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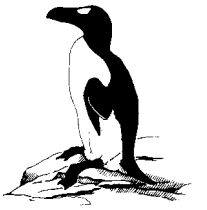

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PERSPECTIVES IN ORNITHOLOGY

CURRENT BIRD CONSERVATION ISSUES IN AFRICA

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BIRD CONSERVATION is low on the agenda in Africa. This is hardly surprising. According to the World Resources Institute (2000), life expectancy across the continent averages only ~51 years (compared to ~65 globally), the mean per capita gross domestic product is ~$760 per year (compared to ~$5,260 globally), and the mean national female enrollment into primary school is ~60% (compared to ~83% globally). Nevertheless, the continent holds over 2,000 bird species, 20% of the planet's total, of which nine-tenths are African endemics and most of the remainder are winter visitors from the Palearctic (Dowsett and Forbes-Watson 1993). Further, about 200—one in six—bird species considered globally threatened with a ''high probability of extinction in the wild in the medium-term future'' are broadly African (BirdLife International 2000). The need to conserve those birds is clear, from moral and aesthetic viewpoints, utilitarian economic viewpoints, and above all as functioning parts of the very ecosystems that sustain Africa's people (Diamond and Filion 1987). How are we to achieve that, though, given the many demands higher on African political agendas? Here, we highlight three broad sets of issues that must be addressed to conserve Africa's avifauna: data, planning, and—most importantly—implementation. Further, as a theme running throughout those issues, we cannot overemphasize the importance of ensuring inclusive participation and empowering a broad local constituency for conservation.

Data issues.—The most urgent data requirement for African bird conservation is distributional information: we cannot protect the continent's birds if we do not know where they are found. Large areas remain almost unexplored by ornithologists, with recent expeditions to the Congo, for example, breaking new ground in our knowledge of African bird distributions (Dowsett and Dowsett-Lemaire 1989). Equally, many areas have not been visited in recent years and updates of their avifauna are desperately needed: the 1999 Mt. Namuli survey in northern Mozambique is an exemplary case (Ryan et al. 1999). Perhaps the widest frontier for fieldwork in African conservation ornithology is at a behavioral level, with the insights available from species-specific studies again and again proving critical for management. Good recent examples involve some of the continent's rarest bird, including *Picathartes* (Thompson and Fotso 1995), *Macronyx sharpei* (Muchai 1998), and *Turdoides hindei* (Njoroge and Bennun 1999). Such work forms the essential basis for continental (e.g. Collar and Stuart 1985) and regional (e.g. Bennun and Njoroge 1996) Red Lists.

Such fieldwork goes hand in hand with refinements of alpha taxonomy. Most exciting, of course, is the fact that the continent undoubtedly holds further species as yet wholly un-

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known to science. Witness to that are the 26 new African species that have been described in the last two decades (van Rootselaar 1999); the subsequent description of *Stiphrornis sanghensis* (Beresford and Cracraft 1999) adds another species to this total. Astoundingly, these include two new genera: *Xenoperdix* (Dinesen et al. 1994) and *Cryptosylvicola* (Goodman et al. 1996). Equally, field-based revision of poorly known groups is revealing the specific status of numerous taxa, for example, in the *Certhilauda curvirostris* lark (Ryan and Bloomer 1999) and *Otus rutilus* scops-owl (Rasmussen et al. 2000) complexes. Less glamorous but no less important is the job of synonomizing taxa that may not merit specific status, such as *Malaconotus monteiri* (Williams 1998).

A final data issue is the importance of releasing biodiversity data into the public domain and, especially, of repatriating them to Africa. Initiatives within the continent have had remarkable success at that, with the publication of increasingly detailed national-level avian datasets such as those for southern Africa (Harrison et al. 1997) and Uganda (Caswell et al. 2001). Ironically, given that the vast majority of specimens from the continent reside in Europe or the United States, the publication of African data from outside the continent seems to have slowed in recent years, maybe because of a surprising and unfortunate reluctance to make data available. A happy exception is the outstanding *Birds of Africa* series (Brown et al. 1982, Urban et al. 1986, 1997; Fry et al. 1988, Keith et al. 1992, Fry and Keith 2000). Encouragingly, the rapid growth of the internet in Africa (for example, the hundred fold increase in PC users in Nigeria in the last two years) suggests that increasing quantities of bird data should become available within the continent and globally on the World Wide Web over the next few years (Sugden and Pennisi 2000). That will necessitate the implementation of careful standards to prevent misuse (e.g. commercial resale) of data (Graves 2000), but such dangers are minimal in the African context.

Planning issues.—As ornithological data are collected and become available, the next key issue facing African bird conservation is to put those data to use in conservation planning. At a global scale, several conservation organizations have taken the lead in integrating bird and other biodiversity data with information on threats and opportunities to set geographic priorities. The best examples are BirdLife International's *Endemic Bird Areas* (International Council for Bird Preservation 1992, Stattersfield et al. 1998), Conservation International's *Hotspots* (Mittermeier et al. 1999, Myers et al. 2000) and WWF-US's ''Global 200 Ecoregions'' (Olson and Dinerstein 1998, Burgess et al. 2001). Although those exercises have clearly been conducted at differing resolutions—they cover ~5% of Africa with 41 priority regions, ~5% with 5 regions, and ~40% with 32 regions, respectively—overlap between them is considerable (da Fonseca et al. 2000). Further, finer resolution studies conducted at a continental level reveal reassuringly similar regions—the Upper and Lower Guinea forests, the Albertine Rift, the Ethiopian Highlands, the Eastern Arc, and the Cape Fynbos, plus Madagascar and the other offshore islands—as the highest priorities (Brooks et al. 2001a).

However, moving those global- and continental-level priorities down to the regional and national scale remains a major challenge. A critical issue here is that as the area considered decreases, it becomes more and more important to have local, up-to-date, information on which to base priority-setting, and to incorporate views of all local stakeholders to ensure conservation recommendations are implemented. Further, it is essential that the biological data are integrated with socioeconomic data to determine conservation priorities for the real world. One tool that has been successfully used to bring such participation into a rigorous priority-setting framework is the Conservation Priority-setting Workshop (Hannah et al. 1998), with key African examples to date being from Madagascar (1995, Antanarvario), the Upper Guinea forests (1999, Elmina), and the Congo basin (2000, Libreville). Where less data exist the trend has been to focus such meetings onto underlying science, as with recent workshops for the Eastern Arc (1997, Morogoro), Ethiopia (1999, Addis Ababa), and the Sahel (2000, Bamako). Conversely—and possibly most successfully—where high-quality data are available, comprehensive conservation plans can be compiled, incorporating cutting-edge science into numerous stakeholder workshops. The only African example to date is the CAPE plan for South Africa's Cape Fynbos (Cowling et al. 1999a). Major regions lacking any significant

prioritization exercise to date include North Africa, the Sahara, the southern African miombo woodlands, the Kalahari and Karoo, the Angola Scarp, the Horn of Africa, and, most important, the Albertine Rift.

Hardest of all is setting priorities for site-specific conservation. For birds, undoubtedly the most successful work at that level has been BirdLife International's ''Important Bird Areas'' (IBAs) program (Bennun and Fishpool 1998). Using four criteria—the presence of globally threatened, restricted-range, or biome-restricted species, or of major congregations of individuals—to identify sites, that program has so far published site-conservation priorities for Ethiopia (Ethiopian Wildlife and Natural History Society 1996); southern Africa including Botswana, Lesotho, Namibia, South Africa, Swaziland, and Zimbabwe (Barnes 1998); Madagascar (ZICOMA 1999); Egypt (Baha el Din 1999); and Kenya (Bennun and Njoroge 1999). Directories for a number of other countries are in preparation, and a regional directory, which documents all sites of global significance for birds across Africa, is scheduled for publication in 2001. Some national accounts have had to be reviewed through desk study due to financial and logistical constraints (Fishpool 2001), potentially removing the critical local participation from the process. That problem is being circumvented both by ensuring comprehensive in-country review of the desk studies and by planning extensive ground-truthing in the near future. Another potentially major criticism, especially relevant at such fine scales (Reid 1998), is that IBAs may be insufficient to conserve biodiversity more generally. Indeed, studies have shown only poor congruence between birds and other groups in both Cameroon (Lawton et al. 1998) and South Africa (van Jaarsveldt et al. 1998). However, where comprehensive cross-taxonomic national data exist, as for Uganda (Howard et al. 2000), it has been shown that conservation priorities for birds represent other taxa remarkably well (Howard et al. 1998). Although the verdict is not yet out, the current consensus is that although conservation priorities for birds will never manage to represent all biodiversity, they are a valid surrogate in the absence of better information on other taxa (Brooks et al. 2001b).

A final planning issue of key importance to bird conservation in Africa is incorporating ecology into conservation strategy (Cowling et al. 1999b). One obvious ecological process that has yet to be satisfactorily addressed is migration (Nicholls 1998), despite the high profile of the ~200 bird species that breed in Europe and winter in Africa (Moreau 1972). Important Bird Areas do that to some degree by including sites holding congregations of individual birds (Bennun and Fishpool 1998), but a method for measuring the irreplaceability of stopover sites to migrants—and the severity of species-specific threats to such species—remains elusive. Another, more insidious, ecological process that should be considered is ''relaxation'': areas that have lost extensive habitat in recent years are likely to continue losing species over at least a century, necessitating proactive conservation to halt those losses (Brooks et al. 1999). Linking these issues is the increasing realization that many species migrate even within the Afrotropics, for example altitudinally, and that many local extinctions are occurring as elevational gradients of habitat are lost (Burgess and Mlingwa 1998).

Implementation issues.—The third set of challenges facing avian conservation in Africa involves translating strategy into action on the ground. We argue that the fundamental core of conservation implementation must be the strict protection of irreplaceable biodiversity. However, we stress that for such strict protection to be both practical and morally defensible, the needs of the people affected must be addressed.

The justification for strict protection is simple: uncertainty in the ecology and economy of resource exploitation is too great (Ludwig et al. 1993). If any mistakes are made in the harvesting of small-ranged and critically endangered species or their habitats, not only are they lost locally, but also globally. Extreme examples of such species include *Geronticus eremita* (Brindley et al. 1995), *Eutriorchis astur* (Thorstrom and Watson 1997), and *Turdus helleri* (Brooks et al. 1998), whereas irreplaceable African avian habitats include the last remnants of forest on São Tomé (Atkinson et al. 1991) and the East African coast (Burgess 2000), and Madagascar's Lake Aloatra (Hawkins et al. 2000).

Critically, however, that strict conservation cannot take place without covering its opportunity costs to the people living in the vicinity (James et al. 1999a). That is the case from both a moral standpoint—in striving for equity and

redressing global resource disparities—and from a practical one—in avoiding local resistance to conservation (Norton-Griffiths and Southey 1995). The opportunity costs of conservation will increase primarily with human population density, which is unfortunate because there is a strong correlation between the distributions of people and of biodiversity across Africa (Balmford et al. 2001). As a result, overall cost of bird conservation in Africa will doubtless be high, certainly an order of magnitude or more greater than current expenditure (James et al. 1999b). Nevertheless, a few examples do illustrate that such conservation tactics are both possible and affordable. One of the most direct examples is the implementation of a conservation concession for Odzala, in Congo Brazzaville, whereby logging concessions have been bought out to put the forest into the conservation system (Aveling 2000). A less direct instance comes from Bwindi, in Uganda, where a trust fund to cover the costs of education and other community services around the reserve has been established to compensate for lack of exploitation of the forest (Hamilton et al. 2000).

In cases where the irreplaceability of species and habitats is relatively low, a rather different approach is possible. Here, costs of making mistakes are relatively low, and so the most effective conservation tactic may be to encourage sustainability in natural resource harvest. The most immediate examples of that are in direct species offtake, such as the trophy hunting of sandgrouse in Kenya (Simiyu and Bennun 2001). Equally valid is exploitation of renewable resources, for example, of grass for grazing, papyrus for thatch, or wood for charcoal (Shackleton 1993). At a broader landscape level, that strategy could involve developing sustainable management of entire watersheds, and of planning conservation corridors to link irreplaceable sites together with a matrix of ''biodiversity-friendly'' landuse (Dobson et al. 1999). National and international development agencies create an important synergy for conservation implementation in such situations, because often they have exactly the same goals of sustainability in resource exploitation (Benedict and Chrisroffersen 1996).

Another bird conservation tactic, which can be applied successfully regardless of the irreplaceability of the biodiversity present, is that of nonconsumptive use of bird resources. The most common realization of that is through international nature tourism, which can bring large economic benefits in some situations (Sweeting 1999). Safari tourism to the parks of South Africa (Preston and Fuggle 1988) and Kenya (Moran 1994) is the classic example; and specifically, for instance, bird tourism can be seen in Kenya's Arabuko-Sokoke forest (Fanshawe 1994). More significant in the long-term, however, is use of bird resources to build constituencies for conservation, through small-scale local ecotourism. An outstanding example is the construction of a canopy walkway at Kakum National Park in Ghana: since its opening in 1995, the park has jumped to receiving more than 20,000 visitors per year, many of them Ghanaian, including large numbers of school children (Schildkrout 1996). The East Africa Natural History Society's famous ''Wednesday Morning Bird Walks'' are another case of such local ecotourism (Njuguna 1989).

Such educational activities clearly overlap with the issue of capacity building. There is strong evidence that support to local conservation nongovernmental organizations, for example through BirdLife International's Africa partnership, stimulates motivation, transparency and, critically, effective implementation (Hagen et al. 2000). One particularly exciting activity of those groups is development of ''Site Support Groups'' of interested local people for IBAs. Another key mechanism for the nurturing of conservation ornithology in Africa is through the Pan-African Ornithological Congress, which increasingly serves as a vehicle for the exchange of bird conservation information between African scientists (Thompson 2001). Meanwhile, most African nations have now established bird clubs (Fanshawe 1994), which further stimulate progress in conservation and ornithology, especially by attracting and retaining bright, young nationals into the field.

The broadest conservation action must be policy-level interventions. International conventions such as the Convention on Migratory Species, the Convention to Combat Desertification, the International Wetland and Waterfowl Convention (Ramsar), and especially the Convention on Biological Diversity (CBD) have yet to incorporate bird conservation fully into policy. For example, whereas 32 of the 50 African countries are party to the CBD reports submitted to the

Fourth Conference of the Parties by August 1999, few of those included accurate information about threatened or endemic birds (Herkenrath 1999). Other potentially useful policy-level mechanisms could include establishment of key conservation areas as UNESCO World Heritage Sites, and development of debt-for-nature swaps. Conservation finance is also moving towards large scale, longer-term models, especially through establishment of conservation trust funds, but there have also been some recent advances in availability of short-term funding in priority areas for conservation, such as through the Critical Ecosystems Partnership Fund (Dalton 2000).

There is no doubt that conservation tactics must be implemented with extreme care; conservation's failures to date outnumber its successes (Oates 1999). Noss (1997) gives examples where poorly planned conservation compensation schemes have merely attracted immigrants into the area, with the net effect of increasing pressure (the so-called ''honeypot effect''). A further common problem with sustainable harvesting schemes is a lack of monitoring to ensure that sustainability is indeed being approached (Kremen et al. 1994). Even ecotourism must be developed with great care, to ensure that revenues from the visitors go to the residents in whose hands the future of the resource rests (Wells 1996), and to ensure that ecotourism itself does not degrade resources (Onyeanusi 1986). Newmark and Hough (2000) suggest that conservation programs in the continent will be most effective if they are flexible enough to apply different tactics in different places and situations, a conclusion with which we firmly agree.

Nevertheless, the most serious challenges to effective conservation implementation in Africa remain external. Population growth is an obvious one. Although population growth across the continent is very fast, however, absolute population is still relatively low, presenting an opportunity to conduct large-scale conservation before populations grow. Other key external factors include corruption and greed, political and social instability, poverty and disease, and war. Such unrest continues to affect much of Africa, and can set back conservation by many years (Kanyamibwa 1998). That is not to say that all bird-conservation activity in such regions must stop—Dean's (2000) compilation of external data on the *Birds of Angola,* while the civil instability of the country remains too great too allow any work actually in-country, is a case in point. Despite that, however, conservation in Africa will ultimately depend on establishment of stable societies within which it is feasible for sustainable conservation to be conducted with and by the people living in and around areas of high biodiversity.

Conclusions.—What, then, is the outlook for bird conservation in Africa? Against a frequent backdrop of poverty and violence, the conservation of Africa's avifauna seems near impossible. Nevertheless, there are success stories, and, in a few cases, negative conservation trends are even beginning to be reversed. Overall, in our opinion, we have made major inroads in tackling the data issues and had some success with the planning issues, but have yet to have a significant, continent-wide effect at the implementation level. We must meet this challenge for bird conservation to succeed in Africa.

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