

## New extinct blackfly rings warning bell

The extinction of numerous small insect species must often pass unnoticed. Many disappear even before they are known to science. Such was the fate of a simuliid blackfly now being described from specimens collected in the Canary Islands in 1931 (Crosskey, in press). Endemic to Gran Canaria, it no longer occurs there for the simple reason that the streams in which it must have bred no longer flow.

Blackfly larvae live only in running water and depend on filtering small organic particles brought to them by the current. The adults are small, stout-bodied flies. The females of most species feed on the blood of birds or mammals. The Canary Islands are inhospitable to blackflies because there are very few permanent streams and an erratically distributed rainfall. The host animals in the islands are probably mainly birds because the species nearly all belong to 'ornithophilic' groups and the Canaries lack indigenous mammals. Despite these factors, Crosskey's review reveals that the archipelago still supports six *Simulium* species. Their prospects do not look good, however. Only some of the seven main islands have streams able to support the blackflies, and these streams are disappearing because the human population has captured their potential flow high in the mountains and diverted it to supply the towns, the tourists and the crops—especially the bananas, renowned for their thirst. Gran Canaria apparently no longer has any streams, and so has lost all five species of blackflies known to have occurred there—including the new and already extinct one noted. The very few streams left in Tenerife, La Palma and Gomera flow for only short distances, and the simuliids may not have habitat for much longer if flowing streams there suffer the same fate as in Gran Canaria.

Two of the surviving six species are also endemic to the islands, and one of these is also newly described (Crosskey, in press). It seems that this species, too, is in imminent danger of following the one mentioned from Gran Canaria into oblivion.

Apart from the streams, which are mostly quite shallow and often not more than one metre across, some blackfly habitat is also provided by

a little flow in the few sections of old masonry water conduit still in functional order. Modern irrigation methods, however, do not offer opportunities for blackflies because the water is delivered to storage cisterns and fields either in closed pipes or in open channels that receive intermittent water on a rota system.

As the streams of the Canary Islands continue to disappear it is not only the blackflies that are threatened. The entire association of flora and fauna dependent on running water is at stake. We do not know how many species are at risk or how many of them are endemic—or what their disappearance could mean for the islands' ecology. It seems certain, however, that unless something is done the species of running fresh-water on the Canaries are doomed.

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## Concern over 'killer' canal

A water supply project in South West Africa/Namibia, which will eventually pump and carry water over 750 km from the Okavango River to Windhoek, has been much criticized in the region. The objections are on two grounds. Firstly, it is feared that extraction of water from the Okavango River would severely affect Botswana's Okavango Delta, and secondly, the 203-km open section of the canal is claimed to be a death trap for many animals.

The animal deaths in the uncompleted canal were widely publicized by the media and distressing photographs were published showing trapped and injured animals unable to climb out of what was referred to as the 'killer canal'. The public outcry that followed forced the Department of Water Affairs and the Directorate of Nature Conservation and Recreation Resorts to investigate the problems. They have now published a report showing that thousands of animals can be expected to die in the canal each year. Between June 1985 and August 1986 farmers, researchers and the Department of Water Affairs removed 7234 animals from the completed sections of the canal. When the canal is complete

it is estimated that 17,586 animals will die each year.

The report points to warthogs as the mammal species most affected, accounting for 4.68 per cent of the total number of animals found in the canal. Of the 35 animal groups found in the canal, 22 do not appear to be affected adversely and include the animals able to escape on their own, although the report admits that most animals falling into the canal will be unable to escape. The report concludes that the five main groups requiring assistance to escape, or which should be prevented from falling in, are the bullfrogs, terrapins, tortoises, ground-dwelling snakes and warthogs. In addition, it draws attention to 10 rare mammal species that might warrant remedial action, but says that more research is needed on their status in the region before an assessment can be made of the impact of the canal.

The grisly harvest has yielded some surprises. A wild dog was found in the Grootfontein area deep in the farming heartland where the species had not been seen for many years. Two new species of snakes fell in: one is a stiletto snake of the genus *Atractaspis* and the other is possibly a new genus altogether.

The most obvious solution to the problem would be to cover the canal, but the report said there was insufficient justification for such drastic and expensive (R30 million) action. Instead it suggests electric fences and walls to keep out warthogs, tortoises, terrapins and snakes. It also recommends a variety of steps and crossings.

It is unfortunate that the survey was necessary at all, and there is still concern that the full impact of the canal has not been predicted. It is hoped that in future similar projects will be preceded by a thorough Environmental Impact Assessment (EIA). The next project in the pipeline is a large storage dam on the Ugab River in Damaraland, which flows through the Namib Desert to the Skeleton Coast. It has been proposed because the Damaraland capital, Khorixas, is short of water. Unless there is exceptional rainfall the proposed dam, with a retention time of six years, would deprive the lower reaches of the river of a significant part of their flow. This could have drastic effects on the wildlife of the Desert. This

time the Department of Water Affairs has asked the Directorate of Nature Conservation and Resorts for an EIA, but this has not been made public and conservationists fear that the dam is going to be built regardless.

### Source

Jones, B. 1987. The Eastern National Water Carrier. *Afr. Wildl.* 41(3), 110–113.

## International Whaling Commission confronts 'scientific whaling'

by Kieran Mulvaney

The 39th annual conference of the International Whaling Commission (IWC), which took place in Bournemouth during the last week of June, was one of those rare occasions on which the IWC elected to concentrate almost entirely on fulfilling the conservation requirements of its mandate. It finally confronted the problem of 'scientific whaling' head-on, and severely curtailed what had become by far the most serious abuse of the commercial whaling moratorium.

Conservationist hopes that the Commission might act to prevent scientific permits being further used as a cover for continued commercial whaling, rested on a resolution tabled by the US. Co-sponsored by Australia, the Netherlands, New Zealand, Sweden and Finland, the resolution proposed that the Commission should request the Scientific Committee to review all research whaling programmes, and to report to the Commission whether the programmes met certain scientific criteria. In itself, this was nothing new: the Committee had been charged with doing just that at the 1986 IWC meeting in Malmo, although the criteria by which it judged special permits then differed slightly from the ones contained in the US proposal. However, previously, the Commission had been unable to act on the Committee's advice, no matter how vehement the scientists' criticism of the value of research whaling programmes. The US resolution, on the other hand, proposed that, if the permits concerned failed to satisfy the Scientific Committee's criteria, then the Commission should have the authority to recommend that the Contracting Governments responsible not issue them.

Reaction from the whaling nations was, not unexpectedly, less than enthusiastic. Iceland, in particular, gave it an extremely hostile reception. In one of the angriest tirades seen in the Commission in recent years, the Icelandic commissioner declared that, if the resolution was passed, his country might consider taking a number of drastic measures, from walking out of the meeting to leaving the IWC, and even taking the issue to the International Court of Justice. Although most of those present were somewhat taken aback by the scale of the outburst, the resolution's supporters remained unmoved, confident that it was nothing more than an elaborate bluff, partly aimed for consumption back in Iceland, and partly intended to scare those delegations that had not quite decided which way to vote. Indeed, when it became clear that the protest had had no discernible beneficial effect, Iceland abandoned the angry approach and opted instead to question the legality of the resolution.

However, despite its best efforts and the support of the other whalers, Iceland was unable to prevent the resolution going to a vote. It was adopted overwhelmingly, and immediately three new proposals were tabled, each dealing with one of the three research whaling programmes that had been formally presented to the Scientific Committee. The US tabled a resolution on Korea's programme, Australia one on Iceland's, and the UK one on Japan's. Following criticism of all three programmes by the Scientific Committee, and in line with the recommendations of the newly adopted US resolution, the three proposals asked the IWC to notify the governments responsible of the deficiencies of their scientific whaling plans and asked the Commission to recommend the permits not be issued. All three were passed comfortably.

In practical terms, these votes effectively mean that, should any nation now dare to issue special permits in defiance of Scientific Committee criticism, it could well leave itself open to punitive measures from non-whaling nations—principally the US. The fact that some other countries, such as Britain, have expressed their desire actively to support the Americans, in applying whatever pressure might be necessary,

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will strengthen the hand of the US Commerce Department (which generally favours taking positive action against miscreant whalers) in its private battle of wits against the State Department (which is normally more reluctant to take punitive measures), and makes it most unlikely that the Administration will establish any deals with the whalers, such as the one that allowed Japan to escape certification for objecting to the moratorium.

The announcement of that moratorium decision in 1982 did, it must be said, lead to complacency among some conservation ranks and allowed the whalers to gain the upper hand for a while. Consequently, any optimism on the part of the conservationists will be tempered with some caution. Nonetheless, the fact remains that, for once, this was a very bad meeting for whalers, and a very good one for whales. Not only did 'research whaling' take a hiding, but Japan's recurring proposal to have its coastal minke whaling reclassified as 'aboriginal subsistence' came to grief—for one more year, at least—when it became clear that there would not be enough votes to see it through.

After managing to outmanoeuvre its opponents for the last few years, the whaling industry has, by pinning so much faith on its ability to redefine its way out of commercial whaling, painted itself into a tight corner. And it is by no means certain that it will be able to extricate itself for some time to come.

*Kieran Mulvaney, Director, Whale Conservation Society, 22 Hughenden Road, Weston-super-Mare, Avon BS23 2UR, UK.*

### **Butterfly houses and conservation**

The butterfly house business in Britain is booming. There are now at least 45 establishments displaying live butterflies, compared with one or two in the late 1970s, and their popularity is growing fast—four million people visited them in 1986. In a timely report Mark Collins (1987) examines the industry and discusses the implications for butterfly conservation.

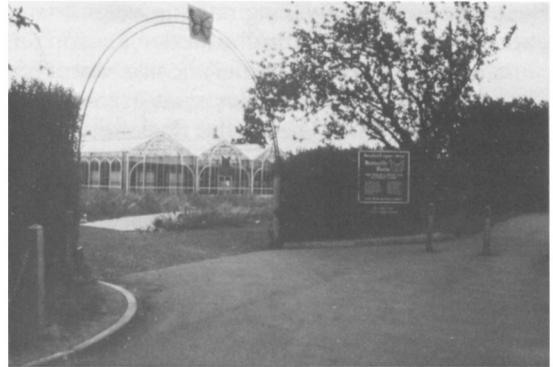
There is no doubt that butterfly houses have a tremendous potential for conservation education.

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A combination of careful interpretation and the emotional and aesthetic experience of walking through a 'jungle' filled with free-flying butterflies may well encourage people to take an interest in the future of the world's tropical forests. Many establishments have already embarked on education programmes, and Dr Collins urges that butterfly houses continue to develop scientifically accurate and imaginative interpretive material, particularly for school-children and their teachers.

Although approximately half a million butterflies are utilized by the industry each year, one-third of these are bred on site and two-thirds are acquired from dealers at home and abroad. More than 300 species have been flown in butterfly houses, most of them tropical and most coming from the Philippines (61 species) and Malaysia (86 species), but none of the species used is in danger of extinction.

The report recommends that butterfly houses should work closely with the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which is the only international convention affecting trade in butterflies. At the time of the report's publication no butterflies were listed on Appendix I, which prohibits trade, but three families of birdwing butterflies and the apollo butterfly *Parnassius apollo* were listed on Appendix II, which means they can be traded with permits. The situation was complicated by an EEC Regulation that banned the import of these butterflies into Europe. Since 1984 the IUCN has been trying to change this regulation for birdwings because, although certain of them are among the most threatened species in the world, others are very common, can be reared easily in captivity and are large and beautiful, making them ideal for butterfly houses. If the import of these species were allowed it could help encourage the potential cottage industry in South East Asia, a development that would be welcomed by IUCN, which believes that the rational and sustainable utilization of wildlife should be integrated into conservation programmes. Just about the time the report was published the EEC agreed to allow birdwing imports into Europe. At the July 1987 meeting of CITES in Canada, three swallowtails and Queen Alexandra's birdwing were added to



The entrance to Stratford Butterfly Farm, one of Britain's 45 establishments displaying live butterflies (Mark Collins)

Appendix I and two more genera added to Appendix II, these proposals being a response to the Swallowtail Red Data Book (Collins and Morris, 1985).

The report says that, in theory, butterfly houses should be able to assist in breeding programmes for threatened species with a view to release into the wild. In practice, the sympathetic management of key habitats is much more crucial than breeding up stocks for release, but there is potential for butterfly houses to collaborate with conservation organizations in programmes to re-establish butterflies where they have become locally extinct and the sites have been restored. Dr Collins gives as an example the woodland fritillaries, which have undergone extensive declines in Britain and have poor colonizing powers. There are, however, considerable opportunities for helping tropical invertebrates whose native habitats are so degraded that a captive-breeding programme may be the only way to prevent extinction. *Partula* snails from Moorea and the giant earwing *Labidura herculeana* from St Helena are possible candidates.

One important recommendation in the report has already brought results. A Council meeting of the National Federation of Zoological Gardens of Great Britain and Northern Ireland, held just after the report's publication, reacted enthusiastically to the suggestion that butterfly houses, butterfly farms and other collections of living invertebrates should join the Federation. A working group has been set up to improve the Federation's work

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Schoolchildren at Stratford Butterfly Farm  
(Mark Collins).

regarding invertebrate collections and, following another suggestion in the report, to organize a conference in 1988 on all aspects of invertebrates in captivity. The group will also look at all the existing invertebrate collections in Britain and analyse their trends and needs, will prepare a code of practice and encourage zoos to develop their invertebrate interests. In addition, it will identify and promulgate key conservation projects.

Butterfly houses have a part to play in conservation and this report clearly shows how and why they should become involved. Already a number of people in the industry have expressed willingness to co-operate in conservation projects and one hopes that their numbers will swell.

## References

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## Is the Aldabra brush warbler extinct? by Peter Roberts

The Aldabra brush warbler *Nesillas aldabranus* is almost certainly the world's rarest, most restricted and most highly threatened species of bird (Collar and Stuart, 1985). It was discovered

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in 1967 (Benson and Penny, 1968) and there have been few sightings since. Prŷs-Jones (1979) studied it between July 1974 and February 1977, but identified and ringed only five individuals, three males and two females. One of the males was resighted in 1978 and again in September 1983, the last confirmed record (Hamblen *et al.*, 1985).

Its total known range of 10 ha must be the smallest for any bird species. It consists of a 2-km, 50-m wide coastal strip on the eastern tip of Ile Malabar on the northern rim of Aldabra atoll (9°24'S, 46°26'E). This tiny area supports mixed scrub, which is more diverse and denser than elsewhere on the atoll and which includes good stands of the screwpine *Pandanus tectorius* and *Dracaena reflexa*, both of which are apparently important for foraging. The only occupied nest ever to be discovered was found in the screwpine, but empty nests have been found in *Mystroxydon aethiopicum* and *Pemphis acidula* (Benson and Penny, 1968). Habitat analysis of this site has shown that the maximum likely distribution of the species is bound by the same 50-m strip extending along a further 7 km of the coast (Prŷs-Jones, 1979) but, since 1976, feral goats and giant tortoises *Geochelone gigantea* have penetrated and probably degraded the vegetation in most of this area and the warbler has never been seen and only once has been heard singing outside the known 10-ha range (Hamblen *et al.*, 1985).

I made specific searches for the brush warbler in each month from July to November 1986, spending a total of 11 days in the exact area where the species had been recorded previously. I used a tape recording of the species's call and a bird 'squeaker' to try to attract them, as well as spending many hours observing and setting up to 80 m of mist nets. Although I concentrated my efforts in October, when the species is reported to commence breeding and therefore should be most active and most responsive to the taped calls, I could find no sign of the species at all.

The total failure to relocate the species must raise into question its current status. If the Aldabra brush warbler is extinct it is impossible to say what would have caused its demise, although the introduced ship rat *Rattus rattus* would be the

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prime suspect. They are numerous within its range and are known to prey heavily on other passerines on Aldabra. We may, however, be witnessing a natural extinction, for the Aldabra brush warbler may have evolved in an environment that was only marginally suitable.

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Peter Roberts, 3 Childscroft Road, Rainham, Kent ME8 7ST, UK.

## Snake causes avian desert

Most avian extinctions in the last 200 years have been of island species and rats have been presumed to be responsible for about half of them, although data have rarely been gathered during the extinction process itself.

Guam, one of the Mariana Islands in the Pacific, is an exceptional case. Not only has the extinction process been documented, but the prime agent responsible is a snake.

The island, 45 km long and 6–13 km wide, historically had 18 native birds, 12 of these being land species. Populations of nine of the forest species, once common to abundant throughout Guam, plummeted in recent decades, while those on nearby Cocos Island remained relatively stable. The declines were first noticed in the 1960s: birds disappeared first from the southern ravine forests, then gradually their ranges contracted and the populations declined progressively to the north. By early 1983 all the forest species occurred together only in 160 ha of mature forest at the northern tip of the island, while a few species still occupied parts of the northern plateau.

Now the brindled white-eye *Zosterops c. conspicillatus* is presumed extinct on Guam, and the Guam flycatcher *Myiagra freycineti*, an endemic species, and the rufous fantail *Rhipidura rufifrons* may also be extinct, both having been seen last in 1984. The endemic Guam rail *Rallus owstoni* is also on the verge of extinction; only three have been located since 1985. The remaining species are all extremely rare.

At first pesticides, over-hunting, competition with introduced birds, habitat modification, exotic diseases and predation by introduced vertebrates were all considered as causal agents. As the pattern of extinction unfolded and studies progressed it became clear that the recently introduced brown tree snake *Boiga irregularis* was to blame (Savidge, 1987). This predator of eggs, nestlings and adult birds, is native to Australia, New Guinea and the Solomon Islands. It was probably transported to Guam as a stowaway in military cargo and was first reported in south-central Guam in the early 1950s. It expanded its range at a rate of 1.6 km per year and this expansion was found to be closely correlated with the range contractions of the forest birds.

That this snake has been able to establish itself so successfully on Guam and has been able to survive, even though over-exploiting the forest birds, is probably due to several factors. It has few competitors and no significant predators on the island. In its native range the forest canopy may be more than 40 m high whereas on Guam it is relatively low (about 15 m), which may facilitate its access to birds throughout the canopy. Also, compared to forest in the snake's native range, Guam's forest, probably because of its simplified vertical structure, supported far lower densities of birds even before the snake invaded, and therefore the impact of snake predation was much greater. Finally, *Boiga* has very generalized food habits, lizards comprising a major portion of its diet when small birds have declined. Small reptiles are very abundant on Guam and with their apparently high reproductive potential can withstand considerable predator pressure. By utilizing the plentiful lizard prey, *Boiga* can maintain high densities while decimating its more vulnerable bird prey.

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It is questionable whether any of the forest birds will maintain populations on Guam. Only three native forest species are not on the brink of extinction: Vanikoro swiftlets *Aerodramus vanikorensis* nest in caves and are relatively immune to snake predation; the Mariana crow *Corvus kubaryi*, with numbers fewer than 100 and with no successful reproduction reported since 1985, will eventually decline to extinction from lack of recruitment; and the Micronesian starling *Aplonis opaca guami* has recently been nesting on artificial structures—nest boxes on concrete telephone poles could help save this last species. The Micronesian kingfisher *Halcyon c. cinnamomina* and the Guam rail are now breeding successfully in captivity, but there is no point in reintroducing them unless snakes are reduced in numbers. Since snakes have never been controlled on the scale necessary, it will probably be many years before effective measures are developed and implemented so that Guam's avian desert can be repopulated.

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### Dolphin workshop brings some results

River, or freshwater, dolphins were the subjects of an IUCN-sponsored workshop 28–30 October 1986 in China. The biology and status of five species were reviewed and recommendations made for research and conservation action.

The Amazon river dolphins *Inia geoffrensis* in the Amazon and Orinoco are believed to be in good condition, but vulnerable to fishery interactions, hydroelectric development, deforestation and pollution. Dams pose the greatest threat and very extensive hydroelectric development is planned for Brazil with little attention being given to preserving the riverine habitat. This species should be classified as 'vulnerable'.

The status of La Plata dolphin *Pontoporia blainvillei* is uncertain, but large numbers have been killed in gillnets throughout its range in Argentina, Uruguay and Brazil over the last 30 years. Research is urgently needed to estimate population size and structure and to monitor the fishery bycatch.

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The habitat of the Ganges river dolphin *Platanista gangetica* is being severely degraded in India, Bangladesh and Nepal, and the species has recently disappeared from some regions. The main problems appear to be dams and pollution, but the fisheries are also contributing to the declines, directly and indirectly by bycatches. Since the workshop ended the Government of Nepal has decided to establish a 'river park' for this species, the Indian Government is funding a graduate student to carry out research on the dolphin, and first steps have been taken to set up a regional scientific committee to review research on the species. The IUCN Secretariat has approached the World Bank to urge that consideration be given to preservation of the riverine habitat and fauna in planning the construction of a high dam on the Karnali River in Nepal.

The fourth species discussed—the Indus River dolphin *P. minor*—is endangered, endemic and fully protected in the Indus Dolphin Reserve in Sind where its population has increased to about 400. In the Punjab, however, the tiny populations remaining may disappear soon unless reserves are set up. Hunting is banned and an education programme launched.

Lastly, the baiji or Yangtze River dolphin *Lipotes vexillifer* is the most endangered of all cetaceans with the members of its estimated world population of 300 still threatened by entanglement in fishing gear and collision with vessels. The Chinese Government has protected the species and established a natural protection area on the Yangtze River. It is also building a semi-natural reserve at Tongling on the lower Yangtze and another is planned at Shi Shou on the middle Yangtze. Dolphins will be translocated from the more dangerous parts of the river to these reserves, where they will be protected from river traffic and fishing gear, but these projects need additional international funds to bring them to completion.

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