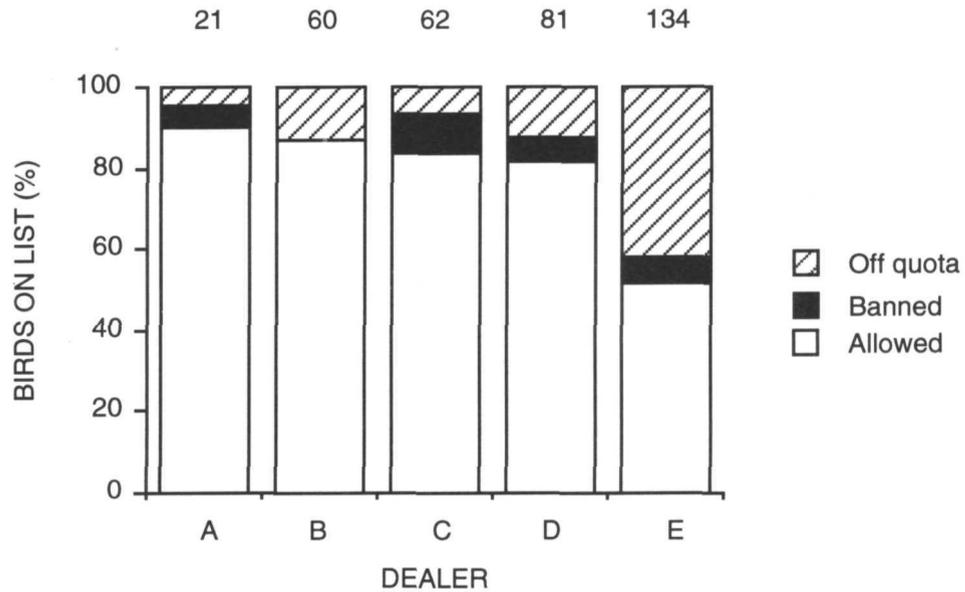
Species	1988			1989		
	Quota	Total available	Total traded	Quota	Total available	Total traded
Fischer's Lovebird	200	16200	43260*	500	36000	23966
Meyer's Parrot	10	810	5056	10	720	4880*
Brown-headed Parrot	10	810	561	10	720	1578*
Orange-bellied Parrot	10	810	819*	10	720	1558*
Red-fronted Parrot	10	810	9	10	720	552
Greater Flamingo	50	4050	1829	50	3600	2211
Crowned Crane	0	0	473*	0	0	225*
Secretary Bird	0	0	7*	0	0	0
Brown Parrot	0	0	32*	0	0	28*
Violet-crested Turaco	0	0	29*	0	00	0
Bateleur	0	0	8*	0	0	0
Tawny Eagle	2	162	2	2	144	0
African Fish Eagle	0	0	14*	0	0	0
Total number of dealers		81			72	

Figure 4: The quota system as it presently operates in Tanzania, showing the total number of species or groups on the quota, the total number of birds on the quota, the total number of traders, and the potential number of birds on offer



The question remains of the criteria against which the total size of any quota should be set? Of course, the ideal answer is against estimates of population size, and breeding and mortality rates. However, there are very few population estimates for any species of bird in this country (Baker, 1996). Hence, a country as large and as short of resources as Tanzania should not be expected to know the status of all its bird species in detail, as a pre-condition to trade. However, some simple indices, such as number of birds caught per trapper, could be used to assess quota levels, to ensure sustainability of any future trade. A preliminary attempt has been made to use this approach by calculating the average number of birds caught per trapper (Figure 6). The top graph shows the number of dealers and registered trappers in different years. The graphs for different species shown below indicate that trappers were increasingly successful at catching birds up to 1986, but thereafter trapping success has decreased. This suggests that the trade in these species at present levels is very likely not sustainable. As noted already, this is only a preliminary analysis, but it may point the way forward to a more effective method of setting quotas that attain a sustainable trade.

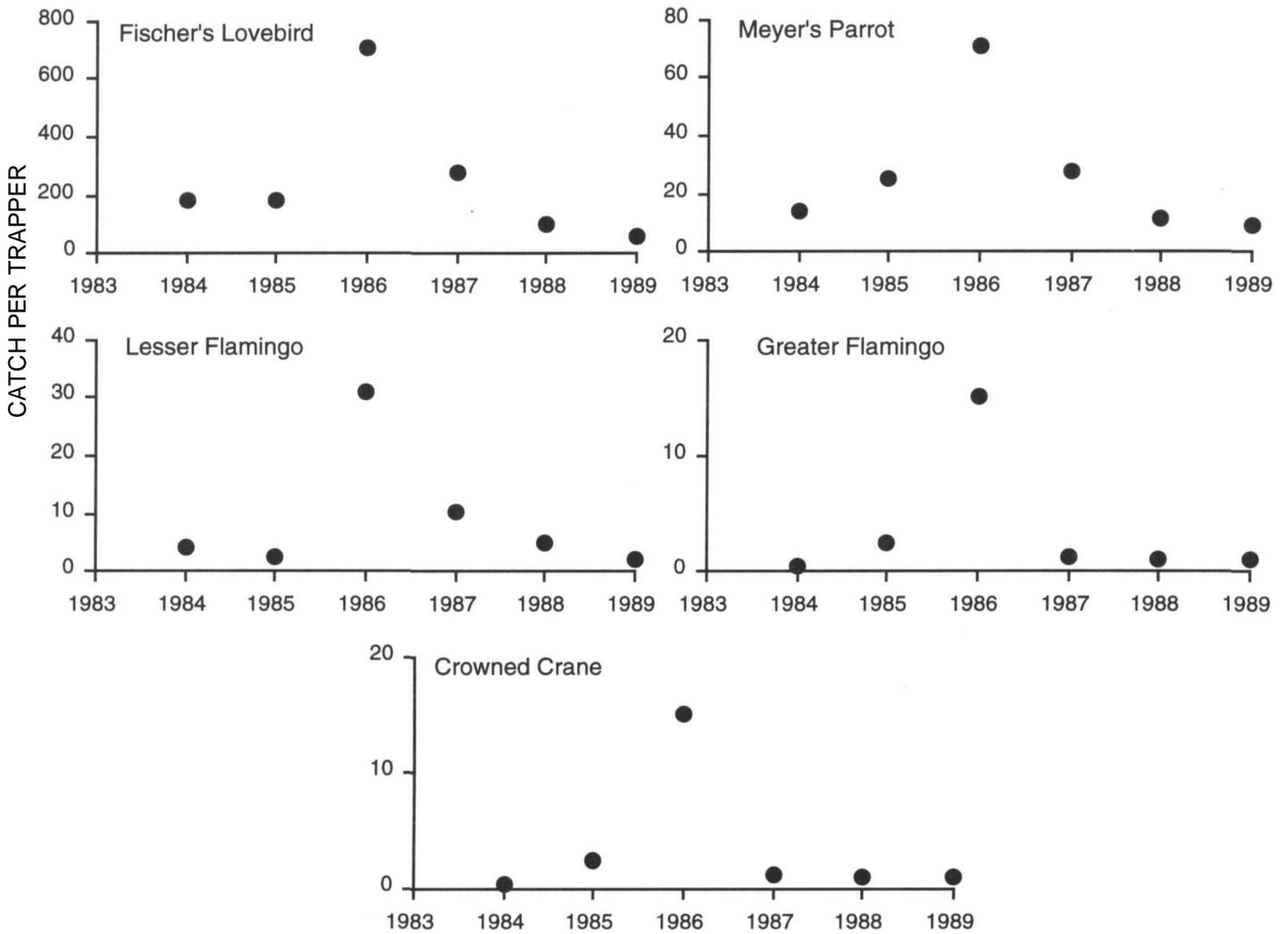
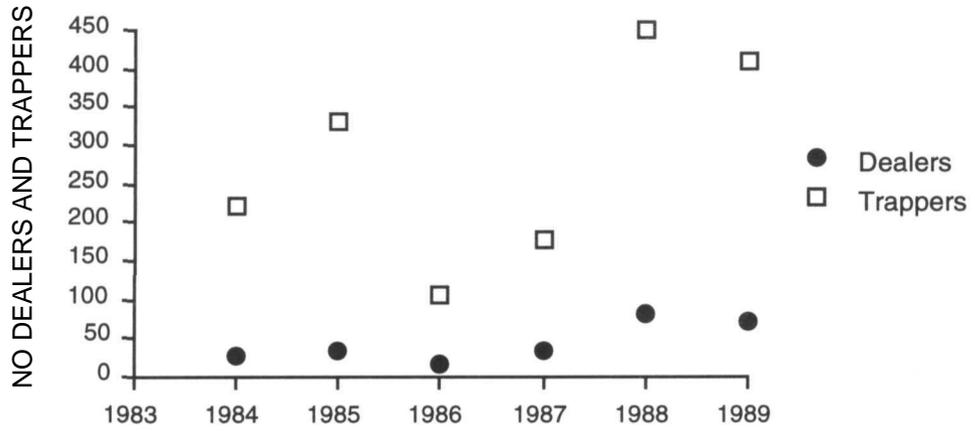
Figure 5: The proportion of banned birds and those not on quota advertised by 5 dealers in 1990



4. ECONOMICS OF THE BIRD TRADE

Beside the obvious criteria of needing to be sustainable, any form of wildlife utilisation should generate local benefits for rural communities and revenue for the Government to encourage all parties in future conservation of those resources. The traders have given their ideas on the benefits they view as accruing to local people involved in the bird trade (Edwards and Broad, 1992; TWEA, 1996). This section concentrates on the larger-scale economics of the bird trade (Swanson, 1992).

Figure 6: A preliminary catch per unit effort index for various species in Tanzania, using data from import records (Figure 2) and numbers of trappers (Figure 4)



Data for this section have come from a variety of sources, notably the Bank of Tanzania, the dealer's price lists discussed earlier and the selling prices of birds in UK. The upper half of Figure 7 shows the price structure in 1990 of the bird trade for four species of bird commonly traded from Tanzania. The left-hand column shows the licence price charged by the Wildlife Department for each bird, converted to US dollars. The next column shows the price at which the dealer actually informs the Bank of Tanzania that the bird is being sold. The middle column shows the licence price and the declared selling price added together to give the total sum that Tanzania stands to earn for each bird leaving the country. The second column from the right shows the average price at which the dealer sells each bird to his buyers in foreign countries. The right-hand column shows the final selling price in UK.

The large increase between the two right columns hides all sorts of other steps such as the cost of air freight, import duties and mark-ups between wholesalers and retailers in UK. While this appears a large increase, there is little that Tanzania can do about this situation. However, it is within Tanzania's power to rectify the situation of under-invoicing by the dealers. The same graph, but with the UK data missing, is shown in the lower half of Figure 7. Because of the different scale, the extent of under-invoicing can be seen more clearly for the same four species by looking at the difference between the second and fourth column on each graph. The data for a whole range of species for which it was possible to obtain matching data from the Bank of Tanzania, Tanzanian dealer's price lists and UK retail prices are summarised in Figure 8. The step-ups are shown as multiples of the licence fee. On average, the Tanzanian dealer charges 4.54 times the price that is declared for each bird to the Bank of Tanzania. This should be within the power of Tanzania to correct. The large difference between the money earned for each bird in Tanzania and the retail selling price in UK is also shown in Figure 8, but this is harder to resolve to Tanzania's benefit. However, this is not the whole story on the part of certain dealers. Dealers may well declare to the Bank of Tanzania the price at which they sell each bird, but the dealers do not necessarily remit the money on all shipments. The left-hand side of Figure 9 summarises the total amount remitted and defaulted by all bird traders to the Bank during 1990. The total of around \$US190,000 remitted for the whole year suggests that the bird trade earns very little foreign exchange for Tanzania. More compelling is the fact that, even with its present price structure, dealers did not remit around \$US 110,000. This sum represents a further loss of one third of the total value of the bird trade to Tanzania.

It should not be difficult to establish a more effective pricing structure that would also slash the volume of birds leaving this country. Indeed, a full 1990 quota for one dealer should have a value of nearly \$ 140,000, based on prices advertised in dealers' lists (see the right-hand side of Figure 9). Therefore, only two dealers, using their full quota and remitting all the revenue earned, could generate as much revenue for Tanzania as was remitted by all traders in 1990.

This can be looked at in another way that also brings together several different aspects of the bird trade (Table 5). This analysis attempts to estimate how much of the full economic value of a single bird may accrue to Tanzania, with the way the trade is presently structured. Using only data for which there is firm evidence, comprising under-invoicing, non-remittance and capture mortality, at best perhaps about only 10% of the economic value of each bird actually shipped from Tanzania now returns (Table 5a). Estimates can also be included on parameters for which there is no firm evidence, namely mortality between capture and arriving at the holding ground, and for illegal shipments. The first guess is based on estimates from Senegal (Edwards and Biteye, 1992), and the second is from the extent of illegal utilisation for Tanzania estimated by a study of wildlife trade (ITC/IUCN, 1989). If these estimates are correct, at worst only 2-3% of the economic value of each bird caught in the bush now returns to Tanzania (Table 5b).

Figure 7: The price structure of the bird trade from Tanzania. Shown above is the licence price, the sum declared to the Bank of Tanzania (both summed to give total earnings to Tanzania), actual dealers for 1990, for four species. Shown below is the same, but omitting the UK retail price

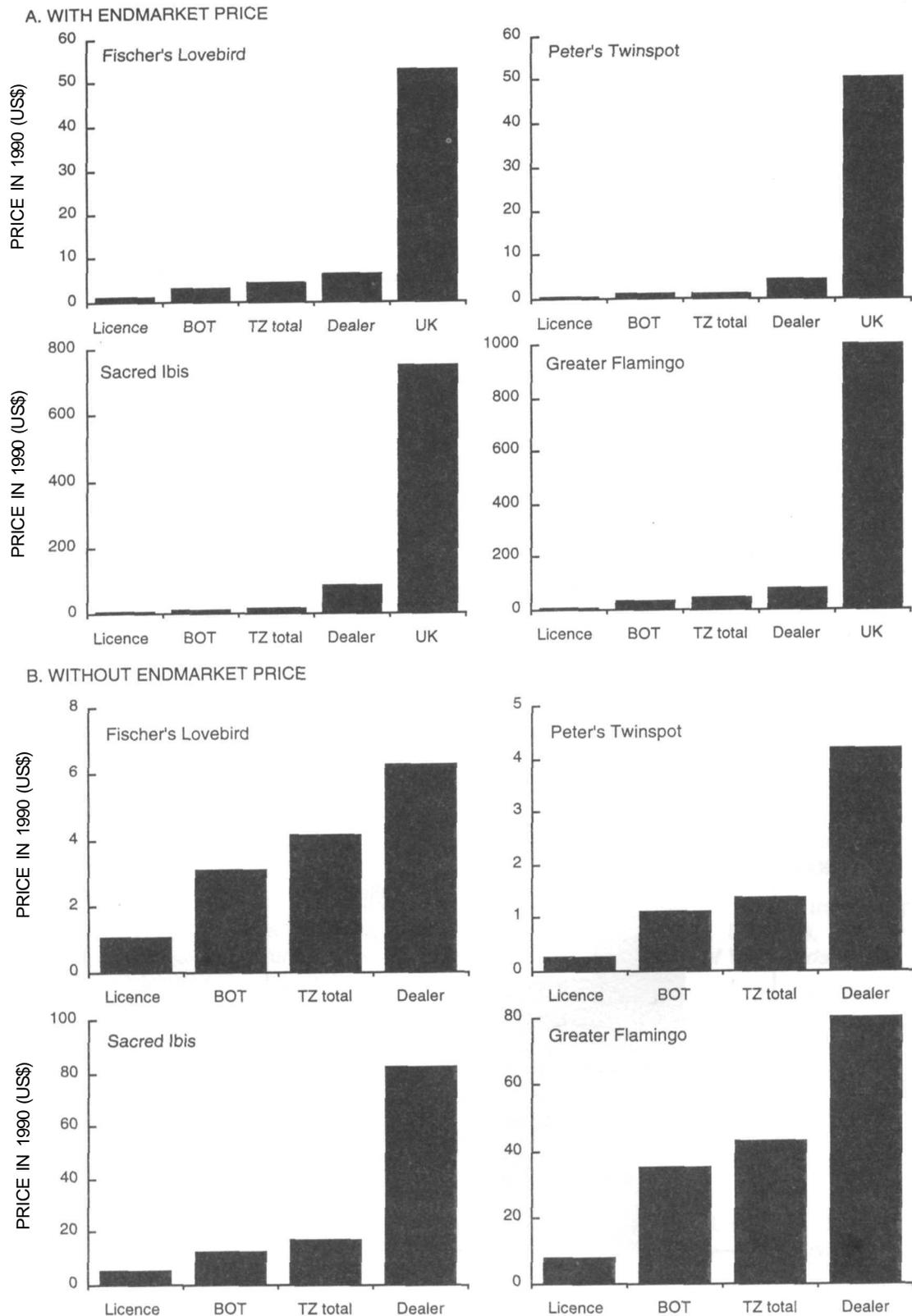


Figure 8: A summary of the price structure across the range of species exported



The Tanzanian dealer charges, on average, 4.54 times the price for each bird that he declares to the Bank of Tanzania.

Tanzania receives, in terms of licence fee and declared price, 31.1 times less on average than the selling price of each bird in UK.

Figure 9: The sums declared, remitted and defaulted upon by dealers to the Bank of Tanzania, and the real price of a single quota

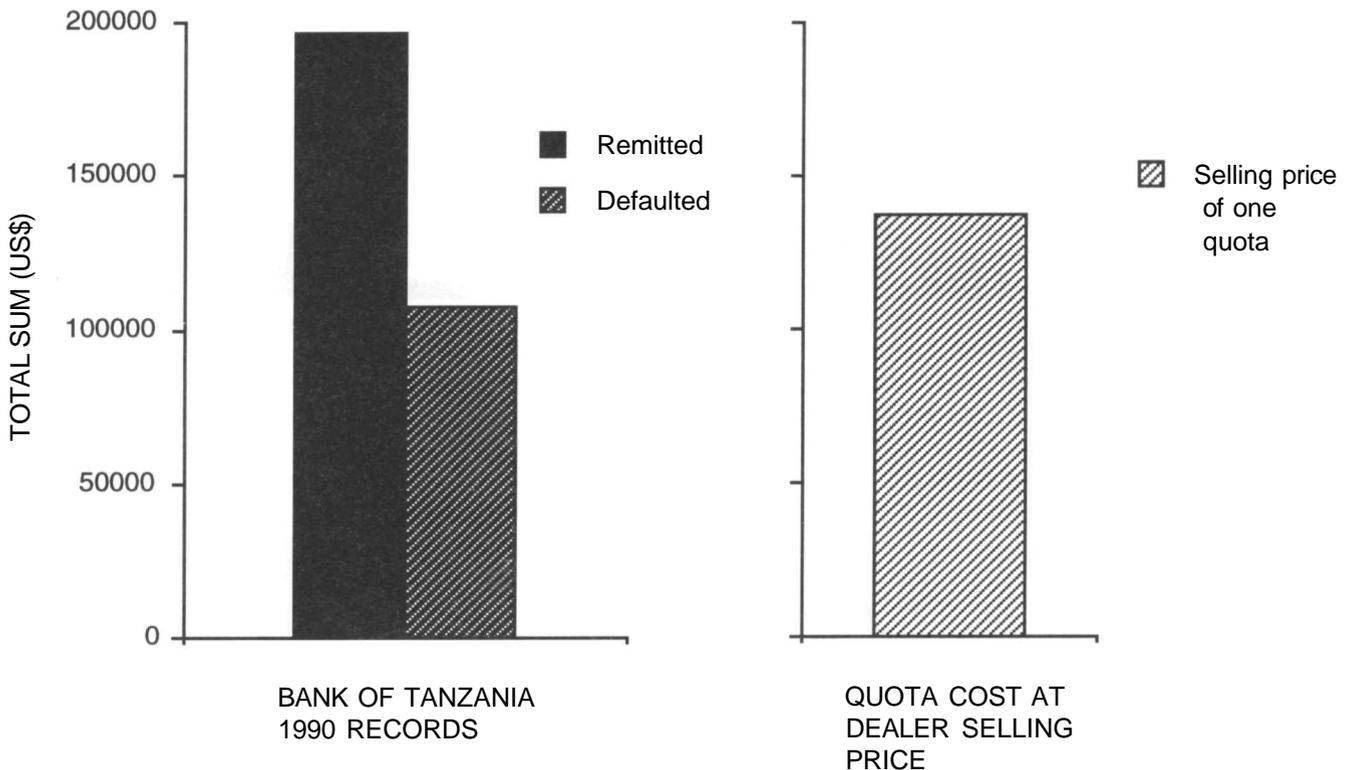


Table 5: The economic value of a bird retained in Tanzania, after various types of loss
A) Best-case scenario

Bird leaving airport	1
Under-invoicing (0.22)	0.22
Not remitting (0.35)	0.14
Shipment mortality (0.33)	0.10

B) Worst-case scenario

Bird in the bush	1
?Illegal Shipments (0.30)	0.70
?Illegal Shipments (0.60)	0.28
Under-invoicing (0.22)	0.062
Not remitting (0.35)	0.040
Shipment mortality (0.33)	0.026

In conclusion, there is considerable room for an improvement in the economic structure of the bird trade, where performance can, and should be, greatly improved. The required improvements are necessary on economic grounds, besides any considerations of conservation or animal welfare. If followed through and monitored, such improvements should provide guidelines on how to achieve a sustainable trade that does not threaten the status of Tanzania's birds, while at the same time earning Tanzania more foreign exchange.

ACKNOWLEDGMENTS

In researching the background to the bird trade in Tanzania, PAWM has received tremendous help from many organisations, besides our own parent department. The help of TRAFFIC International, the Wildlife Conservation Society of Tanzania and the Bank of Tanzania have provided much of the data presented in this paper.

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8. A MANAGEMENT FRAMEWORK FOR THE WILD BIRD TRADE

S.R. Edwards and J.B. Thomsen

IUCN Sustainable Use Group and TRAFFIC International

INTRODUCTION

Techniques for managing wild bird populations must be improved if populations subject to high-volume harvest for trade are to be sustained in the long term. At present, it may be argued that populations of many species in trade are substantial and probably not declining despite high-volume harvest. However, the fact remains that monitoring of both populations and capture effort is poor or non-existent in many of the countries exporting wild-caught birds, including in Tanzania (Edwards and Broad, 1992; Planning and Assessment for Wildlife Management, 1996). Thus, basic requirements for ensuring that utilisation is sustainable are not being met at present.

In the case of psittacines, a sustainable harvest regime should include at least four major elements (Thomsen and Brautigam, 1991):

- harvest and export quotas, established on the basis of scientific information;
- monitoring of trapping and export activities;
- a system of pricing and foreign exchange generation; and,
- a system of profit-sharing with local communities.

Consultations with government officials and traders indicate that few countries meet such requirements. However, there appears to be a growing willingness on the part of both governments and traders to strengthen current trade control mechanisms, and to integrate conservation and wildlife management schemes with other government policies. What appear to be lacking are the information, infrastructure and resources necessary to develop and implement such programmes.

Some government agencies argue that exploiting the commercial value of wild bird resources creates incentives for the preservation of natural habitat. Without incentives, such habitat might otherwise be converted to purposes such as agriculture, to the detriment of the species exploited and other biological diversity. This is also the basic premise of mainstream thinking on the sustainable use of wildlife resources. However, very little practical evidence is available to prove that there is a clear connection between habitat protection and wild bird exports. The lack of such evidence does not mean that the connection does not exist or cannot be made to exist. However, it does indicate that governments have not integrated wild bird harvests for export into broader conservation strategies. Instead, harvests are carried out in isolation from other types of natural resource utilisation, and often without a clear policy establishing the objectives and long-term strategies of such harvests.

The fact that those countries producing the largest number of wild-caught birds for export lack comprehensive management strategies is a testament to the rather *ad hoc* way in which the bird trade is currently conducted. Although the lack of management programmes does not necessarily imply that wild bird populations are being over-exploited, it does serve to draw international scrutiny and criticism to the trade. Unless action is taken by producer countries to better monitor and control wild bird harvests and exports, it seems likely that such criticism will evolve into trade bans.

As the situation is different within each range country, it is not possible to prescribe a universal management programme suitable for all countries choosing to export wild birds. Ideally, all management programmes should contain components that: ensure habitat and species conservation; benefit exporting countries and individuals involved in the trade; and, permit appropriate attention to the welfare of the birds harvested for export. The recommended actions that follow are not exhaustive. However, if implemented, these actions could serve as a step towards more effective management of the wild bird trade.

Certain recommended actions will be more applicable to some countries than to others. The responsibilities that should be shouldered by consumer countries and development agencies are perhaps more uniform. Those countries that reap the benefits of the wildlife resources of developing countries must contribute to the conservation of those resources. Hence, these

countries must share rather than appropriate the economic benefits that accompany their use (Swanson,1992).

1. POLICIES AND LEGISLATION

1.1. BIRD TRADE AND GOVERNMENT OBJECTIVES

Determining the objectives of management programmes is central to the subsequent implementation and success of these programmes. Management regimes and trade controls must be part of a larger overall government policy for wildlife conservation and utilisation. Governments should determine their priorities, for example, habitat and/or species conservation, generation of foreign currency, development of employment opportunities, and so on. Once identified, these priorities can provide the foundation of government policy, and the general framework within which to develop specific management schemes.

If a government wants to utilise its wildlife resources, in this case wild birds, then it must create a policy under which the citizens involved in such utilisation can operate. This will provide a sense both of legitimacy and of long-term perspective. Objectives for such utilisation should be reasonably flexible but clear.

Action 1.1: DEVELOP A MANAGEMENT POLICY FOR BIRD TRADE

Phase One

- **Establish context of a management policy**

Suggested Policy Context

The bird trade management policy should be part of a broader policy that guides all management activities that affect natural habitats

Phase Two

- **Establish objectives of a bird trade management policy**

Suggested Objectives:

- **Provide incentive for habitat conservation**
- **Ensure long-term sustainability of populations harvested**
- **Generate foreign currency**
- **Provide employment**

Phase Three

- **Establish components of a management programme**

Suggested Components:

- **Biological monitoring**
Harvest and export control (quota, permit and trade-monitoring system)
- **Animal welfare standards**
- **Pricing mechanism**
- **Local community benefit**
- **Hands-on management (eg, ranching, captive-breeding)**

1.2. LEGISLATIVE SUPPORT FOR GOVERNMENT POLICY

Government representatives consulted in Argentina, Guyana, Senegal, Tanzania and Indonesia stated that government policy supported harvest of wild birds for export (Thomsen *et al.*, 1992). Each country has, or is in the process of developing, national legislation designed to conserve wild species. However, none has a regulatory framework adequate to ensure that use of wildlife resources does not contribute to the decline of wild populations.

Argentina's constitution divides authority for wildlife between the federal and provincial governments, resulting in conflicts between the two. While capture of wild birds is controlled and supervised by provincial authorities, inter-provincial transport, export quotas and actual exports are controlled by the CITES Management Authority.

National legislation that would provide the legislative authority necessary to support Ministerial decisions concerning quotas, holding facilities and trader licensing requirements is pending in Guyana. In Indonesia, the recently adopted Act on Conservation of Living Resources and their Ecosystems could bring control of wild bird harvests, and is in the process of being implemented through pertinent government ministries. However, the Act does not provide any greater authority to implement CITES-related regulations than existed prior to its adoption.

Senegal's wildlife trade controls are based on a law adopted in 1967. Revisions to this law and adoption of the quota system have been accommodated by Presidential Decrees. Quotas are, in theory, subject to review by the High Council for Hunting, however, this has not happened in practice. Tanzania relies on the Wildlife Conservation Act of 1974 as its authority for implementing CITES. Government Notices are used to update domestic regulations following meetings of the Conference of the Parties.

Action 1.2: PROVIDE LEGISLATIVE SUPPORT FOR POLICY IMPLEMENTATION

In countries where national policies and/or legislation do not provide the controls and enforcement authority necessary to ensure that wildlife utilisation is sustainable, the CITES Secretariat, governments of other countries, and national and international conservation organisations should provide whatever encouragement and assistance practicable to support enactment of such legislation.

Bilateral and multilateral assistance agencies should require recipient countries to demonstrate that such legislation is in place before granting or lending funds for activities resulting in wildlife harvests; and, if appropriate, loan or grant funds should be made available to wildlife agencies to develop and provide wildlife trade controls specified by international agreements.

If an exporting government fails to demonstrate progress in developing policies for the sustainable management of wild bird exports, importing governments should take what legal steps are possible to suspend imports from that country until such time as the exporting government is capable of demonstrating such progress.

1.3. WILDLIFE MANAGEMENT IN A BROADER CONTEXT

In each country, the agency responsible for controlling the bird trade is part of a larger government ministry established to pursue goals that could conflict with principles of using wildlife sustainably. Under such circumstances, it follows that policy decisions governing the use of wild resources are always 'adjusted' to fit within the larger policy priorities established for these ministries.

Argentina's National Directorate of Wild Fauna is located in the Ministry of the Economy, Sub-Secretariat for Agriculture, Livestock and Fish. In Guyana, the Division of Wildlife Services is located in the Ministry of Agriculture. The Directorate General of Forest Protection and Nature Conservation is part of the Ministry of Forestry in Indonesia. Senegal's CITES Management Authority is located in the Ministry for Rural Development and Hydraulics, Directorate for Water, Forests, Hunting and Soil Conservation. Day-to-day CITES implementation in Senegal is largely handled by the Division of Hunting.

In Tanzania, management and conservation of wildlife is under the Wildlife Department in the Ministry of Tourism, Natural Resources and Environment. Only in this country is there a connection between the overall objectives of the parent ministry and the those of the department responsible for controlling the bird trade and other wildlife utilisation.

Action 1.3: RAISE THE STATUS OF THE WILDLIFE AUTHORITY

National and international conservation organisations, in cooperation with the CITES Secretariat, should assist government agencies responsible for wildlife management in

achieving greater status within their government structure. Such assistance should only be provided in response to a direct request for assistance from the relevant agencies.

1.4. CITES SCIENTIFIC AUTHORITY

Only one of the five countries profiled, Indonesia, has a CITES Scientific Authority separate from the Management Authority. However, the influence of this office with respect to setting quotas is blunted by the dominant position of the Directorate General of Forest Protection and Nature Conservation (PHPA) and several other government agencies. In the other four countries, Management Authority staff perform the functions of the Scientific Authority.

In no country is the role of a Scientific Authority adequately integrated into the process for establishing quotas.

Action 1.4: ESTABLISH A SCIENTIFIC AUTHORITY

In keeping with CITES, all Parties must be strongly encouraged to develop a Scientific Authority with independent standing. Until such time as Scientific Authorities are functional, assistance to Management Authorities should be provided by qualified, independent agencies.

2. POPULATION AND HABITAT MANAGEMENT

2.1. BIOLOGICAL MONITORING

No country profiled including Tanzania (Thomsen *et al.*, 1992), has determined the status of the wild populations of the species allowed for export, or institutionalised a programme for monitoring wild populations of harvested species. Therefore, it could be argued that these countries are not fulfilling their obligations under CITES Article IV with respect to Appendix II species. Hence, these countries are issuing export permits without first determining whether exports would be detrimental to the survival of the species in the wild. However, most CITES Management Authorities argued that they were satisfying the spirit of the Article IV requirement by establishing what they believed to be conservative export quotas for Appendix II species. In fact, export quotas for both CITES and non-CITES species have been based on previous export levels, rather than on biological considerations.

Steps are being taken to assess the status of some wild bird populations. Several surveys of *Amazona aestiva* now in progress should provide information on the status of that species in Argentina. Guyana is prepared to initiate a census of its psittacine populations once the Government has selected an appropriate biologist to coordinate the surveys.

In Tanzania, a 1989 survey of *Agapornis personata* was claimed to have been performed by members of the Tanzania Wildlife Exporters Association in collaboration with Regional Game Officers. However, staff of the Department of Wildlife do not believe that the survey procedures used were adequate. The status of individual species is reviewed during an annual meeting of Regional Game Officers in Tanzania. However, these reviews rely on general field observations and do not incorporate any standard survey techniques.

Indonesia has not undertaken any field surveys of species in trade. IUCN, in collaboration with the International Council for Bird Preservation and the Indonesian Government, began a survey of some species of parrot in October 1991.

Countries exporting wild-caught birds should place priority on determining the biological capacity for various harvest levels. Harvest rates must be based on biological principles if wild bird populations are to be sustained, and harvests to remain a viable method of producing birds in the long term. Harvests for international trade must be examined on a species-by-species and country-by-country basis to determine whether harvest levels are detrimental to wild populations.

Using general knowledge of species biology and basic census techniques, it should be possible to establish safe harvest quotas without performing extremely detailed studies of each species in trade. Estimates of maximum and minimum population densities across a species' range would take less effort to obtain than actual population counts, and could form the basis of harvest quotas.

Censuses should be repeated on an annual basis, with more detailed studies performed every 5 years. This information should be used to revise quotas as appropriate to ensure that offtake levels are sustainable.

Action 2.1: ESTABLISH A BIOLOGICAL MONITORING PROGRAMME FOR BIRD SPECIES IN TRADE

Phase One

- **Collect baseline population data**

Suggested methodology:

- **Assess geographic distribution of species**
- **Assess area of available habitat**
- **Perform censuses to assess density in representative segments of range**
- **Compute upper and lower population levels and evaluate reproductive and recruitment rates**
Compute annual capture quotas, ie, a safe offtake percentage of the lowest possible population level

Phase Two

- **Develop regular monitoring programme**

Suggested monitoring programme components:

- **Annual censuses (use game scouts, local communities, university students, CITES Scientific Authority, and so on)**
- **Annual monitoring of capture efforts**
- **Major review of distribution and habitat availability every five years**

Phase Three

- **Revise quotas as necessary based on information collected through regular monitoring**

International conservation organisations, development assistance agencies and the CITES Secretariat should cooperate in providing the necessary funding and technical assistance needed to undertake baseline surveys of wild populations subject to domestic or international trade.

2.2. SHARING RESPONSIBILITY FOR WILDLIFE UTILISATION

Importers, wholesalers, retailers and purchasers of wild birds receive some benefit from wild-caught birds provided by exporting countries. It could be argued that the benefits received far outweigh the true cost of wild-caught birds. Consumers of wild-caught birds are providing little more than a market: they do not contribute toward the cost of regulating harvests and exports, maintaining habitat or other components of the wild bird trade. Similarly, governments of importing countries give little if any support to species conservation and/or trade control programmes in the countries providing wild-caught birds to world markets.

Many bird owners appreciate the importance of conserving wild populations and habitat, and are supporting field surveys, habitat conservation and other programmes.

Action 2.2: CONSUMERS SHOULD SHARE RESPONSIBILITY FOR WILDLIFE UTILISATION

The governments of countries importing wild-caught birds should offer support for government field surveys and population monitoring of wild birds, increased trade controls and other programmes in countries of export designed to ensure that harvests for export are not detrimental to wild bird populations.

Purchasers of wild-caught birds in importing countries should be made to bear some of the cost of conserving wild bird resources. This could be achieved through government-imposed 'wildlife' assessments on all birds imported, with importing governments

allocating revenues raised in this manner to conservation programmes in the countries of export.

Bird owners and aviculturists should be encouraged to use their expertise and other resources to support conservation of wild species in trade.

2.3. SUPPORT FOR TRADE-RELATED CONSERVATION

A number of studies of wild bird species have been supported by NGOs, universities and other institutions. However, these studies have not usually been directed toward management of wild populations for trade purposes.

International conservation organisations only have a history of collaborating with governments to undertake field studies and to develop effective trade control systems for wild bird species in Argentina and Guyana. In Argentina, TRAFFIC USA and WWF-US are working with TRAFFIC South America, to support field studies of a number of species, including *Amazona aestiva*.

The Tanzanian Government has begun a programme to review all wildlife utilisation activities including the wild bird trade. In addition, the Government has invited TRAFFIC International to participate in a training programme for wild bird exporters, to include instruction on handling and preparation of wild birds for shipment.

Apparently as a result of the present study, the Government of Senegal has indicated that it will seek assistance in the near future.

Action 2.3: SUPPORT TRADE-RELATED CONSERVATION RESEARCH

National and international conservation organisations should provide whatever assistance practicable, including funding and expertise, to facilitate the development and implementation of trade monitoring and control programmes.

2.4. HABITAT ALTERATION

Habitat loss is the greatest threat to the survival of most wild bird species, including those in trade. Species with ranges limited to Argentina and Indonesia are probably at a relatively higher risk than those found in Guyana and Tanzania. This is because large tracts of land are being modified for agriculture and other purposes in both of the former countries. Because Indonesia incorporates over 13,000 islands, many bird species native to that country have extremely limited distributions. Indeed, many of the species in trade are limited to a few islands.

The habitat in Senegal is also changing as a result of significant desertification in that country. However, the dominant species exported from Senegal are not known to be threatened.

Areas from which birds are harvested in Guyana and Tanzania remain relatively isolated, and the habitat is not being converted to agriculture and other purposes at the rates recorded for Argentina and Indonesia.

Action 2.4: COMPENSATE FOR THE EFFECTS OF HABITAT ALTERATION

Capture quotas, trapping seasons and other management techniques related to harvest must take into account the effects on wildlife populations of habitat alteration. Where possible, sustainable wildlife utilisation should be used as an alternative to habitat conversion for agriculture or other purposes.

2.5. BIRD TRADE AND PRESERVATION OF HABITAT

Government officials frequently cited the value of wild bird exports as a means of protecting natural habitat as the most important reason for their continuing to support this trade. However, no government was actually using this argument to forestall land conversion for agricultural purposes.

In Argentina, the Government is working with landowners to determine the feasibility of harvesting certain wild (non-bird) species as a means of encouraging the maintenance of natural habitat in that country. In the countries visited, only the study of *Amazona aestiva* in Argentina is designed to

specifically address the linkage between the value of a wild bird species and the maintenance of its habitat (Bucher, 1990).

No country is presently providing any education or training to field collectors that might lead to better management of the habitat.

Action 2.5: *USE BIRD TRADE AS A MEANS TO PRESERVE HABITAT*

Conservation organisations (both national and international) and development assistance agencies should facilitate scientific studies to determine the relative land-use values of sustainable wildlife utilisation and agriculture in varying habitat types.

Conservation organisations should cooperate with government agencies responsible for wildlife conservation in helping to provide evidence to senior government officials, legislators and private land-owners of the importance and value of wild bird resources, and of the significance of natural habitats in maintaining these resources.

Governments should establish mechanisms to conserve habitat important for maintaining wild populations of species in trade, and provide local communities with incentives and training to conserve such habitat.

2.6. PEST SPECIES

Argentina, Senegal and Tanzania have officially designated some 'pest' species that are allowed to be exported. Argentina and Senegal allow unlimited exports of these species. Tanzania establishes a relatively high quota for them. In Indonesia, farmers complain that wild birds are having considerable impact on the productivity of their crops; however, no species were reported as having been designated as pests as of December 1991. Guyana does not have special provisions for pest species. Nevertheless, some of the species in international trade from both Guyana and Indonesia could be considered threats to agricultural crops and, as such, could be designated as pests.

Species designated as pests may be subject to massive extermination programmes involving poisons, flame-throwers and other methods expedient at removing them. Pest extermination programmes are frequently financed by bilateral and multilateral assistance agencies.

Extermination programmes are the antithesis of conservation. They are indiscriminate and they destroy habitat. Extermination programmes also convey to rural people a general lack of respect for wild species. Rural farmers, particularly in Senegal and Tanzania, will often destroy all bird nests and eggs they find.

Action 2.6: *REVIEW DESIGNATION OF PEST SPECIES*

Governments of exporting countries should be encouraged to ensure that those agencies responsible for conserving wild natural resources participate in any decisions to designate a species as a pest.

Methods of pest control should be researched and limited to those that cause the least environmental damage. Economic assessments of the relative value of pest species should be completed.

Agencies responsible for conserving natural resources should be assisted in teaching rural people to differentiate between pest and other species.

3. TRADE CONTROL MECHANISMS

3.1. Quotas

Each of the five countries profiled uses a quota system as a means of controlling trade. The quotas of each country were established on the basis of previous trade levels rather than on assessment

of the status of wild populations. However, government officials believe these quotas to be conservative.

Quota systems function differently in each country.

- Argentina and Guyana establish annual export quotas for those species approved for export. Exporters receive a portion of the quota for each species, based on their previous export history. Quotas are reviewed annually. Certain species have been removed from the list of species authorised for capture and export.
- Indonesia has a *harvest quota* based on evaluation of the average capture rate during the previous three years, and an elaborate consultation process with various government and non-governmental agencies. It is not surprising that this procedure has yielded increased quotas for certain species following a year in which harvest/exports exceeded previously established quotas.
- Senegal also uses a *harvest quota* approach. Quotas were first established in 1982 and have not been revised since. Quotas are established for pairs of non-psittacines, but individual specimens of psittacines, making internal monitoring and comparison with export data difficult. Harvest quotas are allocated to each exporter based on their prior export history.
- Tanzania has a *trader quota* for each species. Under this system, all licensed exporters are given identical quotas for the capture and export of species allowed in trade. The system is presently under review.

As the primary purpose of quota systems is limiting offtake, it would appear that capture quotas would be more effective at achieving this goal than export quotas. However, as has been demonstrated in the case of Indonesia, capture quotas may be much more difficult to enforce than export quotas, owing to the relatively diffuse nature of trapping as opposed to export activities.

Export quotas could theoretically limit the number of birds harvested for trade by limiting the available export market for those birds. However, export quotas do not give any indication of pre-export mortality or the number of birds sold to domestic markets. They are therefore inadequate for the purposes of establishing or assessing total offtake levels.

In order for either capture or export quotas to be an effective component of a broader wildlife management programme, they must be species-specific.

Action 3.1: ESTABLISH CAPTURE AND EXPORT QUOTAS

Governments of exporting countries should establish an annual capture quota for each species harvested for domestic use or export. Standard procedures for establishing capture quotas that allow for sustainable utilisation of the species in question should be developed with input from qualified scientific experts.

Capture quotas should be allocated and trapping monitored in such a manner that harvests are maintained within established limits.

Capture quotas should be linked to a species-specific export quota to control the number of specimens of each species exported. Export quotas should take into account post-harvest mortality, domestic sale and other factors that reduce the number of birds trapped that are available for export.

3.2. HARVEST AND EXPORT CONTROLS

The effectiveness of the different quota systems in controlling harvests and exports varies between countries, and does not appear to be linked to the type of permit system used to allocate quotas or control trade.

Capture permits are required in Argentina, and traders are required to obtain a transit permit prior to removing birds from the province in which they were trapped. Export permits are required to export birds, and will not be issued without presentation of a valid transit permit. Reported exports from this country did not exceed quotas during the past several years, with total exports equivalent

to approximately 85% of the sum of the established quotas in 1990. Individual species quotas were similarly not exceeded. Exports in Guyana did not exceed established quotas for individual species, with Guyana's total exports equivalent to only 47% of the sum of the quotas in 1989.

Capture, transit and export permits are required in Indonesia, but this does not prevent reported exports from exceeding established quotas. Total reported bird exports from Indonesia were less than the sum of the quotas for all authorised taxa in 1990 (75%). However, exports of five taxa exceeded the export quota for that taxon by 106% to 127%. 1989 exports exceeded quotas from 109% to 192% for twelve species. The complexity of the current permit system may be the principal cause for the harvest exceeding the quota for so many species. The fact that quotas are established for harvests, but harvests are not effectively controlled contributes to this problem.

The Government of Senegal requires exporters to purchase capture permits to trap birds, and to acquire export permits (or their equivalent for non-CITES species) to export birds. The majority of the birds exported from Senegal are non-CITES or CITES Appendix III species. Therefore, there is no CITES obligation to maintain export data, and it is difficult to determine whether exports are maintained within established quotas. In addition, there are no effective means for limiting a particular trader's exports for a particular species to the established quota. Alarmingly, species-specific export data were not available for exports from Senegal before 1990. Total reported non-psittacine exports during that year were 80% of those authorised under the quota system. However, exports of nine species exceeded their established quota by 112% to 846%. Total psittacine exports exceeded the combined export quotas for psittacines by 150%.

The Government of Tanzania requires exporters to obtain capture permits before trapping birds, and ownership certificates once birds have been trapped. Export permits (Trophy Export Certificates for non-CITES species) are required to export birds. The Tanzania quota is allocated and administered on the basis of each exporter, and species (and higher taxa) are often only identified by common name. Hence, it is not possible to determine accurately whether the quota for individual species was exceeded or not. However, it appears that only about one-fifth of the total number of birds authorised for export was actually exported in 1990.

In many cases, quotas alone do not provide adequate control of wild-bird harvests and exports. To be effective, quotas must be combined with an integrated capture and export permit system.

Action 3.2: IMPLEMENT ADEQUATE PERMIT AND LICENSING SYSTEMS

Trapping permits identifying the number of birds of each species (and/or subspecies, as appropriate) allowed to be collected should be required for the collection of wild birds for domestic or international trade. Government offices issuing such harvest permits should ensure that permitted trapping levels do not exceed established harvest quotas.

Exporting governments should require that all wild bird exports, both of CITES-listed and non-CITES-listed species, be accompanied by an export permit listing the species (and subspecies where appropriate) and number of birds allowed to be exported. Trade records should be maintained to ensure that permitted exports do not exceed established capture and/or export quotas.

The governments of importing countries should not accept shipments from countries implementing such a system unless accompanied by appropriate permits.

3.3. INTERNATIONAL COMMUNICATION OF TRADE CONTROLS

Enforcement efforts at the point of import are critical to effective trade control. The governments of importing countries must be aware of trade controls and restrictions imposed by exporting countries if they are to be able to identify shipments exported in contravention of those restrictions. Specific information, such as export permit numbers allocated over a given time-period, may also be useful.

Action 3.3: NOTIFY THE CITES SECRETARIAT OF TRADE CONTROL MEASURES

The Management Authorities of exporting countries should inform the CITES Secretariat of export quotas, permit systems and other measures established to control exports. If possible, information regarding valid permit numbers should also be communicated as

appropriate. Information regarding specific instances of suspected trade violations, missing permits, and so on, should also be communicated immediately to the Secretariat. If possible, this information should be communicated directly to other Parties (and non-Parties).

Governments of non-Parties should be encouraged to notify the CITES Secretariat of trade control policies and/or mechanisms.

The CITES Secretariat should make every effort to circulate such information to both Parties and non-Parties as appropriate.

3.4. TRADE MONITORING AND ENFORCEMENT: INSPECTION

Only in Tanzania do personnel from the government department responsible for trade controls regularly inspect wild bird shipments prior to export. Staff from the Anti-Poaching Unit are stationed at the two airports authorised for wildlife exports, and are required to inspect wild bird shipments before export. Exporters are required to inform the Anti-Poaching Unit three days prior to any export of wild birds. In addition, CITES Unit personnel often go to the airport to inspect shipments prior to export.

Inspections in the other countries profiled are generally performed by veterinary staff. SENASA veterinary staff in Argentina inspect all shipments prior to issuance of export permits. In Guyana, the Wildlife Services vet periodically inspects holding facilities used for wild birds. PHPA personnel in Indonesia perform monthly inspections of holding facilities. In addition, government veterinarians inspect birds destined for export to the United States to certify that they are free of exotic Newcastle disease. Inspections in Senegal are similarly performed by veterinary personnel. Veterinarians from the Directorate for Agriculture are stationed at the airport, and issue health certificates prior to export.

Traders are much less likely to conform to government trade controls if they believe that there is little likelihood of trade infractions being discovered.

Action 3.4: INSPECTION OF HOLDING FACILITIES

Inspection of animal holding facilities and wild bird shipments should be used in conjunction with other trade control mechanisms to encourage compliance. It is important that such inspections are unannounced, and of such frequency that they serve as an adequate deterrent to illegal trapping and trade.

3.5. TRADE MONITORING AND ENFORCEMENT: TRADE RECORDS

Collection, compilation and review of trapping and export data are important components of wildlife management. CITES incorporates reporting and other requirements for trade in CITES-listed species. Hence, records of trade-related activities for these species are generally more comprehensive and readily available than for activities involving non-CITES taxa. Trade in non-CITES species may not be recorded, or may be maintained under broad categories, e.g. family, order or even class (e.g. US trade data for non-CITES birds). Some countries maintain trade data by common rather than scientific name, making subsequent identification of the taxa in trade records extremely difficult, if not impossible.

Developing countries may lack the resources necessary to maintain and compile detailed trade records. For example, trade records in Senegal and Tanzania are maintained by hand, and CITES annual reports are prepared on a manual typewriter.

Action 3.5: MAINTAIN ADEQUATE TRADE RECORDS

The governments of exporting and importing countries should maintain species-specific records of the number of wild birds in trade. Such records should identify species by scientific name, in lieu of or in addition to, common name.

The CITES Secretariat and conservation organisations should provide governments with whatever assistance practicable in establishing adequate record-keeping and reporting procedures.

3.6. EXPORTER LICENSING

Licensing of exporters can be an important tool for controlling the wild bird trade. All countries require some form of exporter licensing, but each follows a different procedure. However, actual export controls stem from a combination of licence and permit requirements.

In Argentina, exporters are required to acquire a licence from the National Directorate of Wild Fauna. Exporters are required to meet certain general conditions, e.g. verifying that they do not have a police record, as well as conditions specific to wildlife exports, e.g. having a holding facility. The actual licence is a letter authorising exports of wild birds issued by the Director of the National Directorate of Wild Fauna. Practically, control of wild bird exports derives from the fact that export permits are issued by the National Directorate of Wild Fauna.

Guyana requires exporters to meet more rigorous licensing requirements, e.g. having holding facilities, maintaining records of animals within those facilities, and so on. No new licences have been issued since 1983. Licences have only been revoked owing to inactivity over a 2-year period and failure to pay government fees. It should be noted that, in the absence of national wildlife laws, implementation of these requirements stems from the extraordinary level of cooperation between exporters and the Wildlife Services Division.

Indonesia requires exporters to be 'registered' with PHPA, subject to a number of requirements, including submission of an annual workplan. Presumably the workplan identifies the particular species that the exporter plans to harvest in a given year, and the areas from which the birds will be harvested. With external supervision this could be used as an effective tool to ensure that harvests were appropriately distributed throughout the country. However, the actual capture of birds is controlled by the issuance of a 'capture permit' by a different branch of the Ministry of Forestry.

In Senegal, authorisation of exporters is based on the issuance of a 'capture permit' for a fixed number of pairs of birds. Certain requirements must be met before the government will issue the capture permits. These mirror general government rules for licensing any export business, except for an additional requirement that exporters have a holding facility. In practice, the number of exporters is limited by not issuing capture permits to new exporters.

Tanzanian exporters must hold a Trophy Dealers Licence, issued annually by the Department of Wildlife. Licensed trophy dealers must meet a number of conditions, of which only the requirement to maintain a holding facility appears to pertain specifically to wild bird exports. Only licensed trophy dealers may apply for capture permits, which actually authorise harvest.

None of these countries has established professional standards against which exporters are screened before they are granted a licence. Instead, increased technical requirements such as having a holding facility, maintaining records on stock, being active each year and paying licensing fees on time have influenced the number of exporters licensed by the governments.

Trappers of birds are not required to be licensed in any of these countries, although Tanzania requires that photos of trappers are provided with applications for capture permits, and that trappers carry identification cards.

Action 3.6: REQUIRE WILD BIRD EXPORTERS TO BE LICENSED

The governments of exporting countries should confer to develop standard requirements for licensing exporters. Such requirements should include the filing of a cash bond by each exporter that would be forfeited if the exporter were convicted of a violation of government regulations. The addresses of all exporters licensed to export CITES-listed species should

be communicated to the CITES Secretariat. The addresses of all licensed exporters should be provided to other governments upon request.

Licensed exporters should be required to participate in a short course on the handling of wild species and the importance of maintaining their habitat.

Exporters should be required to identify all traders and trappers associated with their business; these individuals should be registered with the government agency responsible for managing wild species.

3.7. EXPORTER'S RESPONSIBILITY FOR TRADE CONTROL

The number of wild bird exporters in each of the five countries profiled is considerably lower today than it was even five years ago. Furthermore, a relatively small number (e.g. three to five) of the government-approved exporters in each of these countries accounts for the largest share of exports.

Those wildlife exporters that continue to export wild-caught birds appear to be increasingly willing to accept more rigorous controls over their activities. This is probably a response to growing international pressure, rather than an increased understanding of the potential for trade to cause population declines. Most exporters interviewed during this study operate under the assumption that wild birds are abundant and that wild populations are not adversely affected by their activities. Nevertheless, exporters in Argentina have helped to fund a survey of the status of *Amazona aestiva* in that country. Exporters in Guyana have expressed interest in cooperating with the Government to perform field surveys of that country's parrot populations.

Action 3.7: EXPORTERS SHOULD ACCEPT RESPONSIBILITY FOR TRADE CONTROLS

Governments of exporting countries should ensure that exporters understand that proper trade controls are necessary if exports are to be sustainable, i.e. if wild bird populations are to be maintained, and exporters are to stay in business in the long term.

Governments of exporting countries should institute mechanisms to ensure that exporters share responsibility for maintaining habitat and conserving wild species subject to domestic or international trade.

3.8. BIRD EXPORTERS' ASSOCIATIONS AND SELF-REGULATION

Exporters have formed an association in each country profiled. However, these associations are highly variable in their level of sophistication. In Senegal and Tanzania the associations appear to be social organisations providing a reason for the members to meet with each other periodically. There were indications that associations in these countries will become more formal in the future, in part owing to the international concerns being raised about the bird trade. In Argentina, Guyana and Indonesia, the associations provide a more formal mechanism for exporters to address issues with the government and, in the case of Indonesia, with the national airline. Argentina's exporters association is by far the most advanced, and has established membership rules, including the use of coded shipping labels as a means of self-policing.

In all those instances where the exporters associations provided collective representation to the government, government officials reported that they found it more convenient to work through the association than with individual exporters.

Action 3.8: USE BIRD TRADERS ASSOCIATIONS TO HELP REGULATE EXPORTERS

Governments should require all licensed exporters to be members of an association.

Exporters associations should have a role in planning, undertaking and reviewing the results of baseline surveys and ongoing population monitoring programmes.

Exporters associations should be encouraged to adopt membership requirements and to expel any members who violate those requirements.

3.9. TRADE CONTROLS IN IMPORTING COUNTRIES

Reviews of trade control policies and enforcement in importing countries have demonstrated that trade controls are often ineffective at deterring, detecting and prosecuting illegal import cases. The CITES Secretariat and governments of exporting countries have noted that effective import controls are crucial if illegal trade is to be reduced.

Action 3.9: *IMPORTING COUNTRIES SHOULD REVIEW CONTROL PROCEDURES*

The governments of importing countries should re-examine their wildlife trade control policies and enforcement mechanisms, and make every effort to strengthen import controls, in cooperation with the governments of exporting countries and the CITES Secretariat.

Conservation and other NGOs should encourage the governments of importing countries to adopt and enforce more rigorous trade controls.

3.10. Domestic Trade

Domestic trade in live birds is highly variable and dependent on the local culture and the economic status of the country. None of the countries profiled monitors the sale of wild-caught birds to residents. Senegal reported that they were now issuing 'ownership' permits for parrots.

Only in Argentina does there appear to be an organised trade serving the domestic market. Virtually every house in Guyana has a live wild animal as a pet, many of which are birds, particularly macaws and other parrots. However, there is no organised bird market in Georgetown. Vendors appear to wander the streets with the birds until someone buys them. The trade seems to reflect the proximity of the city to the forests and the relative abundance of the supply.

In Indonesia, the domestic trade in live birds and feathers serves as a substitute for cash, because of the inherent value of these commodities. In the rural parts of the country it is common to use live birds and bird-of-paradise skins and feathers as payment for services. In Senegal, it is common to see songbirds for sale in the market and along the streets in Dakar. However, it was reported by the vendors that the majority of the people buying the birds do so to release them. Only Tanzania appears not to have a domestic live bird trade. However, it was reported that many of the resident expatriates do have pet birds in their homes.

Action 3.10: *ASSESS DOMESTIC TRADE LEVELS*

Governments and conservation organisations should undertake more detailed assessments of the impact harvests for domestic trade are having on wild bird populations.

In those countries where capture of wild species is serving a domestic market, such harvests should be incorporated into the annual quota system.

4. ECONOMICS

4.1. REVENUES FROM WILD BIRD EXPORTS

Individuals within producer countries are receiving only a limited percentage of the value of their wild bird exports (Swanson, 1992; Planning and Assessment for Wildlife Management, 1996). On a larger scale, the producer countries also only receive a fraction of the value of their wild bird resources, with a subsequent loss in potential foreign currency earnings (Planning and Assessment for Wildlife Management, 1996).

The bird trade is a long-standing tradition in each of the five countries profiled. Some exporters interviewed were the third or fourth generation of a family to be in the business. Exporters have developed strong ties with individual importers. This relationship was, and continues to be, based on considerable trust between the two.

The economic incentives for individuals and businesses to export wild-caught birds (and other natural resources) are linked to national currency regulations and/or relatively high inflation within countries of export. Exporters have found that the bird trade is an easy way to convert a somewhat readily available resource into cash. Like many wildlife commodities, wild-caught birds have greater value outside their countries of origin, and therefore profits can be maximised via export rather than

domestic sale. In addition, sale of birds to foreign buyers allows the exporter to be paid in foreign currency that can be held in foreign bank accounts, and/or held as a buffer against inflation.

It appears that government personnel in exporting countries may not be familiar with the value of wild birds in importing countries. Many producer country government officials expressed interest in receiving information regarding the declared values of the birds upon import. At present, it seems likely that exporters are the primary source of such information for these officials. Export taxes and other fees are often based on the 'export value' of birds exported, and revenues earned from such exports are often required to be deposited in national banks. Hence, from a financial perspective, it is in the exporters' best interests to provide inaccurate information regarding the value of the birds they export.

The governments of two countries, Guyana and Surinam, are known to have taken steps to resolve this problem in the wild bird trade. Exporters are required to receive a minimum amount of foreign currency for each bird exported, with this amount to be deposited in the exporting country's national bank. No such minimum export values are established in Tanzania. However, exporters in this country are required to deposit a minimum of 65% of the income received from the sale of wild birds in the national bank.

Action 4.1: MAXIMISE THE VALUE OF WILD BIRD EXPORTS TO EXPORTING COUNTRIES

The governments of producer countries should research the import, wholesale and retail value of birds exported from their country in various countries of import. Based on this information, minimum export values for species in trade should be established, and exporters required to secure these values for all birds exported.

To assist in the collection of such information, a procedure should be established under the auspices of the CITES Secretariat to periodically circulate to all Parties a summary of values declared upon import for species common in trade.

Exporting governments should require licensed exporters to provide copies of contracts or agreements they have with importers, and upon request, to provide all invoices and other sales/shipping documents as a condition of receiving a licence.

Governments of exporting countries should develop and enforce monetary policies that ensure that the greatest proportion of foreign revenues earned through wild bird (and all natural resource) exports are cycled into their national economies, rather than deposited and held in foreign accounts.

4.2. USE OF REVENUES IN CONSERVATION PROGRAMMES

All countries profiled collect revenues from wild bird exports through permit fees and/or a tax on exports. As noted above, in most cases taxes are based on a percentage of the 'assessed' value of the species.

Each country has established a government fund for the purpose of supporting conservation-oriented activities. However, none of the governments applied fees or taxes collected in conjunction with the bird trade to fund field surveys or other population monitoring programmes. No country is actively investing in maintaining its wild bird resources and yet each derives some financial benefit from the trade through surcharge and/or licence and permit fees.

In Argentina, none of the taxes collected on wild bird exports is earmarked specifically for the National Directorate of Wild Fauna. Only the fee charged for issuing CITES permits could be seen as accruing to the Directorate. Field studies are financed by exporters' contributions to FUCEMA, a private foundation: such contributions are encouraged by the Government. FUCEMA has also received contributions from NGOs and the CITES Secretariat.

In Guyana, a *special levy* of 20% of the assessed value of wild-caught birds to be exported is collected by the Government. Revenues collected via this levy are significant, at approximately US\$ 150,000 in 1990 alone. They are deposited in a special account under the authority of the Minister of Agriculture. To date, none of these funds has been used for field surveys. However, the Government has agreed to contribute to the cost of a baseline survey of psittacine populations if a

satisfactory researcher for this project is identified. The Minister of Agriculture reported that these funds are presently covering the costs of the Wildlife Services Division, and that if these funds were not available there would be no funds for the Division.

Indonesia assesses a tax of 6% of the declared value of wild-caught birds. In 1989 this tax generated approximately US\$ 720,000. These revenues are deposited in a special *Reafforestation Fund* administered under the authority of the Ministry of Forestry. Money from this fund has been used by PHPA to purchase vehicles and to provide a transportation supplement to field staff. There is no doubt that adequate funds are received by the Government to implement necessary field surveys and monitoring programmes. Only national policies and priorities within the Ministry of Forestry prevent this.

The National Forest Fund in Senegal receives 75% of the tax, licence and permit fees assessed on forest-related products, including wild bird exports. Some of this money has been used to purchase vehicles and supplies for wildlife management. However, there is no regular commitment by the Government to monitor the status of wild populations subject to harvest.

Only in Tanzania is there no export tax or assessment on the value of the specimens exported. A percentage of hunting licence and export permit fees is deposited in the Tanzania Wildlife Protection Fund. The fund earned approximately US\$ 625,000 in 1990. However, only a very small part came from levies associated with the wild bird trade. The fund has not been used thus far to undertake field surveys or monitoring programmes of wild birds in trade.

Action 4.2: GENERATE REVENUES FOR CONSERVATION FROM WILD BIRD EXPORTS

Governments should assess an equitable export tax on all wild bird exports, a percentage of which should be allocated to the government agency responsible for controlling wildlife harvests and exports. Export tax revenues should be used to support wild bird population monitoring programmes and other activities associated with sustainable use of the wild bird resources.

National and international conservation organisations should bring whatever pressure practicable on 'parent' Ministries to dedicate a significant percentage of government revenues generated from wildlife exports to habitat maintenance and the operating expenses of the agencies responsible for conserving natural resources.

Conservation organisations should finance baseline population surveys in countries of export only when governments have agreed to use a portion of wild bird export revenues as a means of financing periodic monitoring of wild bird populations, and of covering the operating costs of agencies responsible for wildlife conservation and utilisation.

4.3. ECONOMIC BENEFITS TO RURAL COMMUNITIES

There has been virtually no information collected regarding the economic benefits of the wild bird trade to people in rural areas. All of the information provided in the five country case studies was supplied by exporters (Thomsen *et al.*, 1992; Edwards and Broad, 1992). This information was generally derived from extrapolation based on the number of licensed exporters and individuals directly in their employ, and the price paid for birds during various phases of the trade. However, such valued information was never provided for more than a few species in trade in any given country. In addition, there was no independent verification of the number of people employed, either directly or indirectly, by each exporter.

In view of the almost total lack of information available on this subject, it was decided to present the information provided by the exporters. At best, therefore, the figures presented in the country reports can be viewed as a general indication of potential trade benefits to rural communities. Clearly, additional and more comprehensive research is needed to determine actual benefits. At present, only Argentina and Tanzania are undertaking formal studies to ascertain the level of economic benefit realised by rural communities from the wild bird trade.

An unknown, but obviously large, number of people in each country derive some benefit from the wild bird trade, particularly if family members are included. Each licensed exporter is linked to an extensive internal capture and transport network, and is hesitant to divulge too much information about his system. Bird exporters are also likely to be involved with other types of wildlife trade.

The amount paid to rural trappers for birds is only a fraction of what the same birds sell for in importing countries. This indicates that rural people are not receiving an equitable share of the birds' value (Swanson, 1992). However, on the scale of the local economies, income earned from trapping birds can be significant. Using Guyana as an example, a trapper receiving US\$ 5 per bird need only capture 150 birds per year to earn more than an average employee of the Ministry of Agriculture, with far fewer expenses.

Action 4.3: ENSURE ECONOMIC BENEFIT TO RURAL COMMUNITIES

Governments should evaluate the level of economic benefit from the wild bird trade accruing to rural communities.

Governments should consult with licensed exporters and local community leaders to establish price guidelines for species at different stages of trade.

Governments should ensure that some portion of the economic benefits accruing to rural communities are linked to maintenance of habitat or species conservation.

5. WELFARE

5.1 ANIMAL WELFARE STANDARDS IN EXPORTING COUNTRIES

The concept of animal welfare is not particularly well established in the countries profiled with respect to birds, which are generally perceived as being plentiful. Animal welfare is often viewed as an emotional concern of people in industrialised nations. Consequently, this issue was not taken very seriously by many bird exporters before recent NGO campaigns that have convinced many airlines not to carry wild birds. This has created the impression of a direct economic incentive for exporters to improve welfare standards.

Animal welfare laws covering wild species are non-existent or not enforced in most of the countries visited. While all countries required licensed exporters to have a pre-export holding facility, only Guyana provided standards for such facilities. Also, while all such facilities were subject to government inspection, this was normally performed by a veterinarian from another agency. No information was available regarding the procedures or records prepared in conjunction with such inspections. Pre-export quarantine requirements in Argentina, Guyana and Indonesia (for birds destined to the United States) are similarly enforced by personnel outside the wildlife departments.

Assessment of pre-export mortality was not an objective of this study. However, pre-export mortality was discussed with government officials and exporters in each country, who generally agreed that it was an issue that deserved additional attention. They all expressed a desire to receive information and training on how to better manage birds to reduce mortality rates.

Many exporters noted that importers only paid for birds that survived quarantine in the importing country. As a result, exporters were much more careful in their care of the birds than they would be otherwise. Tanzania, in cooperation with TRAFFIC International, will be organising a training workshop for exporters on better handling techniques for wild birds.

Action 5.1: ESTABLISH ANIMAL WELFARE STANDARDS IN EXPORTING COUNTRIES

Governments should require that trappers, traders and exporters of wild birds participate in training programmes that address topics including appropriate trapping and transport techniques and habituation of birds to captive conditions, including a captive diet.

Conservation, animal welfare and avicultural organisations, in cooperation with governments and the CITES Secretariat, should assist in the development and presentation of such programmes.

Generally accepted standards for pre-export holding facilities should be developed and adopted by all exporting countries, along the line of those prepared in Guyana. Licensing and inspection of these facilities should be under the authority of the agency responsible for wildlife. In the event that the inspection must be performed by someone from another agency, a report of that inspection should be filed with the wildlife agency.

All licensed exporters should be required to provide records of mortality during capture, transport and holding within pre-export holding facilities.

5.2 INTERNATIONAL TRANSPORT STANDARDS

Both CITES and the International Air Transport Association (IATA) have adopted a series of requirements to prepare live animals for shipment and transport. To date, these requirements have been inconsistently applied and rarely enforced. As a result, live birds have often been ill-prepared for shipment and/or shipped in substandard conditions, with significant transport-associated mortalities as a result.

Animal welfare and conservation NGOs have responded to this situation and other concerns with the bird trade by encouraging airlines to stop carrying live wild birds. This campaign has met with initial success, with most of the major US and European carriers, as well as some South American carriers, refusing to carry wild birds as of December 1991. This situation has almost certainly resulted in a decline in the number of birds moving to the United States and Europe, and has forced exporters to seek alternative carriers and/or modes of transport.

Action 5.2: IMPROVE INTERNATIONAL TRANSPORT STANDARDS

CITES Parties should require that live wild animals are shipped in a manner that conforms to CITES transport requirements, including those adopted via Resolutions of Conferences of the Parties.

Exporters should be required to demonstrate that animals will be appropriately prepared and shipped prior to being granted an export permit. If it is determined at the time of export that animals to be exported are not appropriately prepared or packed for shipment, then the export permit should be suspended until such time as the birds are so prepared.

The IATA Live Animals Board should take steps to encourage and enforce member compliance with the IATA Live Animals Regulations.

Importing Parties should take whatever steps necessary to ensure that animals to be imported are appropriately prepared for shipment prior to export. These should include: inspection of bird shipments upon arrival; completion of CITES checklists; and, communication with the government of the exporting country and the CITES Secretariat if a shipment does not conform to CITES transport requirements.

To aid the implementation and monitoring of welfare controls, importing countries should limit the number of ports of entry for live birds. Government-operated holding facilities should be located at all ports of entry, and staffed with veterinary personnel trained in handling wild birds.

6. CAPTIVE MANAGEMENT

6.1. MOVES TOWARDS CAPTIVE PRODUCTION OF WILD BIRDS

The Indonesia Management Authority is strongly encouraging all government-authorised exporters to develop, or participate in the development of, captive breeding facilities. In Guyana the Wildlife Services Division encourages exporters to start captive breeding operations. One Argentine exporter recently established a captive breeding facility, but has not yet produced birds for export.

The technology necessary to breed many species in captivity exists, at least within some consumer markets. However, the breeding biology of many species is not well known, and captive breeding of these species is therefore still in an experimental phase. The technical support necessary for

successful captive breeding programmes is not available in any of the five exporting countries that are profiled in this volume.

Thus far, only exporters have expressed an interest in, or have been encouraged to, develop captive breeding programmes. Conservation, animal welfare and avicultural organisations have yet to encourage or assist with the development of captive breeding facilities in countries currently exporting wild-caught birds.

Ranching, or manipulating habitat in some way so as to produce 'excess' birds that may be harvested for trade, is not being considered as a means to produce birds for export in any of the five countries. This may stem in part from the need to revise the concept of ranching, which is presently applied primarily to crocodilians. In addition, some countries may lack sufficient personnel to oversee ranching operations.

Action 6.1: PROVIDE TECHNICAL ASSISTANCE FOR CAPTIVE MANAGEMENT

Aviculturists and avicultural organisations, in cooperation with conservationists, should provide exporting countries with the technical assistance needed to develop captive breeding programmes.

The potential for ranching as a means of producing birds for export should be explored by the governments of exporting countries, with the support of conservation organisations, universities, trade associations and other institutions concerned with the trade. Research regarding various methods of 'ranching' birds should be initiated as quickly as possible, and the results of such research communicated to government agencies responsible for conserving wild species.

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PART 2

WORKING GROUP RECOMMENDATIONS

WORKING GROUP 1: BIOLOGICAL MONITORING

Members:

Chairman: Mr L. Melamari, WWF Tanzania
Secretary: Dr R.H. Lamprey, PAWM
Mr G.T. Moshia, Research, Training and Extension, Wildlife Department
Mr F. Mwombeki, RGO Singida
Ms C.M. Esupu, PAWM
Mr N.E. Baker, International Council for Bird Preservation
Mr J. Beraducci, Mountain Birds
Mr E. Salehe, Tanzania Wildlife Exporters Association
Mr E. Balilemwa, Balilemwa & Co Ltd

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The Chairman is requested to report back on the findings of the working group to the full workshop upon conclusion of the working group session. The Chairman may wish to nominate a secretary of the working group.

Specific points:

- establish a biological monitoring system that ensures sustainability of trade:
 - assess geographic distribution of species;
 - assess area of available habitat;
 - censuses to assess density in representative parts of the range;
 - compute upper and lower population levels, and evaluate reproductive/recruitment rates;
 - compute annual capture quotas that represent a safe offtake from the lowest possible population levels;
- regular monitoring programme;
- annual censuses, through the use of game scouts, local communities, university students, CITES Scientific Authority, and so on;
- annual monitoring of capture efforts;
- major review of distribution and habitat availability every five years; and,
- revision of quotas

RECOMMENDATIONS:

1. Establish a biological monitoring system that ensures sustainability of trade:

A. Assess geographic distribution of species

- It was agreed that this aspect of the monitoring system would be the easiest to implement in Tanzania. The attention of the group was drawn to a publication relating to the distribution of bird species in East Africa (*Birds of East Africa*, edited by PL Britton), which should be distributed to Wildlife Department (WD) staff in the field. It was also revealed that for the past 10 years the Wildlife Conservation Society of Tanzania (WCST) had been working on a bird atlas of Tanzania, and members of the group were circulated with copies of the recording form that could be given to field staff. It was agreed that this represented a useful base for the monitoring of bird species in Tanzania, but also that the information so gathered should be made readily available to the WD.
- This system could make use of people already in the field, either those who regularly patrol wildlife habitats, or those who make a living by catching birds. These are the Regional Game Officers (RGOs), District Game Officers (DGOs), Project Managers and game scouts in the Wildlife Department, and trappers working for exporters. They would simply record bird species seen, with a crude estimate of numbers, but it was emphasised that data should only be gathered on certain key species to avoid overload. These data would feed into a central

repository/analysis database in WD, who would share the data with WCST. In this way all parties of diverse interests would be involved in the data gathering process, an approach that would stimulate cooperation. At the same time data from the trappers could be cross-checked against data from the WD field staff.

- The end product of this approach would be the continued up-dating of a distribution map that will assist in the analysis of the status of each key species. Quota decisions would be based on these data.
- This approach relies on accurate identification, a skill that can be instilled in interested people with the least difficulty (as opposed to, for example, bird censusing).

B. Assess area of available habitat

- There was difficulty in reaching a consensus over the definition of *available habitat*. One part of the group defined available habitat of a bird species as any habitat in which that species was found. Thus, if apparently suitable habitat did not have that bird species in it, it was not suitable habitat. In this definition, maps indicating the present distribution were themselves measures of available habitat. The second part of the group argued that apparently suitable areas may not have a certain species because (a) the birds have all been caught, or (b) the areas have not been fully investigated for bird species diversity, and not because the habitat was unsuitable.
- Clearly, the second part of the group wished to define available habitat more broadly. It was recognised that the landscape of Tanzania was changing rapidly, with the conversion of forests, woodlands and grasslands to agriculture. The disappearance of certain bird species was a function of both the disappearing habitat, and of capture for the live bird trade. Therefore, habitat maps, in terms of broad categories of forests, woodlands and grasslands, were an essential prerequisite to an understanding of the impact of trapping and agricultural activities on bird populations. This is applicable as much to bird species with an inexplicably localised distribution, e.g. Fischer's Lovebird, as it is to those species with a much wider distribution, e.g. Bare-faced Go-away-bird. The birds will be absent if their habitat is destroyed. The analysis of available habitat thus falls within the much broader category of land-use analysis and trends, which covers many disciplines.
- No consensus was reached between the two groups, and the working group moved on to the next item.

C. Censuses to assess density in representative parts of the range.

- The working group concluded that bird censusing techniques required a certain skill on the part of the censusers, in terms of bird-call recognition and identification. A transect technique for censusing birds was described to the group. However, it was recognised that if this technique could not be rigorously implemented in a country like Britain with many keen ornithologists, it was probable that it could not be applied on a regular basis in Tanzania, where government resources and ornithological expertise were very limited.

D. Compute upper and lower population levels and evaluate reproductive/recruitment rates

- Again the working group concluded that this was not possible at present, given the current lack of expertise in Tanzania.

E. Compute annual capture quotas.

- Quotas can be set very crudely on the basis of distribution maps with basic data on the numbers of birds present in an area, i.e. numerous, regularly seen, rare and so on. It would be appropriate to set quotas on the low side, and then increase them if the data suggest this could be done safely.

2. Regular Monitoring Programmes

- Regular monitoring will take the form of a re-analysis of the bird distribution data discussed in 1A above. Regular censusing was impractical at present.

3. Revision of Quotas

- The group began the process of revising the quota, but this requires further work. As a first step, the group went throughout the entire list of species on the present quota, deciding which species should remain, and which rarer species should be removed from broad-based groupings (specified on the quota as, for example, *finches* or *doves*). The next steps in the process will be: first, to submit this revised list to dealers, conservationists and the WD for evaluation; second, to define an upper limit to the number of each agreed species that can be traded. This upper limit will have to be divided amongst the total number of dealers, rather than giving a quota to each dealer irrespective of the number of dealers.

4. Overall Recommendations

- WD staff on regular patrol should receive training in bird identification from the WCST. They will then be able to fill in the bird atlas forms on a regular basis and submit them through their superiors to the WD in Dar es Salaam for mapping of key bird species. Basic equipment, such as bird books and binoculars, should be purchased for them to assist them in their task.
- Trappers should also participate in this exercise. They would submit their data through the exporters they work for to WD. This should be made a requirement specified at the time of issuing of trapping licences.
- The WD will share all data with the WCST who are compiling the bird atlas of Tanzania.
- The WD and WCST will evaluate the data with the objective of setting appropriate quotas for species that will remain in trade.

WORKING GROUP 2: MANAGEMENT AND REGULATIONS

Members:

Chairman: Mr W.J. Mapunda, PAWM
Secretary: Mr M.M. Lyimo, Anti-poaching, Wildlife Department
Mr T. Milliken, TRAFFIC East and Southern Africa
Dr N. Leader-Williams, PAWM
Ms R.K. Tibanyenda, PAWM
Mr C. Mulokozi, Licensing
Mr S.J.K. Tungi, CITES, Wildlife Department, Dar es Salaam
Mr J. Mwalongo, CITES Arusha
Mr D.A. Materu: RGO Kilimanjaro
Mr E. Salehe, Salehe International Marketing

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The Chairman is requested to report back on the findings of the working group to the full workshop upon conclusion of the working group session. The Chairman may wish to nominate a secretary of the working group.

Specific points:

- Are CITES institutions, the Management and Scientific Authorities, properly established to fulfil their respective roles with respect to the issuance of permits and certificates?
- Do current trade controls meet CITES requirements for:
 - ensuring that trade is not detrimental to the survival of species, i.e. Article IV of CITES?
 - ensuring the specimens were obtained legally?
 - providing for long-term monitoring of the impact of trade?
 - maintaining competent trade records for annual reporting?
- Is the current licensing and registration system for trappers and traders appropriate?
- Does the current quota system need to be reviewed and modified?
- Are current law enforcement measures adequate to deal with offenders and to ensure compliance with existing regulations?

RECOMMENDATIONS:

1. Are CITES Scientific and Management Authorities properly established to fulfil their roles in issuance of permits?

- The group considered that, with various improvements discussed at the workshop such as computerisation and CITES training courses, WD was fulfilling its role as the CITES Management Authority. However, it was felt that the Serengeti Wildlife Research Institute was not in a position, through lack of funds and difficulties in communications, to adequately fulfil its role as the CITES Scientific Authority. The group believed that the Scientific Authority should be transferred to the WD Headquarters, to be close to the Management Authority offices, so that it is fully utilised as an advisory body to the Management Authority. The Management and Scientific Authorities could then work more effectively to determine quotas and other relevant requirements as stipulated under Article IV of CITES.
- Furthermore, the group believed that academic institutions such as the Wildlife College at Mweka, Sokoine University (SUA), University of Dar es Salaam and the WCST be consulted from time to time to lend assistance with scientific expertise and to enhance the present working situation of the Scientific Authority.

2. Do current trade controls meet CITES requirements for:

A. Ensuring that the trade is not detrimental to the survival of species?

- The group believed this not to be the case, and requested that surveys be carried out of species subject to significant levels of trade. This would be facilitated if the WD became the designated Scientific Authority.

B. Ensuring the specimens were obtained legally?

- The group believed this not to be the case and recommended that:
 - the WD should apply to the CITES Secretariat to have security paper printed under their supervision, to cut down the current practices on forged certificates or permits;
 - the WD should ask the Customs Authority to make returns of exports of live birds and other wildlife specimens by returning to the WD extra copies of export permits after inspection at the port of exit. In addition, the WD should assist customs personnel in training, to enable them to identify and count the specimens under export.

C. Providing for long-term monitoring of the impact of the trade; and,

D. Maintaining competent trade records for annual reporting?

- The group believes both of these need to be improved, but the WD has recognised its shortfalls as in (1) above. With computerisation this aspect of the WD's work will improve.

3. Is the current licensing and registration system for trappers and traders appropriate?

- The group again believed this not to be the case, and recommend that the WD should scrutinise traders and trappers, and issue licences only to genuine traders to ensure that the trade is conducted in a manner to satisfy international concerns. The details of this should be discussed in Working Group 3 on Economic Control.

4. Does the current quota system need to be reviewed and modified?

- The group believed the quota system was in need of review, and recommended that the number of traded specimens should be fixed and divided amongst the traders for each season.

5. Are current law enforcement practices adequate to deal with offenders?

- The group believed that the Wildlife Conservation Act of 1974 provided strong powers to enforce laws relating to animals capture and trade. However, there is a need to increase the frequency and standard of checks and inspections, which would be facilitated by having fewer dealers. In addition, there is a need for the WD to double its efforts in inspecting and controlling dubious shipping of specimens at the Kilimanjaro and Dar es Salaam International Airports.

WORKING GROUP 3: ECONOMIC CONTROL

Members:

Chair: Mr J.B. Kimaro, Bank of Tanzania
Secretary: Mr R.K. Ndaskoi, Planning Commission
Mr J.B. Thomsen, TRAFFIC International
Mr E.L.M. Severre, Tanzania Wildlife Conservation Monitoring
Mr E.S. Palangyo, RGO Dodoma
Mr Z. Masiaga, DAMOCO
Mrs N.J. Mwina, PAWM
Mrs V. Mtefu, Board of External Trade
Mr D.S. Mwalusamba, National Bank of Commerce

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The Chairman is requested to report back on the findings of the working group to the full workshop upon conclusion of the working group session. The Chairman may wish to nominate a secretary of the working group.

Specific points:

- under-invoicing;
- defaulting on payment to the National Bank;
- low level of current license fees;
- allocation of revenues from different licenses;
- establishing realistic minimum values for specimens of species exported;
- establishing realistic license fees.

RECOMMENDATIONS:

1. Under-invoicing and setting minimum values

- The WD, in collaboration with Bank of Tanzania, Board of External Trade and other interested parties, should set a minimum price for each species once or twice in a year to guide the exporters pricewise. The price bulletin should be circulated to the National Bank of Commerce, Customs and to the Anti-poaching Officer who checks the export consignment at the point of exit.
- The WD should print serialised forms on security paper in 3 different colours, that should act as export permits for bird exporters. The exporter will remain with the original, the second copy will be attached to the white copy of the CD3 form and be left at the airport for the Bank of Tanzania (BOT) to collect and the third copy is for the WD.
- Before the licensing period for a new year starts, BOT and WD should sit together to check whether the traders exported the species they were permitted to export and whether the money has been remitted in the current year. Non-remittance on the part of the exporter should deny him a licence to undertake future business.
- In case of some mortality before or on reaching the destination, competent authorities in the importing country should produce certificates indicating levels of mortality. The WD is also requested to introduce the CITES check-list form that is filled in at the exporting and the importing airports to show the condition of the birds.

2. Defaulting on payment to BOT

- Any exporter who defaults in remitting export proceeds should be denied a licence and legal action taken against him. In case any trader is denied a licence, but then establishes a new trading company, BOT should scrutinise the directors of any new company, and if found to

be the same as any company that defaulted in remitting export proceeds, the Registrar of Companies should be alerted to delete the new company.

3. Low level of current licence fees

- The current licence fees were reviewed in 1989 and became operative in 1990, and are actually considered to be high. The group found no need to increase them now, but an increase would be considered after 2 to 3 years.

4. Allocation of revenues from different licences

- The group considered that, for WD to carry on its activities smoothly, 30% of the revenues it collects should remain with it rather than all going to the Treasury. Such revenues should be used to conduct extension services, to conduct training for the bird exporters and trappers, to enforce wildlife regulations, to print brochures explaining the nature of birds and how they should be handled, to show services on wildlife commodities and products, and so on. The request to retain 30% of the revenues should be tabled to the appropriate authority (Treasury) supported by an analytical paper to show how the money will be utilised.

5. Benefits to the community

- The Government should look into ways of helping local communities living in rural areas where birds are harvested. Besides the employment created by the traders who employ trappers, the Government should invest in projects that benefit the community, for example, health centres, schools, clean water, good roads, small-scale industrial projects that can generate more employment, and so on.

WORKING GROUP 4: ANIMAL WELFARE

Members:

Chair: Professor J.E. Cooper, Sokoine University
Secretary: Dr J.D. Mwashia, Shaaban Robert Veterinary Clinic
Professor K.M. Howell, University of Dar es Salaam
Mr S. Broad, TRAFFIC International
Mr M.A. Mhagama, DAHACO
Mr P. Nyiti, Wildlife Conservation Society of Tanzania
Mr P.I. Sarakikya, Anti-poaching, Wildlife Department
Mr H. Mbonde, Hambo Enterprises
Mr O.F. Mbangwa, PAWM
Mr B.M.C.M. Midala, RGO Musoma

Terms of Reference:

General for Chairman: The Chairman is requested to summarise the issue relevant to the working group in order to focus and stimulate discussion by the participants. The Chairman may wish to focus on the specific points mentioned below in order to organise the ensuing discussion. The Chairman is recommended to keep in mind the need to cover all the relevant points and to prompt discussion.

The Chairman is requested to report back on the findings of the working group to the full workshop upon conclusion of the working group session. The Chairman may wish to nominate a secretary of the working group.

Specific points:

- Pre-export mortality:
 - How can pre-export mortality be reduced?
How can licensing of exports take into account pre-export mortality?
 - What enforcement activities would be required to ensure that capture and handling before shipment are carried out in accordance with proposed remedial measures?
- Preparation for shipment:
 - How can standards of husbandry, handling and holding be improved?
 - What enforcement activities would be required to ensure that capture and handling before shipment are carried out in accordance with proposed remedial measures?
- International transport mortality:
 - How can training be provided to improve packing of birds shipments in order to comply with IATA Live Animals Regulations?
What changes to export licensing and administration procedures are required to ensure compliance with IATA Regulations and implementation of the container checklist required under CITES Resolution.
How can the implementation of such measures be monitored?

1. DEFINITION

- It is recommended that Animal Welfare be defined as the well-being of the live animal. The well-being of the animal includes the state of being free of disease, and of psychological and physical suffering.

2. IMPORTANCE OF ANIMAL WELFARE

The group noted that, in the context of the bird trade, the animal welfare issue is of great importance on the following basis:

- economic considerations: The business generates foreign exchange that is important for the nation and of benefit to the traders;

- the Tanzanian community cares: The Tanzania Association for Protection of Cruelty to Animals (TSPCA) is a registered non-governmental organisation that cares for animal welfare;
- the international community cares: Tanzania is the second largest exporter of wild birds to the EC and USA markets. The importing countries have legislation that requires the bird dealers to exercise maximum animal welfare care, and animal welfare is the major concern of many international bodies.

3. STEPS TO BE TAKEN IN ANIMAL WELFARE

The group recommended that:

- standards for animal welfare be established and the group agrees to work together on the issue of standards;
- the existing legislation on animal welfare be enforced, and new legislation be established to comply with contemporary international standards;
- the welfare of wild-caught birds must involve an inter-disciplinary approach to ensure that standards are maintained;
- manuals/pamphlets should be prepared in Kiswahili to educate trappers and traders in bird care and welfare;
- having noted that the bird-importing countries have holding ground at their port of entry, similar inspection and welfare facilities should be established at Kilimanjaro International Airport and Dar es Salaam International Airports;
- having appreciated the role played by veterinarians in animal welfare, and having noted with great concern that the same have no transport for aviary inspection, the group highly recommend that transport facilities be made available to veterinarians involved in ensuring that standards of welfare in bird holding grounds are maintained.

4. CONCLUSION

The working group emphasised that they would be prepared to cooperate with all institutions involved in the bird trade to promote appropriate standards of animal welfare.

PART 3

OUTCOME OF WORKSHOP

POLICY FOR MANAGEMENT OF TANZANIA'S AVIFAUNA, WITH SPECIAL REFERENCE TO THE LIVE BIRD TRADE

Tanzania possesses an outstanding avifauna of around 1060 species, of which 18 species are endemic to Tanzania and a further 16 are endemic to East Africa. Tanzania aims to conserve this natural heritage where it does not conflict with legitimate human activities. In addition, Tanzania has become a major exporter of live birds and aims to promote sustainable utilisation of its avifauna as an incentive for habitat conservation. Thus within appropriate areas of Tanzania, the aims of avifaunal management will be:

- a) to increase or maintain numbers of each bird species, with special regard to endemic species (protection):
- b) to produce a sustainable harvest of bird species in which it is appropriate to trade (utilisation):
- c) to initiate utilisation through captive breeding programmes for appropriate key species (captive breeding):
- d) to conduct any trade in live birds in a humane manner (animal welfare):
- e) to manage birds where appropriate for the benefit of local communities (community benefit).

A detailed management plan for Tanzania's avifauna will be drawn up by the Director of Wildlife. The aims of management of bird species in the different categories of protected area, and in open areas, will be defined according to the abundance, endemism and value to world markets of each species. The management of different bird species will also take into account the area and type of habitat each species occupies, and the extent to which this habitat has been disturbed by human activities.

The management plan will be submitted for review and approval by the Minister every three years.

Utilisation shall involve field harvesting of live birds and captive breeding (as defined by Resolution Conferences 2.12 and 8.15 of the Convention on International Trade in Endangered Species of Wild Fauna and Flora), at the discretion of the Minister. Tanzania will strictly abide by the terms of the Convention for export of all live birds, including the International Air Transport Association's Live Animal Regulations (Resolution Conference 7.13).

The Minister will maintain and strengthen the necessary legislative and institutional frameworks required to protect and, where appropriate, utilise Tanzania's bird species.

This policy and management plan received the approval of the Minister on 17 June 1993

MANAGEMENT PLAN FOR TANZANIA'S AVIFAUNA, WITH SPECIAL REFERENCE TO THE LIVE BIRD TRADE

1. INTRODUCTION

Tanzania's policy towards its avifauna recognises its outstanding biological value and states that it will be conserved and encouraged where it does not conflict with legitimate human activities. Conservation may include protection, utilisation and benefits to local communities. The management plan aims to encourage:-

- a) the management of Tanzania's avifauna on a scientific basis;
- b) the protection of Tanzania's avifauna in the wild;
- c) the controlled and sustainable utilisation of appropriate species captured in the wild, with greater emphasis upon reducing pre- and post-capture mortality;
- d) the development of captive breeding facilities for appropriate key species.

All exports of live birds will be in accordance with the Convention on International Trade in Endangered Species of Wild Fauna and Flora (hereinafter CITES) and Wildlife Conservation Act No. 12 of 1974 (hereinafter the Wildlife Conservation Act).

2. LEGISLATION

In accordance with the Wildlife Conservation Act, Tanzania's avifauna can be captured or otherwise utilised under a licence issued by the Director of Wildlife (hereinafter the Director). The exceptions to wild capture are two species on Appendix I of CITES (detailed in an appendix to this plan) and species banned by the Department of Wildlife through future notifications to the CITES Secretariat.

In addition, the Wildlife Conservation Act permits "game" birds to be shot on licence by hunters. The species and species groups encompassed by the term "game" birds are detailed in an appendix to this plan.

No consumptive utilisation may take place within National Parks according to the National Parks' Ordinance CAP. 412 of 1959. Under the Ngorongoro Conservation Area Ordinance CAP. 413 of 1960, the Authority can make an order to prohibit the removal of flora and fauna, or for persons to carry or use weapons, snares, traps, nets or poison within the Ngorongoro Conservation Area.

Productive and protected Forest Reserves are defined at gazettelement under administrative orders empowered by the Forest Ordinance CAP. 389, Section 30, of 1957.

3. MANAGEMENT IN PROTECTED AND OPEN AREAS

- i) In all National Parks, Tanzania's avifauna will be fully protected, and terrestrial and aquatic habitats managed to encourage their increase or maintain their numbers, as appropriate. Utilisation of Tanzania's avifauna within National Parks will be confined to tourist game viewing.
- ii) In Game Reserves and protected Forest Reserves, Tanzania's avifauna will be protected, and terrestrial and aquatic habitats managed to encourage their increase or to maintain their numbers, as appropriate. Utilisation of Tanzania's avifauna within Game Reserves and protected Forest Reserves will be limited to tourist game viewing and, in Game Reserves, to the allocation of sustainable quotas of selected game species to sport hunters. No commercial collection of live birds will be allowed.
- iii) In Game Controlled Areas, productive Forest Reserves and in open areas, protection of Tanzania's avifauna will be encouraged. However, populations of appropriate species may

be utilised through allocation of sustainable quotas for capture or for sport hunting. Where possible, benefits will be returned to local communities. Control of the single pest species will be allowed where it conflicts with legitimate human activities.

4. CONTROL OF LIVE BIRD TRADE

The capture of, and trade in, live birds is permitted under the Wildlife Conservation Act, which provides strong powers of law enforcement. However, from 1994 Tanzania will impose more stringent regulations that will define the numbers of appropriate bird species available for capture, the humane and acceptable practices for their capture and transport, and the economic practices by which they are traded. Tanzania aims to ensure that the utilization of its avifauna is undertaken on a basis that is sustainable and profitable to the nation.

i) Species and quotas to be traded

The world market for wild birds falls into two categories, namely sales for the pet trade, and sales to bona fide scientific and educational institutions for exhibition. The former is characterised by its high volume and low returns while the latter offers potential for a more controlled and better priced trade. Tanzania intends to promote its sales for exhibition.

Of Tanzania's 1060 or more species, only a small proportion are of interest to world markets. However, among the species of interest are many of the endemics, and endangered and threatened species, and species living in threatened habitats. No species will be traded to its detriment in the wild (CITES Resolution Conference 2.16).

The Department will set the national quota on an annual basis for each species to be traded, using the best available data on their geographic distribution and, therefore, the area available for harvesting (excluding National Parks, Game Reserves and protected Forest Reserves), together with estimates of density and breeding rate. The national quota will specify the individual species that can be traded, rather than listing broad species or generic groups. The national quota will be applied to the number of birds actually caught rather than the number exported. The national quota will be divided equally among the traders.

ii) Pricing mechanism

The Department, in collaboration with the Bank of Tanzania, Board of External Trade National Bank of Commerce and other key government institutions, will set minimum values for the export of each species of bird to be traded. Minimum export values will be based on those recommended by TRAFFIC International, to be set at approximately one-eighth of their retail value in consuming countries. Remittances by licensed traders, which will be based on the minimum values set by the Department, will be checked regularly, and overseas authorities will be requested to verify shipment mortalities that result in non-remittance. Any non-compliance by traders in the above will result in the loss of their licence. Checks will be made with Registrar of Companies to determine if banned companies are re-emerging under new names with the same directors. Sales will be made only to named dealers approved by TRAFFIC International in importing countries.

iii) Animal welfare

With an improved price structure traders will be required by the Department to invest in their facilities and holding grounds. Mortality at capture will be reduced by running courses for trappers and eliminating indiscriminate methods of capture. Mortality in holding grounds will be reduced through improvements in cages and through regular inspections by the Department, also involving veterinarians. Mortality in transit will be reduced through improved crating that fulfils IATA regulations. Traders will be encouraged to investigate using airlines with direct routes to importing countries.

iv) Regulation of the trade

The Department will introduce measures to improve certification and increase the frequency of inspection. The Department will undertake rigorous pre-licence inspections of

traders' holding grounds. All traders will be encouraged to belong to the Tanzanian Wildlife Exporters Association (hereinafter TWEA). TWEA will be encouraged to self-police its members. The Department will place increased emphasis upon airport inspections prior to shipment at Dar es Salaam and Kilimanjaro International Airports, including shipments in transit from Kilimanjaro to Dar es Salaam. Treasury will be approached to agree to retention of a proportion of funds earned by the Department to increase policing and extension work in the field.

v) Regulation of traders

The key to a well-regulated and sustainable trade in live birds that makes an appropriate economic return to Tanzania is to achieve a well-priced quota offered to fewer traders. As the above measures come into effect it will be increasingly necessary to reduce the number of traders in an equitable fashion.

All companies seeking licences will be required to submit proposals describing their facilities, plans of operations and finances. A fixed number, around thirty, of the top proposals would be offered licences. Dealers will be encouraged to enter into partnership so that many under-financed companies with poor facilities merge into fewer well-financed companies with enviable facilities. This will be achieved by establishing a competitive system to eliminate unscrupulous companies, who behave badly in terms of dealing in banned species, or go over quota, or who employ poor welfare, or who do not remit.

Among the conditions expected to be met by traders prior to issuance of a licence to trade are the following:-

- a) the regular employment of a trained and registered workforce of trappers living in rural areas;
- b) well constructed cages for transport of birds to holding grounds;
- c) holding grounds with adequate air, light, fresh water and spacious cages or pens that are cleaned regularly;
- d) the supply of suitable food and a suitable means of dispensing it;
- e) well constructed and suitable cages for the international transport of birds;
- f) a wish to specialise in particular groups, for example finches or waterbirds;
- g) evidence of having utilised the previous annual quota and having made full remittance for birds traded in the previous year;
- h) establishment of appropriate trade links to reputable dealers overseas.

5. CAPTIVE BREEDING

Captive breeding has been defined according to CITES Resolution Conferences 2.12 and 8.15 and, therefore, may be defined for the purposes of the Wildlife Conservation Act as: *The rearing in a controlled environment of specimens, usually eggs or offspring, of parents that mated or otherwise transferred gametes in a controlled environment.*

i) Requirements for captive breeding

Where investors or the Department identifies the potential for captive breeding of a species to contribute to trade, investors will be required to establish their parental breeding stock taking into account the following:

- a) that its establishment must not be detrimental to survival of the species in the wild;
- b) that it must be maintained without augmentation from the wild, except for occasional addition of birds, eggs or gametes from wild populations to prevent deleterious inbreeding.

ii) Promotion of captive breeding

The Department will offer investors every encouragement to establish captive breeding populations of appropriate key species. TWEA will be encouraged to investigate this option with consuming countries, as a means of reducing wild harvests, and of capture and transit mortality. Where necessary, external assistance will be sought to identify potential and assist in establishing captive populations.

6. SURVEYS AND MONITORING

Monitoring of traded populations will be undertaken regularly from:

- a) field records collected by pre-existing field personnel after suitable training, and by bird trappers, using standard forms issued by the Department;
- b) records of numbers of birds caught by traders, using the standard Certificates of Ownership issued by the Department;
- c) records of licences issued and actual exports made, using CITES and Trophy Export Certificates.

Research will be partially funded by levies raised from TWEA.

In addition, particular emphasis will be placed upon initiating more detailed studies of the status of two species identified by CITES as having been subject to significant trade, namely Fischer's lovebird (*Agapornis fischeri*) and yellow-collared lovebird (*A. personata*). Furthermore, studies of certain key species for the trade will be initiated to formulate better quotas and management programmes.

7. EXPORT AND TRADE

All live birds for export will be documented in accordance with CITES regulations. Exporters will be required to pay a levy in Tanzania shillings to the Department per CITES Certificate issued on their behalf. CITES export documentation will only be issued on receipt of valid Certificate of Ownership. Trophy Export Certificates will be issued for all non-CITES species and for species on Appendix III of CITES that were not listed by Tanzania. Exporters will be required to pay a levy in Tanzania shillings to the Department per Trophy Export Certificate issued on their behalf. All certificates and invoices will include the full list and number of individuals of each species being exported.

8. SPORT HUNTING

Quotas for sport hunting of game birds will be determined for each area at the start of each season by the Department. A fee, payable in foreign exchange by tourist hunters and in Tanzania shillings by resident hunters, will be levied on each bird. Professional hunters will make annual returns to the Director stating the species, locality and ultimate destination of each bird taken. All exports will be documented in compliance with CITES regulations.

9. RANCHING

Ostriches, *Struthio camelus*, can be ranched and are the subject of a separate policy and management plan.

10. CONTROL OF PESTS

Red-billed Quelea, *Quelea quelea*, is the only registered agricultural pest species in Tanzania. Its control will be continued by the Department of Agriculture where it conflicts with genuine human activities. The Department of Agriculture will be encouraged to liaise with the Department of Wildlife prior to spraying areas for pest *quelea* in order to permit harvest of those species of interest to traders that would otherwise be killed indiscriminately. *Quelea quelea* will not be subject to an upper quota and can be exported in unlimited numbers by traders.

11. REVISION OF PLAN

The plan will be revised and updated, where necessary, by the Director and submitted to the Minister every three years for approval.

THE REVISED BIRD QUOTA FOR 1994

Species	National Quota	Collecting Restrictions	Minimum Export Value US\$)	Total Value (US\$)
PELICANS White Pelican <i>Pelecanus onocrotalus</i>	1300	Away from breeding colonies	100	130,000
Pink-Backed Pelican <i>Pelecanus rufescens</i>	560	Away from breeding colonies	90	50,400
CORMORANTS Greater Cormorant <i>Phalacrocorax carbo</i>	200	Away from breeding colonies	35	7000
HERONS, EGRETS Black-headed Heron <i>Ardea melanocephala</i>	200	Away from breeding colonies	50	10,000
Cattle Egret <i>Bubulcus ibis</i>	500	Away from breeding colonies	20	10,000
HAMERKOP Hamerkop <i>Scopus umbretta</i>	200	None	25	5000
STORKS Open-billed Stork <i>Anastomus lamelligerus</i>	200	Away from breeding colonies	85	17,000
Abdim's Stork <i>Ciconia abdimii</i>	300	From September to November during post-breeding migration	50	15,000
Marabou <i>Leptoptilos crumeniferus</i>	200	Away from breeding colonies	130	26,000
IBISES, SPOONBILLS Hadada Ibis <i>Bostrychia hagedash</i>	300	From October to January	50	15,000
Sacred Ibis <i>Threskiornis aethiopica</i>	300	Away from breeding colonies	40	12,000
African Spoonbill <i>Platalea alba</i>	300	Outside Arusha & Singida Regions; away from breeding colonies	85	25,500
FLAMINGOS Lesser Flamingo <i>Phoeniconaias minor</i>	1200	Away from breeding colonies	80	96,000
Greater Flamingo <i>Phoenicopterus ruber</i>	500	Outside Arusha Region; away from breeding colonies	150	75,000

DUCKS, GEESE				
White-faced Whistling Duck <i>Dendrocygna viduata</i>	200	From June to November and from non-breeding flocks	25	5000
Egyptian Goose <i>Alopochen aegyptiacus</i>	300	Away from breeding sites	50	15,000
Red-billed Teal <i>Anas erythrorhynchos</i>	200	From June to November	25	5000
Spur-winged Goose <i>Plectropterus gambensis</i>	300	Only from rice farms where seasonally common	75	22,500
FRANCOLINS				
Red-necked Spurfowl <i>Francolinus afer</i>	800	<i>F.a. melanogaster</i> only, from Tanga, Coast, Iringa & Morogoro Regions	25	20,000
Coqui Francolin <i>Francolinus coqui</i>	200	From Arusha Region only	20	4000
Yellow-necked Spurfowl <i>Francolinus leucoscepus</i>	800	From Arusha Region only	25	20,000
Crested Francolin <i>Francolinus sephaena</i>	200	From Tanga, Coast, Iringa & Morogoro Regions	20	4000
GUINEAFOWLS				
Vulturine Guineafowl <i>Acryllium vulturinum</i>	300	From Kilimanjaro & Tanga Regions only	60	18,000
Helmeted Guineafowl <i>Numida meleagris</i>	2000	No more than 500 per region	30	60,000
RAILS, CRAKES				
Black Crake <i>Limnocorax flavirostra</i>	200	None	20	4000
Red-knobbed Coot <i>Fulica cristata</i>	200	From non-breeding populations	20	4000
JACANAS				
African Jacana <i>Actophilornis africanus</i>	200	No more than 40 per region	20	4000
PLOVERS				
Kittlitz's Sandplover <i>Charadrius pecuarius</i>	200	No more than 50 per region	25	5000
Three-banded Sandplover <i>Charadrius tricollaris</i>	300	No more than 50 per region	25	7500
Blacksmith Plover <i>Vanellus armatus</i>	500	No more than 100 per region	25	12,500

Crowned Plover <i>Vanellus coronatus</i>	500	No more than 100 per region	25	12,500
THICKNEES				
Spotted Thicknee <i>Burhinus capensis</i>	150	No more than 30 per region	25	3750
COURSERS				
Two-banded Courser <i>Rhinoptilus africanus</i>	100	No more than 20 per region	25	2500
SANDGROUSE				
Chestnut-bellied Sandgrouse <i>Pterocles exustus</i>	100	None	20	2000
Yellow-throated Sandgrouse <i>Pterocles gutturalis</i>	300	None	20	6000
PIGEONS, DOVES				
Namaqua Dove <i>Oena capensis</i>	300	No more than 75 per region	6	1800
Ring-necked Dove <i>Streptopelia capicola</i>	5000	No more than 1000 per region	6	30,000
Mourning Dove <i>Streptopelia decipiens</i>	5000	No more than 1000 per region	6	30,000
Red-eyed Dove <i>Streptopelia semitorquata</i>	2200	No more than 550 per region	6	13,200
Laughing Dove <i>Streptopelia senegalensis</i>	2200	No more than 550 per region, but none from Tanga, Coast & Morogoro Regions	6	13,200
Emerald-spotted Wood Dove <i>Turtur chalcospilos</i>	1500	No more than 400 per region	6	9000
Green Pigeon <i>Treron australis</i>	1000	No more than 250 per region	6	6000
PARROTS				
Brown-headed Parrot <i>Poicephalus cryptoxanthus</i>	600	From Coast & Morogoro Regions only	40	24,000
TURACOS				
White-bellied Go-away Bird <i>Corythaixoides leucogaster</i>	120	From Dodoma & Arusha Regions only	30	3600
Bare-faced Go-away Bird <i>Corythaixoides personata</i>	200	Any region, except Arusha & Kilimanjaro Regions	25	5000
Hartlaub's Turaco <i>Tauraco hartlaubi</i>	160	None	60	9,600

Livingstone's Turaco <i>Tauraco livingstonii</i>	100	None	45	4500
CUCKOOS				
Didric Cuckoo <i>Chrysococcyx caprius</i>	100	No more than 20 per region	20	2000
Klaas' Cuckoo <i>Chrysococcyx klaas</i>	160	No more than 40 per region	20	3200
White-browed Coucal <i>Centropus superciliosus</i>	150	No more than 30 per region	10	1500
MOUSEBIRDS				
Speckled Mousebird <i>Colius striatus</i>	3000	<i>C.s. affinis</i> and <i>C.s. cinerascens</i> , from Shinyanga, Arusha, Dodoma, Coast & Morogoro Regions	8	24,000
Blue-Naped Mousebird <i>Urocolius macrourus</i>	1200	<i>U.m. pulcher</i> only, from Arusha, Kilimanjaro & Tanga Regions	10	12,000
KINGFISHERS				
Pied Kingfisher <i>Ceryle rudis</i>	160	No more than 40 per region	20	3200
Brown-hooded Kingfisher <i>Halcyon albiventris</i>	200	No more than 40 per region	20	4000
Striped Kingfisher <i>Halcyon chelicuti</i>	200	No more than 40 per region	20	4000
Chestnut-bellied Kingfisher <i>Halcyon leucocephala</i>	200	No more than 40 per region	20	4000
ROLLERS				
Lilac-breasted Roller <i>Coracias caudata</i>	500	No more than 100 per region	20	10,000
Rufous-crowned Roller <i>Coracias naevia</i>	200	No more than 40 per region	25	5000
HORNBILLS				
Trumpeter Hornbill <i>Bycanistes bucinator</i>	200	None	70	14,000
Crowned Hornbill <i>Tockus alboterminatus</i>	200	None	25	5000
Von der Decken's Hornbill <i>Tockus deckeni</i>	200	From March to June only	20	4000
Red-billed Hornbill <i>Tockus erythrorhynchus</i>	200	From March to June only	20	4000

Grey Hornbill <i>Tockus nasutus</i>	200	From March to June only and from Arusha, Tanga & Kilimanjaro Regions	20	4000
Ground Hornbill <i>Bucorvus cafer</i>	200	No more than 20 per region	120	24,000
BARBETS				
White-eared Barbet <i>Buccanodon leucotis</i>	200	From Arusha Region only	15	3000
White-headed Barbet <i>Lybius leucocephalus</i>	300	From Arusha Region only	15	4500
Brown-breasted Barbet <i>Lybius melanopterus</i>	200	From Arusha Region only	15	3000
Black-collared Barbet <i>Lybius torquatus</i>	300	No more than 20 per region	15	4500
d'Arnaud's Barbet <i>Trachyphonus darnaudii</i>	300	No more than 75 per region	15	4500
Red and Yellow Barbet <i>Trachyphonus erythrocephalus</i>	200	From Arusha Region only	20	4000
LARKS				
Fischer's Sparrow Lark <i>Eremopterix leucopareia</i>	300	None	2	600
CROWS				
White-necked Raven <i>Corvus albicollis</i>	300	No more than 60 per region	25	7500
Pied Crow <i>Corvus albus</i>	300	No more than 60 per region	20	6000
BULBULS				
Zanzibar Sombre Greenbul <i>Andropadus importunus</i>	300	None	6	1800
Shelley's Greenbul <i>Andropadus masukuensis</i>	200	None	6	1200
Common (Yellow-vented) Bulbul <i>Pycnonotus barbatus</i>	1000	No more than 200 per region	6	6000
THRUSHES				
Spotted Morning Thrush <i>Cichladusa guttata</i>	200	No more than 40 per region	15	3000
Robin Chat <i>Cossypha caffra</i>	400	No more than 50 per region	15	6000

Capped Wheatear <i>Oenanthe pileata</i>	100	No more than 25 per region	10	1000
SHRIKES				
Magpie Shrike <i>Corvinella melanoleuca</i>	200	None	10	2000
Long-tailed Fiscal <i>Lanius cabanisi</i>	200	None	10	2000
HELMET SHRIKES				
White Crowned Shrike <i>Eurocephalus rueppelli</i>	200	None	10	2000
Straight-crested Helmet Shrike <i>Prionops plumata</i>	200	Not from Mwanza, Mara, & Arusha Regions	10	2000
STARLINGS				
Violet-backed Starling <i>Cinnyricinclus leucogaster</i>	600	No more than 200 per region	10	6000
Wattled Starling <i>Creatophora cinerea</i>	600	Only males in non-breeding plumage	10	6000
Blue-eared Glossy Starling <i>Lamprotornis chalybaeus</i>	1400	No more than 500 from Dodoma, Iringa & Morogoro Regions	10	14,000
Ruppell's Long-tailed Glossy Starling <i>Lamprotornis purpuropterus</i>	300	None	10	3000
Hildebrandt's Starling <i>Spreo hildebrandti</i>	600	From Arusha Region only	10	6000
Superb Starling <i>Spreo superbus</i>	1400	No more than 500 from Arusha, Shinyanga & Dodoma Regions	10	14,000
Red-billed Oxpecker <i>Buphagus erythrorhynchus</i>	200	None	10	2000
WHITE-EYES				
Montane White-eye <i>Zosterops poliogastra</i>	5000	No more than 500 per region	5	25,000
WEAVERS				
White-winged Widowbird <i>Euplectes albonotatus</i>	4000	No more than 200 per region	5	1000
Red-naped Widowbird <i>Euplectes ardens</i>	200	No more than 50 per region	5	1000
Fan-tailed Widowbird <i>Euplectes axillaris</i>	200	No more than 50 per region	5	1000

Yellow Bishop <i>Euplectes capensis</i>	2000	No more than 500 per region	2.5	5000
Black-winged Red Bishop <i>Euplectes hordeaceus</i>	2000	No more than 500 per region	2	4000
Zanzibar Red Bishop <i>Euplectes nigroventris</i>	3000	No more than 500 per region	2	6000
Southern Red Bishop <i>Euplectes orix</i>	2000	No more than 500 per region	2	4000
Baglafaecht Weaver <i>Ploceus baglafaecht</i>	200	No more than 50 per region	2	400
Black-headed Weaver <i>Ploceus cucullatus</i>	5000	None	2	10,000
Masked Weaver <i>Ploceus intermedius</i>	200	No more than 50 per region	2	400
Golden-backed Weaver <i>Ploceus jacksoni</i>	200	No more than 50 per region	2	400
Spectacled Weaver <i>Ploceus ocularis</i>	100	None	2	200
Chestnut Weaver <i>Ploceus rubiginosus</i>	200	No more than 50 per region	2	400
Golden Weaver <i>Ploceus subaureus</i>	500	None	2	1000
Vitelline Masked Weaver <i>Ploceus velatus</i>	200	No more than 50 per region	2	400
Holub's Golden Weaver <i>Ploceus xanthops</i>	200	No more than 50 per region	2	400
Red-headed Quelea <i>Quelea erythrops</i>	2000	None	0.5	1000
Red-billed Quelea <i>Quelea quelea</i>	Unlimited	None	0.5	
Red-billed Buffalo Weaver <i>Bubalornis niger</i>	100	No more than 20 per region	10	1000
White-headed Buffalo Weaver <i>Dinemellia dinemelli</i>	100	No more than 20 per region	10	1000
Speckle-fronted Weaver <i>Sporopipes frontalis</i>	500	No more than 100 per region	2	1000
Straw-tailed Whydah <i>Vidua fischeri</i>	100	No more than 20 per region	2	200

Pin-tailed Whydah <i>Vidua macroura</i>	1000	Males in breeding plumage only	2	2000
Paradise Whydah <i>Vidua paradisaea</i>	500	Males in breeding plumage only	2	1000
WAXBILLS				
Zebra Waxbill <i>Amandava subflava</i>	1000	No more than 200 per region	1.5	1500
Waxbill <i>Estrilda astrild</i>	4000	No more than 800 per region	1.5	6000
Black-cheeked Waxbill <i>Estrilda erythronotus</i>	1000	No more than 200 per region	2	2000
Crimson-rumped Waxbill <i>Estrilda rhodopyga</i>	500	No more than 100 per region	1.5	650
Peters' Twinspot <i>Hypargos niveoguttatus</i>	500	No more than 100 per region	2	1000
Red-billed Firefinch <i>Lagonosticta senegala</i>	3000	No more than 500 per region	1.5	4500
African Firefinch <i>Lagonosticta rubricata</i>	2000	No more than 400 per region	1.5	3000
Green-winged Pytilia (Melba finch) <i>Pytilia melba</i>	1000	No more than 200 per region	2	2000
Cordon-bleu <i>Uraeginthus angolensis</i>	2000	No more than 500 per region	2.5	5000
Red-cheeked Cordon-bleu <i>Uraeginthus bengalus</i>	5000	No more than 1000 per region	2.5	12,500
Blue-capped Cordon-bleu <i>Uraeginthus cyanocephalus</i>	5000	No more than 1000 per region	1.5	7500
Purple Grenadier <i>Uraeginthus ianthinogaster</i>	1000	No more than 250 per region	2.5	2500
Cut-throat <i>Amadina fasciata</i>	2000	No more than 500 per region	1.5	3000
Bronze Mannikin <i>Lonchura cucullata</i>	2000	No more than 500 per region	1.5	3000
Silver-bill <i>Lonchura malabarica</i>	1000	No more than 500 per region	1.5	1500

BUNTINGS CANARIES,
SEEDEATERS

Golden-breasted Bunting <i>Emberiza flaviventris</i>	500	No more than 100 per region	2	1000
Yellow-rumped Seed-eater <i>Serinus atrogularis</i>	1000	No more than 300 per region	1.5	1500
Yellow-fronted Canary <i>Serinus mozambicus</i>	500	No more than 100 per region	3.5	1750
Streaky Seed-eater <i>Serinus striolatus</i>	500	No more than 100 per region	3.5	1750
Brimstone Canary <i>Serinus sulphuratus</i>	1000	No more than 100 per region	3.5	3500

LIST OF ATTENDEES

Guest of Honour:

Mr N.N. Kitomari: Bank of Tanzania

A. Host and Chairman:

Mr C.A. Mlay: Director of Wildlife

B. Resource Persons:

Mr J.B. Thomsen: TRAFFIC International, Cambridge

Mr S.R. Broad: TRAFFIC International, Cambridge

Mr N.E. Baker: International Council for Bird Preservation, Tanzania

Professor K.M. Howell, University of Dar es Salaam

Mr T. Milliken, TRAFFIC East and Southern Africa, Malawi

C. Wildlife Department Staff:

Mr W.J. Mapunda: PAWM

Dr N. Leader-Williams: PAWM

Dr R.H. Lamprey: PAWM

Mrs R.K. Tibanyenda: PAWM

Mrs C.M. Esupu: PAWM

Mr O.F. Mbangwa: PAWM

Mr G.T. Masha: Research Training & Extension

Mr E.M. Mpemba: Development & Management

Mr C. Mulokozi: Licencing

Mr M.M. Lyimo: Anti-poaching

Mr P.I. Sarakikya: Anti-poaching

Mr S.J.K. Tungi: CITES, Dar es Salaam

Mr J. Mwalongo: CITES, Arusha

Mr E.L.M. Severre: Tanzania Wildlife Conservation Monitoring

Mr J. Kibebe: University of Dar es Salaam

Mr F.M.F. Mwombeki: RGO Singida

Mr E.S. Palangyo: RGO Dodoma

Mr D.A. Materu: RGO Kilimanjaro

Mr B.M.C.M. Midala: RGO Musoma

Mr W.J. Mzavas: RGO Shinyanga

D. Other organisations:

Mr J.I. Boshe: WWF Tanzania

Mr L. Melamari: WWF Tanzania

Professor JE Cooper: Sokoine University, Morogoro

Dr J.D. Mwasha: Shaaban Robert Veterinary Clinic

Mr M.A. Mhagama: DAHACO

Ms V. Mtefu: Board of External Trade

Mr D.S. Mwalusamba: National Bank of Commerce

Mr J.B. Kimaro: Bank of Tanzania

Mr R. Ndaskoi: Planning Commission

E. Bird Dealers:

Mr Z. Masiaga: DAMOCO

Mr E. Salehe: Salehe International Marketing

Mr A.E. Kiwere: Trust (Freighters) Ltd

Mr H. Salum: Exotique Bird Supply

Mr H. Mbonde: Hambo Enterprises

Mr P. Manyama: Nyika Birds Trappers

Mr E. Balilemwa: Balilemwa & Co, Ltd

Mr N. Manji: Saadani Game Birds

Mr F. Kadanga: Zoo-Keys

Mr. V.M. Shallom: African Ives

Mr J. Beraducci: Mountain Birds

Occasional Papers of the IUCN Species Survival Commission

1. *Species Conservation Priorities in the Tropical Forests of Southeast Asia*. Edited by R.A. Mittermeier and W.R. Constant, 1985, 58pp. (Out of print)
2. *Prwrités en matière de conservation des espèces à Madagascar*. Edited by R.A. Mittermeier, L.H. Rakotovoao, V. Randrianasolo, E.J. Sterling and D. Devitre, 1987, 167pp. (Out of print)
3. *Biology and Conservation of River Dolphins*. Edited by W.F. Perrin, R.K. Brownell, Zhou Kaiya and Liu Jiankang, 1989, 173pp. (Out of print)
4. *Rodents. A World Survey of Species of Conservation Concern*. Edited by W.Z. Lidicker, Jr., 1989, 60pp.
5. *The Conservation Biology of Tortoises*. Edited by I.R. Swingland and M.W. Klemens, 1989, 202pp. (Out of print)
6. *Biodiversity in Sub-Saharan Africa and its Islands: Conservation, Management, and Sustainable Use*. Compiled by Simon N. Stuart and Richard J. Adams, with a contribution from Martin D. Jenkins, 1991, 242pp.
7. *Polar Bears: Proceedings of the Tenth Working Meeting of the IUCN/SSC Polar Bear Specialist Group, 1991*, 107pp.
8. *Conservation Biology of Lycaenidae (Butterflies)*. Edited by T.R. New, 1993, 173pp. (Out of print)
9. *The Conservation Biology of Molluscs: Proceedings of a Symposium held at the 9th International Malacological Congress, Edinburgh, Scotland, 1986*. Edited by Alison Kay. Including a Status Report on Molluscan Diversity, written by Alison Kay, 1995, 81pp.
10. *Polar Bears: Proceedings of the Eleventh Working Meeting of the IUCN/SSC Polar Bear Specialist Group, January 25–28 1993, Copenhagen, Denmark*. Compiled and edited by Oystein Wiig, Erik W. Born and Gerald W. Garner, 1995, 197pp.
11. *African Elephant Database 1995*. M.Y. Said, R.N. Chunge, G.C. Craig, C.R. Thouless, R.F.W. Barnes and H.T. Dublin, 1995, 225pp.
12. *Assessing the Sustainability of Uses of Wild Species: Case Studies and Initial Assessment Procedure*. Edited by Robert and Christine Prescott-Allen, 1996, 135pp.
13. *Técnicas para el Manejo del Guanaco* [Techniques for the Management of the Guanaco], edited by Sylvia Puig, Chair of the South American Camelid Specialist Group, 1995, 231pp.
14. *Tourist Hunting in Tanzania*. Edited by N. Leader-Williams, J. A. Kayera and G. L. Overton, 1996, 138pp.
15. *Community-based Conservation in Tanzania*. Edited by N. Leader-Williams, J. A. Kayera and G.L. Overton, 1996, 226pp.

IUCN Species Survival Commission

The Species Survival Commission (SSC) is one of six volunteer commissions of IUCN - The World Conservation Union, a union of sovereign states, government agencies and non-governmental organizations. IUCN has three basic conservation objectives: to secure the conservation of nature, and especially of biological diversity, as an essential foundation for the future; to ensure that where the earth's natural resources are used this is done in a wise, equitable and sustainable way; and to guide the development of human communities towards ways of life that are both of good quality and in enduring harmony with other components of the biosphere.

The SSC's mission is to conserve biological diversity by developing and executing programs to save, restore and wisely manage species and their habitats. A volunteer network comprised of nearly 7,000 scientists, field researchers, government officials and conservation leaders from 188 countries, the SSC membership is an unmatched source of information about biological diversity and its conservation. As such, SSC members provide technical and scientific counsel for conservation projects throughout the world and serve as resources to governments, international conventions and conservation organizations.

IUCN/SSC also publishes an Action Plan series that assesses the conservation status of species and their habitats, and specifies conservation priorities. The series is one of the world's most authoritative sources of species conservation information available to nature resource managers, conservationists and government officials around the world.

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