



the EANHS Bulletin

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COMMENT

WE NEED YOU!

Members have often commented that EANHS activities are Nairobi-based, and few events are organised elsewhere. This is now about to change: At the Society's AGM in June, a revised constitution will hopefully be approved, conducive to the formation of local members' groups. However, WE NEED YOU to effect the change.

At the Society's headquarters in Nairobi, we are providing an enabling environment:

- The Society's monthly Newsletter announces EANHS-related events anywhere in Kenya as long as it receives the information on time.
- Lists of members in your area can be obtained on request from the EANHS office.
- The revised Constitution approved at the AGM provides for the setting up of branches of the Society outside of Nairobi. There is already one branch of the EANHS, in Uganda, which has an active programme. EANHS Uganda is the BirdLife partner in Uganda, and will be hosting the 10th Pan African Ornithological Congress in 2000.
- A new category of membership was also added at the AGM, the conservation group member. This is open to people who belong to certain Institutional Members of the EANHS active in conservation or environmental work outside Nairobi.
- The concessionary membership rate entitles conservation group members to receive one copy of each Newsletter and Bulletin for every five members, all mailed to the same address. We hope this will enable more interested people to join the EANHS.

Okay, now it is up to YOU, the members, to form members' groups all over Kenya! Already, enthusiastic young members in Gede and Mombasa are in the final stages of setting up a regional group of the EANHS for the Coast.

Perhaps the creation of a regional group seems overly intimidating? Then why not just serve as a focal point for the EANHS in your area? Organ-

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ise a few events, and get to know other local members. The most popular Society events are usually field trips, especially bird-watching and plant study outings. And Kenya has rich biodiversity within easy reach.

For example, Kisumu area members could meet for a birdwalk at Impala Point. Nakuru area members could look for birds, flowers or butterflies at Hyrax Hill (your EANHS membership card provides free admission to regional museums and sites). All regions of Kenya, without exception, have interesting areas to visit.

What is required is for one volunteer to do the following:

1. Set a place, date and time to meet. It's good to start with an easy-to-reach site or meeting place.
2. Inform the Society's office of the place, date and time during the first week of the **previous month** (or earlier if possible). We will print the information in the Newsletter. That is, if you are planning a birdwalk in Eldoret in October, inform the office during the first week of **September**. The Newsletter is usually produced during the second week of the month, and mailed out to members in the third week.
3. Actually show up at the place, date and time! If you can't make it, find someone to take your place.

The members who meet on these first informal outings can then decide if they want to continue, or to plan more elaborate events: lectures and film shows, all-day or weekend trips, public awareness activities, etc. If the outings are held regularly—on the same date each week or each month—members from other parts of Kenya and overseas can plan to attend when they travel to your area.

Please do not feel that you have to be an "expert" to schedule an outing. The members who take part will share their expertise and have fun learning together. All you have to do is to be able to plan ahead, so the meeting time and place can be published in the Newsletter.

Come to think of it, we could use some help with outings in Nairobi, too. We are waiting to hear from **YOU**.

Fleur Ng'weno, Act. Honorary Secretary

ARTICLES

CENSUS OF ROOSTING INDIAN HOUSE CROWS *CORVUS SPLENDENS* ON MOMBASA ISLAND.

INTRODUCTION

The Indian House Crow (*Corvus splendens*) is an Asiatic bird species, which was introduced to the coast of East Africa in the 1890s (Lewis & Pomeroy, 1989; Ryall, 1992). From Zanzibar, where colonial authorities introduced the species to act as an urban scavenger, the species has spread into coastal areas of Tanzania, Kenya, Somalia, Ethiopia, and Mozambique and South Africa. After being recorded for the first time in Kenya in 1947 in Mombasa, this omnivorous scavenger is now very common in and around Mombasa city and island, and has spread along the north and south coast (Ryall & Reid, 1987; Ryall, 1992). The species also expanded its distribution about 50 km inland, largely following the main Mombasa-Nairobi road and rail links (Lewis & Pomeroy, 1989; Ryall, 1992). Their further spread seems to be halted by the barrier of the arid and sparsely populated area of the Tsavo region (Ryall, 1992).

The Indian House Crow has caused declines in populations of many indigenous bird species in the Mombasa area (Lewis & Pomeroy, 1989; Ryall, 1992), causes considerable economic damage to crops, poultry and fish farms (Yousuf, 1982; Dhindsa *et al.*, 1991; Ryall, 1992, P. Burton, pers. comm.) and is a potential carrier and transmitter of diseases (Munguti, 1984; Anonymous, 1995). Attempts to control this pest species in and around Mombasa have been on-going since 1984 (Ryall, 1992; Ryall & Reid, 1987). Control efforts have focussed on the use of traps, poisoned bait, shooting of adult birds and destroying of nests, eggs and chicks (Ryall, 1992). However, without basic data on the distribution and numbers of the crows, the success of control programmes cannot be monitored. At present, no reliable data are

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available on the number of crows in and around Mombasa. The aims of this study were to count the total number of crows that roost on Mombasa island and to assess which directions they arrived from.

METHODS

Our count was made on 28 August 1995, before the main breeding season which in Mombasa is well-defined, from September to January with a marked peak in October (Brown & Britain, 1980). From 16.30–19.00 p.m., all crows arriving on the island from the surrounding mainland (north, west and south) were counted. Counts were made by observers stationed strategically at four observation points around the island (see Fig. 1): KMFRI rooftop, Nyali Bridge, Makupa Causeway (Kibarani), and Likoni Ferry (on top of cement silos). Each observation point was manned by two people, acting as observer and recorder respectively, the latter noting down the data on pre-designed forms. Birds that flew away from the island (i.e. in the opposite direction) were recorded separately. Since birds arrived in groups of varying size, the number of birds present in each group was recorded (although sometimes it was difficult to tell what constituted a single group). The crows were counted in 15 minute blocks.

Numbers in each 15-minute block were recorded group by group, then summed. It was always relatively easy to make precise counts of total numbers, eliminating the need for rough estimates of group sizes. Counting was sometimes aided by the use of binoculars, but most counts were performed by naked eye. The position of the different counting stations was chosen so as to minimise the risk of double counts. Some small overlap might have occurred of counts at KMFRI and Nyali Bridge, but this might be compensated by the gap (although narrow) between the reach of Nyali Bridge and that of Makupa Causeway. We therefore believe, that the counts are reasonably accurate, and the effect of possible double counts is considered small and insignificant.

RESULTS

In total, we counted 19,616 Indian House Crows crossing the water towards Mombasa island between 16.30 and 19.00 h. Besides Indian House Crows, only two Pied Crows were observed during the counts. The majority of the crows (12,962 birds or 66.1%) arrived from the mainland north (8,512 birds at Nyali bridge plus 4,450 birds at KMFRI), whereas 3,464 birds (17.6%) arrived from the west (Makupa) and 3,190 birds (16.3%) from the south (Likoni).

Figure 2 shows the distribution of the arrival of the birds over time. The peak of arrival was between 17.45 and 18.30 p.m. Data for each individual counting station yielded similar temporal patterns. From this figure it becomes clear that the counting period covered nearly all the arrivals, and that the number of birds which arrived prior to 16.30 p.m. or after 19.00 p.m. (when it became too dark to observe anything) is likely to be insignificant.

Prior to crossing the water, the birds often appeared to gather in tree tops, roofs and electricity poles and wires at the waters edge. After their aggregations reached a certain size, birds started crossing the water as a large group, usually from 25 to 85 birds. This phenomenon was most noticeable during the peak period of arrival, between 17.45 and 18.30 p.m. However, at least half of all our observations concerned groups of less than 20 individuals. Generally, the birds appeared to cross the water towards Mombasa island at sites where the water body was narrowest.

A total of 150 crows were observed flying away from the island (i.e. 42 birds at Likoni, 8 birds at KMFRI, 26 birds at Nyali bridge and 74 birds at Makupa/Kibarani). In a few cases it could be established that these birds later flew back to Mombasa island joining other

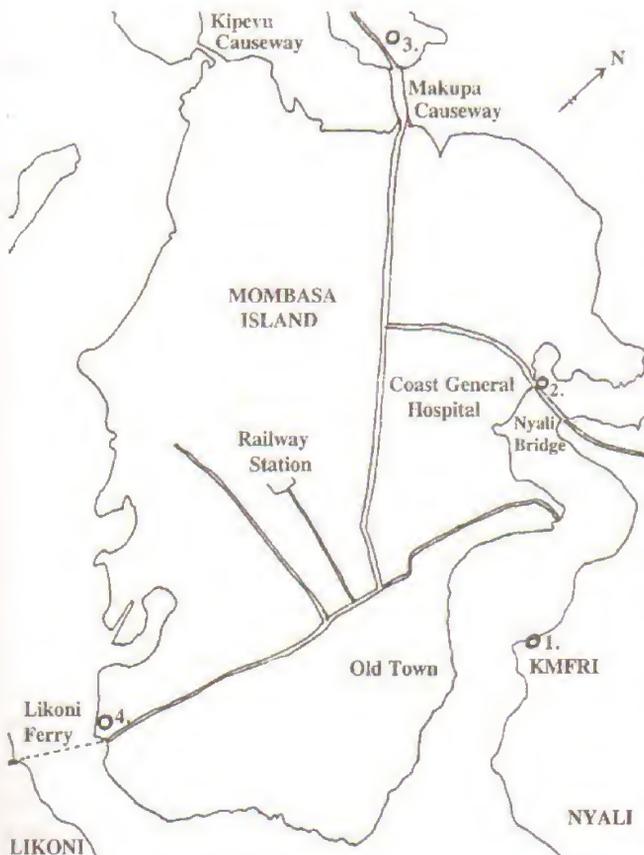


Figure 1. Map of the Mombasa area, showing the location of the counting stations mentioned in the text.

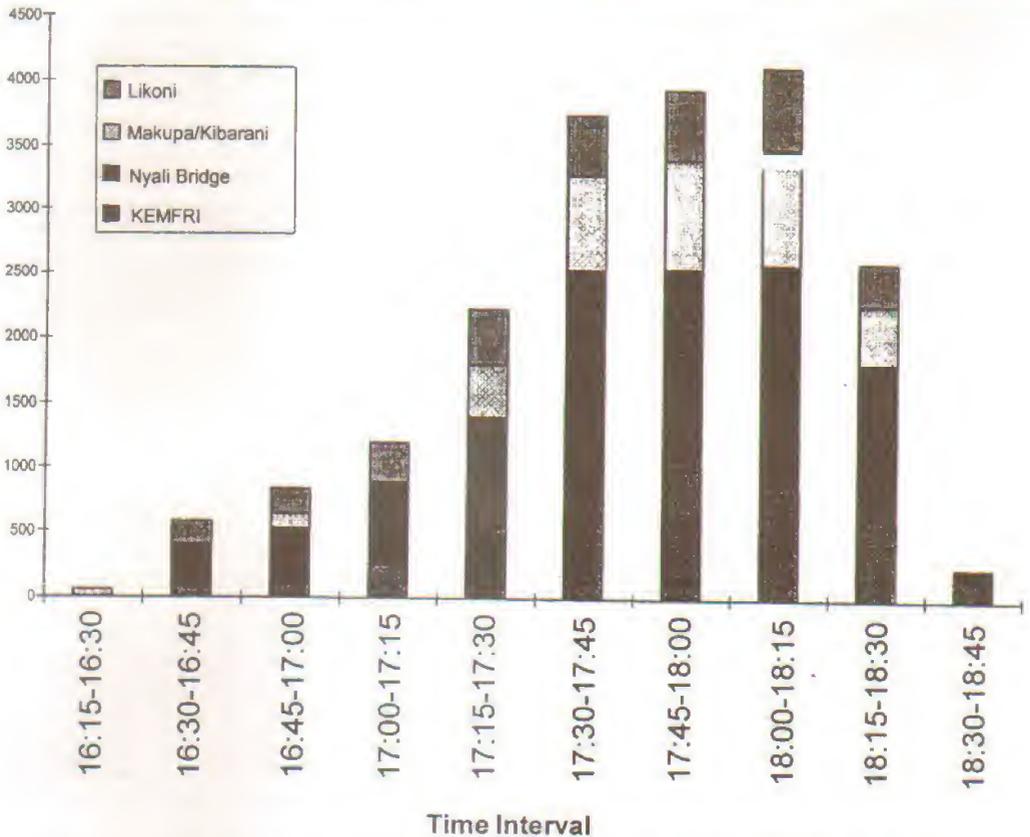


Figure 2. Results of counts of the Indian House Crows crossing towards Mombasa island at the four observation points during the different time intervals (date: 28 August 1995).

aggregations of crows, but in most cases it was hard to assess if these birds roosted on Mombasa island or elsewhere.

DISCUSSION & CONCLUSIONS

This study provides the first detailed record of numbers of Indian House Crows around Mombasa. The total number of crows that was counted (19,616 birds) does not include the resident crow population of the Mombasa island itself, but only concerns birds that arrive here from elsewhere for gregarious roosting. The resident crow population of Mombasa (those that do not leave the island during the day) has yet to be studied. Around six other small roosts exist at Shanzu, Nyali, Bamburi, and Kisauni (P. Burton, pers. comm.). These roosts are much smaller than the Mombasa one, usually consisting of about 300–600 birds.

Preliminary observations by the first author (with P. Burton) indicate that the crows arrive from as far as Kikambala (20 km from Mombasa) in the north and Tiwi (c. 20 km from Mombasa) in the south. Ryall (1992) reported that it is not uncommon for crows to fly up to 20 km on foraging expeditions. If this is extrapolated similarly 20 km to the west (that is up to as far as

Mazeras and Rabai), then the total area from which the crows arrive for gregarious roosting in Mombasa is around 800 km². This means that the average density of Indian House Crows would be around 24 birds per km² for the entire area around Mombasa (or between 32 and 35 birds per km² in the area north of Mombasa, and about 16 birds per km² in the area south and west of Mombasa). These estimates are very rough but give a reasonable indication of the extent of the crow problem. In Zanzibar, which has a surface area of about 2400 km², Tony Archer reported approximately 60,000 crows (Anonymous, 1995; Archer, 1995), which is equivalent to an average density of at least 25 birds per km² (although the birds seem to have been more common at residential areas along the coast and rarer in the inner parts of the island).

In this study, it was not established where exactly the crows gather in Mombasa after arrival on the island, but preliminary observations (by the first author) indicate a rather scattered distribution with a strong preference for large old trees, such as can be found near the Railway Station, around Treasury Square, Coast General Hospital and in parts of Old Town. Ryall (1992) mentions that Mombasa island probably contains five or six large roosts. The fact that the majority of the crows arrive from the mainland north is noteworthy. This area (in

particular Kaloleni, Mtwapa and even Vipingo) appears attractive as a feeding area for the crows, possibly because it is an area of dense human population and productive agricultural practices.

Unlike in Zanzibar, where the majority of the crow population has been killed using DRC 1339 poison and traps (Archer, 1990; Anonymous, 1995), the current control programme in the coastal area around Mombasa does not seem to have been very successful so far. For effective monitoring of the success of control programmes, it is suggested that a regular census of the kind described in this paper should be performed. The changes in number of crows arriving from the north, west or south of Mombasa will indicate the rate of success of the eradication programmes of the species in these respective areas.

Apart from monitoring the success of control programmes, future studies of the Indian House Crow may focus their attention on: (1) the identification and census of other roosting sites along the coast; (2) comparison of census results between counts in the evening (such as in the present study) with those obtained in the early morning (in which direction do they fly?); (3) inventory of the resident population of crows on Mombasa island; (4) identification of their breeding areas (also of the Pied Crows); (5) monitoring of the numbers, distribution and further spreading of the Indian House Crow in Kenya; (6) relationship between the waste management problem of Mombasa and the distribution of the crows; (7) interaction of the Indian House Crow with other bird species; (8) investigation of alternative control methods, including the use of repellents and reflective tape as proven successful in the eradication of other bird pest species (DWRS, 1995).

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Paul L.A. Erftemeijer, P.O. Box 21 Sin Phuanat, Hat Yai 90113, Thailand

Jan Seys, Toekomststraat 7, 8310 Brugge, Belgium

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THREE BUTTERFLIES OF TAITA

PART III CYMOTHOE TEITA

ADULTS

In my last few months in the Taita Hills, I took up the challenge of a chance remark. Mike Clifton had said that unlike the Taita Swallowtail, no one had seen *Cymothoe teita* (the Taita Glider), a small- to medium-sized yellow and black nymphalid, for some time. A visit to the butterfly collection in the museum showed that of their 19 specimens, 13 had been caught by one person during 1969. There were 10 specimens from Mbololo Forest, two from Ngangao, and one from Chawia. (There had actually been one caught more recently, March 1987 in Ngangao.) As the time of year for me was similar to that of the collector's visit (August to November), I visited Ngangao Forest (our nearest). During seven trips from the late August to November, I saw a total of five males—mostly on the west edge of the forest, either flying around, feeding on a large mauve Composite (*Veronia auriculifera*) or, once, on a forest

path lit by the sun from directly overhead. The weather during this period included some good sunny days, as the cool wind finally died down around the middle of September; but the proper rains didn't come until early November. Everything was up to a month or more later than it used to be (before the days of the greenhouse effect?!).

FOOD PLANT

But what was its food plant? Van Someren's (1974) list of food plants gave information on two *Cymothoe* species. The one (*C. coranus*) feeding on *Kigelia* didn't sound so plausible for a forest species. But *C. caenis*, on two species of *Rawsonia* trees sounded better. Williams (1969) gives *Dovyalis* as one food plant of *C. theobene*—a butterfly which looks superficially similar to *C. teita*. And, as both *Rawsonia* and *Dovyalis* are members of the same family, Flacourtiaceae, that seemed a hopeful family to track down.

According to the *Uwiti* write-up of the Taita hills forests survey (NMK, 1989), there are four species of Flacourtiaceae around the Taita Forests. *Dovyalis* (related to the Kai Apple), was rare at Ngangao, but not at Mbololo or Chawia. *Trimeria* was again only found near Ngangao (although I have seen it at Mwambirwa, and it is relatively common, for example, at Mbale, which is not forest at all). That left two medium-sized trees, *Aphloia* and *Dasylepis*; both of these were recorded as 'occasional' in Ngangao and Mbololo. Both are also restricted to either Taita, or the other Eastern Arc Forests. These two looked possible food plants then, for the Taita Glider.

Following a couple of visits to the East African Herbarium, I was hopefully armed with enough information, diagrams and visual memories to recognise either of these two genera when encountered. It didn't take long to find *Dasylepis*. It is fairly distinctive with its large green leaves, pointed at the end, on short petioles, borne alternately on woody stems. The upper surface of the leaves is dark green, while on the underside, the raised veins loop across to each other near the outer smooth leaf margin. The racemes of reddish spherical flowers or fruits, with small petals, were also characteristic, as sometimes was the flaking reddish bark in older trees. And when the leaves are new and fresh, they are sometimes coloured a coppery red—especially under brighter light conditions. This contrasts with the older leaves, which in the forest itself are often heavily encrusted with a rich growth of algae, lichens and mosses. The *Dasylepis* trees in certain areas are certainly very 'occasional', but in other places they are very common as an understorey layer, sometimes several trees almost directly adjacent to each other. On 10 September, a long search revealed no larvae; but there were pupae—two empty and one still occupied. This was completely green, under the leaf, supported by the tail end so that the body was parallel with the leaf. On 21 September, the adult butterfly emerged—it was a female *Cymothoe teita*, which was released back to Ngangao after a few days when I couldn't find it a mate!

At this point I felt the food plant question was more or less solved.

LARVAE AND EGGS?

During November, I found a total of three caterpillars fitting van Someren's general description of Nymphalidae caterpillars as 'cylindrical, with branched spines'. All three were found on the same (or neighbouring) *Dasylepis* trees, and were 19 or 20 mm long. They were basically green and cylindrical (even square in cross section)—but the head was orange/brown, slightly wider than the body, and there were two whitish longitudinal stripes, one on each side, running along the length of the body at the upper angle/edge of the 'cylindrical' shape. The lower half of the body had a skirt of pale hairs, while most segments had a pair of branched hairs arising from near the white longitudinal stripe. Most hairs (as long as the body was wide) ended with a double prong; those on the first two and last one segments, were three-pronged (Neptune's fork). At the front the caterpillar could effectively use these to deter anything disturbing it by swinging its head rapidly 180° from left to right.

The caterpillars tended not to wander very much, often staying on the one leaf, eating it away from the end, until virtually left only with the petiole. One of these three eventually reached 28 mm, and later pupated. While it didn't pupate perfectly—the part of the larval skin didn't come off—it was similar enough in shape, size and colour, to be the *Cymothoe*.

I found three batches of eggs during November. These were laid under the leaves, in groups of 19, 35 and 37 respectively. The leaves were either old or fresh green and from 1–3 m above the ground. Each egg was around 0.9 mm, white, beautifully spiky all over (like a radiolarian). They were laid in short rows, each separated from its neighbour by about half an egg's width. From the first two, relatively few hatched (three and nine respectively); and these were all dead within three days. Part of the problem was drying up, despite my attempts otherwise. So, the larger hatch (collected on a separate, later occasion) was kept on a larger bit of plant, and kept as moist as possible. This produced a roughly 90% hatch. The emerging caterpillars were about 2 mm long, pale, slightly hairy (enough to get them stuck in any condensation!) and with a wide dark head (which was visible through the shell about a day before they hatched).

The very first batches of caterpillars had died, even when living on what seemed a young delicate piece of leaf—there were no obvious signs that they had even tried to eat it. When the third lot of eggs hatched, after a few hours altogether, they then dispersed completely and it was unusual to find any two together. This capacity to disperse completely (when conditions were unfavourable) was only matched by their ability to reconvene—in this case, on some very fresh shoots. They collected on the smallest, freshest leaf, which they then consumed. And even then, when disturbed, they could show the head wagging which was hopefully a sign to indicate that they could prove to be *C. teita*. After five

days, they had grown from 2 mm to 4.5 mm; they then moulted to the 2nd instar and moved as a group to a slightly older leaf. Their general colouration was still pale with dark wide heads. Sadly, I couldn't keep them alive for long and the climate in Mombasa proved impossible for them. But I think it was enough—these second instar caterpillars now had the dorso-lateral (two or three) branched spines that had been observed in the final (green) instar. The identification had been linked up—just.

Meanwhile, one of the three large caterpillars had been tried on a mixture of other possible food plants of the Flacourtiaceae. That meant *Aphloia*, *Trimeria* and *Dovyalis*. At the end of three days, this caterpillar had shrunk in size from 19 to 14 mm and the only plant that might have been nibbled slightly was *Aphloia*. On being returned to *Dasylepis*, it gorged rapidly, although soon afterwards it died. However, I offer all this as provisional evidence that *C. teita* feeds only on *Dasylepis*. (I had previously tried some first instar caterpillars on definitely fresh leaves of *Aphloia*, *Trimeria* and *Dovyalis*, but they had either died, or at least seemed not to eat at all).

Aphloia has been the other possible food plant. This seemed to be present as an understorey species in the higher parts of the forest, where the indigenous trees had been cut down and *Pinus* planted instead. I found none in the 'real' forest, such as near *Dasylepis*. *Aphloia* leaves are much smaller, serrated, and always a clear green without any epiphytic growth. A search on *Aphloia* has so far revealed no eggs, caterpillars, or pupae—only a possible small leech! Again, this pushes us back to guess that *Dasylepis* is the main or only food plant.

CONSERVATION

According to the Taita Hills Survey already referred to (NMK, 1989), *Dasylepis** is found in Ngangao and Mbololo forests only. This is relevant, in that *C. teita* used to occur in Chawia Forest. *Aphloia* is present at Chawia, but unless there is a fairly large quantity of *Dasylepis* that eluded the survey's eyes, it will probably be found that *C. teita* is now extinct at Chawia due to the felling of parts of the old forest. (I haven't personally checked either there nor in Mbololo Forest). I have spoken with the forest warden at Ngangao, and the Asst. Forestry Officer in Wundanyi and there is some interest on their part. If the seeds of *Dasylepis* can be germinated (and the tree distribution may offer some hope of this), then these could be planted to form a middle storey within plantation forests where they are already putting indigenous trees (as opposed to exotics). Presumably this should first be done at Chawia. Either way, after maybe ten years, it could be possible to introduce this butterfly back to Chawia, or into new places. These trees are said to have been used traditionally as fire-wood, the tree itself being called 'Mugunga' or 'Mugungungu'. It is even said by the Kasigau Forestry Officer to be growing up in that forest; but before trying to introduce *C. teita* there (or anywhere) there might need to be much more research on its life history. And that, as I

have indicated above, would necessitate a continual supply of fresh *Dasylepis*—a delicate forest species. Not only is there the continual possibility of leaves or young caterpillars drying out, but the cut leaves seem to exude a sticky substance which can trap the first instar larvae. Research is needed, but also education of the great majority of the Wadawida (Wataita), for whom a caterpillar is only something which eats their vegetables, and for whom a butterfly has 'no use'. Yet perhaps the drama of endangered species could be the way in for some people, both into the beauty of nature with the advantages of its conservation, and also (in Taita) some pride in their particular heritage.

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Rev. Tim Oakley, c/o Mrs K.M. Oakley, 24 Lawrence Grove, Henlecege, Bristol BS9 4EJ, UK

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*Editor's note: there has been a recent sight recording of *Rawsonia lucida* in Ngangao Forest.

CLIMATE CHANGE AND WILDLIFE

Wildlife world-wide is being affected by climate change, and without immediate action the impacts will increase, according to BirdLife International and the Royal Society for the Protection of Birds. International experts recently met in Colorado to discuss the impacts of climate change on wildlife. A report based on the findings was launched by BirdLife International and the World Wide Fund For Nature at the Kyoto Climate Change Conference in December 1997.

The report, 'Climate Change and Wildlife' assembles and evaluates the increasing amount of scientific evidence for what is actually happening to wildlife as a result of a warmer world. It details both observed and predicted changes, focusing in particular on: the timing of life cycles; the distribution and population of species; migration strategies; important wildlife sites. At the

launch a panel of experts, chaired by the former UK environment minister John Gummer, discussed the report's findings.

Evidence includes signs that many bird species in the UK, for example, are breeding earlier, including Redshank, Wren, Chaffinch and Chiffchaff. Frogs, toads and newts are also arriving at ponds earlier to spawn.

Changes to sea temperatures may affect food supplies for seabirds and these effects are already being noticed in the Pacific Ocean. Alpine flora has already changed in distribution as temperatures have been increasing. Migrating birds often rely on traditional stopping off places at which they feed and replenish their energy supplies. In the UK millions of migrant waders and wildfowl use estuaries as feeding grounds to provide essential food on their way south to Africa. Sea level rise as a result of global warming could lead to many vital coastal areas disappearing, resulting in a change to migration routes with fewer birds surviving the long journeys.

Among many recommendations, the report emphasises the need for:

- Increased co-ordination between scientific disciplines, e.g. climatology and ecology
- A greater understanding of the mechanisms by which climate change affects flora and fauna
- Long term monitoring of flora and fauna, continuing into the future
- A focus on changes in the timing of life cycles of interacting species, e.g. predators and their prey
- Collecting evidence of the impact of climate more widely, especially in the tropics
- Fully considering competing hypotheses that may explain any observed changes

Barnaby Briggs, BirdLife International/RSPB climate change officer, said: "For the first time the very real and mounting evidence of climate change affecting wildlife has been collated, showing that problems already exist for many species. The emerging picture of effects on wildlife makes the need for a positive outcome from the Climate Change Conference in Kyoto even more urgent".

EVIDENCE FOR CHANGE

A study of long-term records from across the UK for 65 breeding bird species identified the laying dates of the first egg in each clutch. Over 25 years, between 1971 and 1995, 63% of the species showed a tendency to nest earlier. This tendency was statistically significant for 31% of the species. For these species, nesting dates have shifted nine days earlier over the period. Only one species showed a significant tendency to lay eggs later in the year. The earlier-nesting species were not confined to any one ecological or taxonomic grouping, but included waterbirds, migrant insect eaters and seed eaters. Some of the species affected included Dipper, Wren, Redstart, Chiffchaff, Chaffinch and Greenfinch.

Up to 5 million Sooty Shearwaters used to spend their non-breeding period off the west coast of the USA.

However, between 1987 and 1994, the numbers of shearwaters declined by 90%. This observed decline is attributed to changes in ocean surface temperature and changes in the ocean currents (reduced upwelling) which are associated with climate change. Some birds may have moved to new feeding grounds, but this is unlikely because of the huge areas over which declines have occurred.

In the cloud forests of Costa Rica, a variety of changes in the wildlife have been linked to global warming. Many birds, including the Keel-billed Toucan and Blue-crowned Motmot, have extended their ranges up the mountain slopes, while Highland Lizard populations have declined and disappeared. Studies of the changes in relation to patterns of precipitation and temperature suggest that warming has raised the height at which cloud banks form over the region. The resultant drying trend may also have played a key role in a massive die-off of the area's amphibians, including the Golden Toad. In total, no fewer than 40% of the frog and toad species that previously inhabited a 30 km² study area have become extinct during the 1990s.

A 1°C increase in temperature may significantly alter the species composition in about half of the statutory protected areas in the UK. For example, montane habitats supporting Ptarmigans, Snow Buntings and Dotterels have a very specific—and very cold—climate. Such a cold climate will not, according to one model, be found in the UK by the end of the next century.

Amphibian reproductive cycles can respond sensitively to climate change. In a study of UK frogs, toads and newts, 17 years of data show that the species arrived at ponds and spawned 9–10 days earlier for each 1°C increase in temperature. The data showed that increases in temperature over the 17-year period have led to the reproduction cycles beginning earlier.

A study of the Edith's Checkerspot Butterfly shows that populations at the far southern end of its range (in Mexico) have four times the extinction rate of populations in the far northern end of its range (in Canada). Extinctions are also about two-and-a-half times higher at low elevations compared with populations above 8,000 ft (2,400 m). An analysis of land use change shows that human degradation of habitat could not have caused this pattern. The pattern of extinctions means that, over this century, the average distribution has shifted northward by 92 km and upward by 124 m. Climatologists have found that the western USA has warmed by 0.7°C, which means that the climate bands have shifted 105 km northward and 105 m upward—nearly identical to the shift shown by the Edith's Checkerspot Butterfly.

Changes to alpine flora over 70 to 90 years show that even moderate warming causes plant communities to migrate. As the temperature has increased, alpine flora has migrated 'up the hill' to higher elevations where it is relatively cooler. However, migration is occurring at a much slower rate than changes in temperature. New areas are being colonised more slowly than the rate at which the original areas are becoming unsuitable, because they are too warm. The area of suitable habitat is therefore diminishing.

A decline in the frequency of years with extensive heavy winter sea ice in the Antarctic, first noticeable in the 1940s, has been accompanied by a fall in Adelie Penguin breeding numbers. In winter, the penguins dive to catch krill in cracks in the sea ice overlying places where nutrient-rich bottom water comes to the surface. When sea ice is reduced, survival of adult and immature penguins is poor, probably because suitable feeding sites are too scarce or distant. In summer changing patterns of snow deposition and melt are leading to the presence of deep snow on the Adelies' nest sites. This is reducing the breeding success of Adelie penguins when they return to the colonies to lay their eggs. Some long-established colonies, where this has been a frequent problems, have died out.

The distribution of rocky shore intertidal invertebrates on the Pacific coast of North America shows changes consistent with the effects of global warming. In Monterey Bay, California, southern invertebrate species have increased significantly in abundance while northern species have declined, causing dramatic changes in the community composition. These changes have occurred as sea surface temperatures have gradually warmed by 1°C on average since 1920.

WHAT DO WE KNOW SO FAR?

Our current knowledge, including that presented in this report, indicates that:

- Climate change is expected to affect wildlife because environmental factors determined by climate affect the physiology, survival and performance of every species studied in detail. These environmental factors include air, water and soil temperatures, humidity, soil moisture and wind speed.
- Wildlife will be influenced not only by the direct effects of temperature and humidity, but also by the indirect effect of changes in their competitors, predators, parasites and diseases. The effects of climate change on individual species will be complex, and therefore even subtle changes may cause large changes in plant and animal communities.
- Fossils and preserved remains of lake plankton and pollen show that, in the past, species shifted their geographic range as the climate changed. However, current estimates suggest that some species will not be able to move quickly enough to respond to the predicted climate change. This is especially true of areas where human land use has made suitable conditions scarce and fragmented.
- Climate change, particularly if it is rapid, could considerably disrupt long-established relationships between species. The timing of important events in the life cycle of plants and animals—such as leafing, flowering, migration, emergence from pupae and egg-laying—is

sensitive to annual fluctuations and long-term trends in climate. The timing of events is often finely adapted to coincide with life cycle events of other species that provide food or shelter.

- Climate change is already cited as the most likely cause of changes in the abundance and distribution of a number of plants and animals. In some case more investigation is needed to exclude possible alternative explanations. Research into many other species is also required. However, the impact of small recent changes in climate on wildlife is already sufficient to trigger concern about the effects of the large climate changes forecast for the next century.

The world's ecosystems are of immense value to humans. Given the lack of our knowledge about biodiversity and the complexity of ecological relationships it seems probable that their importance is even greater than we suppose. Therefore, the disruptive effects of climate change on ecosystems may be a serious threat to human welfare.

(The report 'Climate Change and Wildlife' is available for reference in the EANHS office and library.)

SHORT NOTES

EFFECTS OF THE 1997/1998 FLOODING AT THE TANA RIVER DELTA

The Tana Delta is often in the conservation news owing to ongoing land tussles between private developers and the local people living along the Tana River. And it should be. The delta is one of Kenya's most important and, so far, virgin wetlands. Comprising five distinct but inter-dependent ecological zones—fresh water riverine floodplains, mangrove forest, old dunes surrounded by water, sea creeks and oceanic beach—the delta is a wonderfully rich habitat.*

Large mammals are still plentiful in the area—especially buffalo, topi and waterbuck—although their populations are under constant pressure from subsistence meat poachers. Primates abound, mainly yellow baboon, Sykes' and vervet monkeys and Garnett's galago. Many species of smaller mammals, civets, genets, mongoose, bushbuck, also thrive on the abundant food supply yielded by the delta: fruit, insects, molluscs, crustaceans and fish. Lion can still be found—even on the beach—while hippos are fairly numerous. The delta is a major breeding ground for the Tana's fast dwindling population of Nile crocodile.

I run the Tana Delta Camp, an up-market tourist resort at the mouth of the Shekiko River, where the Tana broke out to the Sea in 1961. Since 1986, the maze of mangrove channels has become increasingly saline since the blocking of the Kolota brook at the mouth of the Tana by Pokomo Villagers from Ozi in need of as

much irrigation as possible for their tidally flooded rice paddies and mango and coconut plantations. The delta proper, deprived of fresh water, has, in the last ten years, become increasingly silted up. The main result has been ideal conditions for the commonest (and least used—it is a poor timber wood) of the mangrove species: *Avicennia marina*. The Kolota brook itself was, until October 1997, choked with young seedlings of this species. The delta proper, then, has been a saline estuary for some ten years now, inundated with sea water at high spring tides, with mangroves and mud-banks exposed at low tides. Minimal fresh water flooded into the system during the rains from channels further up the Tana at Oda.

From October 1997, however, a vast change has occurred in the delta, always an incredibly dynamic ecosystem. Huge amounts of fresh water, resulting from the freak weather in Ukambani and North East Kenya, not to mention the highlands, all ended up in the delta, which has resulted in the usually saline estuary of the Shekiko running fresh all the way to the mouth and even out to sea!

Two factors have exacerbated the effect of the flooding. Firstly the Tana has been somehow "emasculated" since the construction of the hydroelectric dams in the headwaters at Kiambere, Masinga, Kinderuma and so on. Hence the need for extra water by the villagers of Ozi and the blocking of the Shekiko. Secondly the main mouth of the river, at Kipini, is becoming increasingly silted up, thus backing up the river in times (rarely in the last ten years) of flooding.

The El Niño floods, beginning in October 1997, inundated a huge area of hundreds of square miles from the Ganga Rice Scheme at Garsen (completed in 1996) north of the river all the way down to the mouth, resulting in the evacuation of all villages in the area, including Kau, home of several thousand people. This vast freshwater lake still sits, waist deep, as I write (end of February, 1998). With no main channel out to Shekiko, the farming areas of Ozi are completely under water and mango and coconut trees are now beginning to die from oxygen and nitrogen starvation. The power stations up-stream, to the relieve the pressure on the dam walls, have had to open flood gates, adding to the problem.

The ecological effects of the flooding have been spectacular, with huge amounts of silt and sand washed into the delta proper, though, as yet, no major break seems to have occurred in the river bank. With all channels running strongly out to the sea for the first time in ten years, the delta has been scoured out, including a major die-off of the mangrove *A. marina*.

The most visible sign of the change apart from the new sandbanks, widened channels and flotsam and

jetsam of flooding, has been a marked increase in the crocodile population, which has moved into the ideal breeding grounds of the delta to lay eggs on the sand-dunes. Vast water-meadows have appeared, even on old saline mud-banks, where water lilies (perhaps dormant all these years) bloom again. The water fowl population is flourishing with jaçanas in the water meadows, large numbers of pink-backed and great white pelicans feeding on the resulting explosion in the fish population. Storks (saddle-bill, yellow-billed, woolly-necked and open-bill) are abundant, fishing in the flood plains, while egrets and herons have not had it so good for a long time.

In short, the delta is enjoying its first fresh water in ten years. Had those who have been trying to develop this unique and wonderful area into prawn farms succeeded in their plan, they would have lost everything in the floods. Maybe it is not such a feasible idea, after all.

Is it too much to hope that the villagers of Ozi will break the Kolota brook barrier, thus opening up a seasonal supply of fresh water to the delta? It would certainly mean that the vast floodplain which now stretches from Garsen to Witu to Kipini would drain much quicker and normal life could be resumed.

W.I. Knocker, Tana Delta Ltd., Box 77, Watamu, Kenya

*Editor's note: The Tana River delta has been designated an Important Bird Area (IBA) and is proposed as a RAMSAR site.

COLLARED PALM THRUSH *CICHLADUSA ARQUATA* IN LAKE MANYARA NATIONAL PARK, TANZANIA

On 25 August 1997, at approximately 18:15 while driving from the Hippo Pool towards the main gate, I saw, to my surprise, a Collared Palm Thrush *Cichladusa arquata* apparently feeding on the ground in the middle of track. The bird was so close that identification could be confirmed without binoculars: the pale eye and the diagnostic collar surrounding the upper breast could



Collared Palm Thrush
by L.A. Depew

easily be seen. After a few minutes the bird flew to the base of a palm tree, *Hyphaene ventricosa*, where it foraged among the litter. Moments later it was joined by a second individual. I watched the two birds for approximately 5 minutes with 8 x 42 binoculars. During that time they mostly foraged on the ground but occasionally flew up into a palm where there was at least one other Collared Palm Thrush.

The area where the Collared Palm Thrushes were seen is named Mahali Pa Nyati. It is open grassland, adjacent to the ground-water forest, with groves of palm trees and wild mango *Tabernaemontana usambarensis*, very similar to the Collared Palm Thrush's normal habitat.

Collared Palm Thrush normally occurs along the Kenya/Tanzania coast, approximately 400 km from Manyara (Britton 1980, Keith *et al.* 1992). The nearest location to Manyara where they are recorded appears to be Mwanza, 320 km to the west, on Lake Victoria. The nearest location to the south is Ruhaha National Park, approximately 400 km away.

Records from the Tanzania bird atlas database (N.E. Baker, *pers. comm.*) reveal that there is a record from the south of Lake Manyara by Zul Bhatia in December 1995. Shortly after I made my observation, the species was recorded on the north shore of Lake Eyasi by Willem Defloor in late October 1997, and on 28 November 1997 by Dave Peterson at the south of Lake Manyara. It appears that either this bird is a very scarce (and therefore rarely reported) resident in the Manyara area, or (as the cluster of 1997 records might suggest) an occasional seasonal visitor.

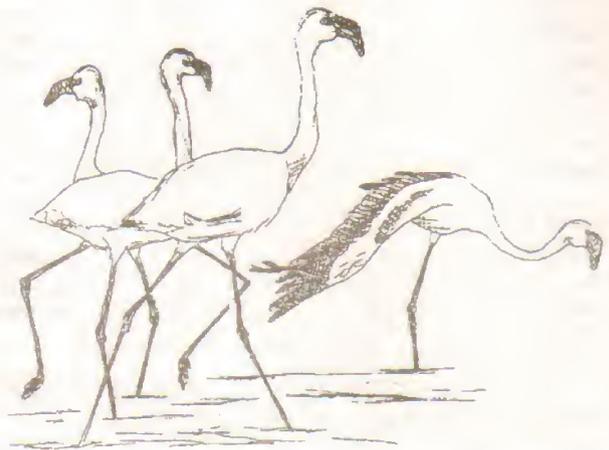
Acknowledgements

Many thanks to Neil Baker and the Tanzania Bird Atlas Project for information on Collared Palm Thrush sightings.

Dave Richards, P. O. Box 24545, Nairobi, Kenya

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LESSER FLAMINGO
 Fawn Salemba 1998

September 1994, Frontier Uganda, a collaborative project between the Society for Environmental Exploration and the Uganda Wildlife Authority, carried out a 20-week baseline survey in the Reserve.

Time and man-power accorded to the ornithological component of this survey were limited and much of the work carried out was opportunistic, but one interesting finding was the number of Lesser Flamingo *Phoeniconaias minor* and Greater Flamingo *Phoenicopterus (ruber) roseus* that were present throughout the survey period. Although both species of flamingo are regularly recorded in Kyambura and QENP, their numbers are limited and they are generally migratory.

There are three saline lakes within Kyambura Game Reserve (see map) and flamingos were found on all three. Two of the lakes, Bugisha and Maseche, are close to the northern border of the Reserve whilst Nshenyi is 7 km further south. During the survey period the water level on Nshenyi remained fairly constant, but Bugisha and Maseche dropped considerably during the dry season (June–August), although neither lake dried up completely.

According to the resident Game Assistant, Constantine Abagaba, who has worked in Kyambura since 1984, and the concession manager Louis Nortje, 1994 was the first year in which the flamingos had stayed in Kyambura past January. Although numbers fluctuated, flamingos were recorded throughout the entire survey period.

Throughout the survey Lesser Flamingos were estimated to form around 95% of the total flamingo population, with the largest single combined count being over 9,000 during June on the southern lake, Nshenyi. This makes it a site of national importance (D. Pomeroy, *pers. comm.*). The count also shows a marked increase

A NOTE ON THE FLAMINGOS IN KYAMBURA WILDLIFE RESERVE, UGANDA

Kyambura Wildlife (formerly Game) Reserve in south-western Uganda is bordered to the north by the Kazinga Channel and Lake George and to the west by Queen Elizabeth National Park (QENP). Between April and

from the 2,531 individuals recorded by Din and Eltringham (1976) in an aerial survey in September 1974.

The presence of the flamingos on all three lakes during a period when they are normally absent could be indicative of a future attempt to breed in the area, but no physical evidence was found to support this. The lakes are small for breeding sites. None is larger than 3 km² and they lack the inaccessible expanses of mudflats preferred by the Lesser Flamingo for breeding (Brown *et al.* 1982). The two northern lakes are also within 3 km of Kashaka fishing village on the shores of Lake George where there is a resident population of at least ten Marabou Storks *Leptoptilos crumeniferus*. As Marabous are a major predator of flamingos (Brown, 1958) their presence could be a major impediment to any breeding attempts on the lakes.

However, since the 1994 survey, work by Achilles Byaruhanga has shown signs of flamingos nesting on Lake Maseche in 1995.

Andy Brock-Doyle, Fauna and Flora International, Great Eastern House, Tenison Rd., Cambridge CB1 2DT, UK.

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EARTHWATCH

As you may have noticed, we have recently introduced a column where our Earthwatch fellows can report on their trips. But, you may be wondering, what is Earthwatch?

Earthwatch is an international and science education foundation. It is a non-governmental organisation (NGO) which supports field research projects in the life, earth and social sciences. At any one time there are about 140 projects around the world. The normal way in which Earthwatch supports these projects by finding 'volunteers' who are willing to pay to spend their holiday time working with scientists. The research project team benefits from the volunteers' labour and financial contribution. However, a proportion of places are funded by the Earthwatch Fellowship Programme. This is where EANHS comes in.

An Earthwatch Fellowship is an opportunity for relevant people from the science and conservation communities in Africa to join an international scientific research team for two weeks. The Fellowship teaches the scientific methods of the project, and gives the experience of working on a field research team, in an international environment. It is also an opportunity to meet other conservationists and scientists, and to make

important international contacts. It relies on Fellows making the most of the experience by talking to, and learning from, the scientists and other team members in what will often be a very informal atmosphere. The experience is consolidated by enrolment in the Alumni Association, and in some cases, by regional seminars.

In order to select Fellows, Earthwatch works through local partners in their respective countries. The East Africa Natural History Society is the Earthwatch partner in Kenya. From time to time, when Earthwatch is able to allocate a number of Fellowships to Kenya, EANHS assists with the selection and nomination of candidates, and with administration.

THE MALLORCAN THRILL

I was happy when I received the Earthwatch Fellowship to Mallorca, Spain. The location for the project was S'Albufera Natural Park where the Earthwatch team was involved in the monitoring of biodiversity. A great deal of work was done during the project which covered various fields of research: ecosystem studies, biodiversity studies, monitoring, park management, interpretation and education, and programme development. We also managed to establish a baseline of the marine biota of the park. Many of the activities overlapped and the various fields of research were interconnected. The project had a holistic programme which fitted into the objectives of the S'Albufera Natural Park. Each volunteer had a chance to participate in each activity.

Description of the project activities

The following is a brief account of the work done, which I personally participated in:

Mammal population studies (leader: Rob Strachan)
The team members assisted in setting traps and making records of captured animals. This formed part of the ecological studies of small mammals.

*Abundance and distribution of the orchid *Orchis palustris** (leader: Nick Riddiford)
This involved counting the number of *O. palustris* to determine the density. A very high density of approximately 700 individuals in the park was recorded.

Herbarium development and curation
We assisted in changing the herbarium material in the plant presses as required.

Bird transect counts (leader: Nick Riddiford)
This was usually done in the early morning. We covered four 25 m transects, each covering different habitats. The bird species were identified and counted using either sightings or calls.

Microlepidoptera studies (leader: David Agassiz)
Moth caterpillars were collected from white poplar trees *Populus albus*, and other plants to monitor the emergence of moths and parasitoids and also study the

relationship between the moths and parasitoid populations.

Distribution and abundance of Odonata in relation to habitats (leaders: Rob Strachan, David Agassiz and Nick Riddiford)

On the calm and sunny days we did dragonfly and butterfly counts along 5 m transects (six or nine transects in different habitats within the park.

Aquatic invertebrate communities in relation to water quality (leader: Michelle Chapman)

This involved collecting water samples from 15 different sampling points in the park and then identifying the invertebrates present. This was a way of assessing water quality.

Marine biota baseline (leader: Emma Whittingham)

The different types of marine flora and fauna were collected randomly at the marine site to establish a baseline of the marine biota found in the area around the park.

Systematic light trapping for moths and insect reference collection (leaders: David Agassiz and Nick Riddiford)

Moth traps were usually set out at night and different specie captured were counted and new species mounted in the reference collection.

Participating in all these activities reminded me of my MSc Biology of Conservation course, but done in two weeks!

Knowledge I gained from participation in the project

This was my first time to travel out of my country. A number of the things I did during the project were also firsts for me, e.g. cycling (before going I had to learn to ride a bicycle) and mountaineering. Some of the activities I had expected, but some I had never imagined.

The project was quite helpful as I am also in the team of researchers at the Kenya Marine and Fisheries Institute that has been doing an inventory of the Mida Creek biodiversity. This project, funded by the Kenya Wildlife Service (KWS) is aimed at providing vital information for the management of the Watamu Marine Park of which the Creek is part. During the project I improved on identification of birds, insects, plants, etc. The identification of marine biota and aquatic invertebrates covered my area of work as a marine biologist and has greatly improved my working skills. I will share this knowledge with my co-researchers, e.g. using aquatic invertebrates in water quality assessment.

There is no doubt that my appreciation for nature has increased and on any excursions I will encourage those accompanying me to appreciate nature too. I have also gained confidence in working with people from other countries and improved my international relations.

Other experiences from the project

While on the project I was able to make new friends and contacts with the team members, park staff and visitors

residing both inside and outside the S'Albufera Park. I was glad I met them and it was quite interesting to hear about their counties, and I was happy to exchange stories with them about Kenya. Everyone was quite helpful and entertaining, I never felt a stranger and was very at home. The park staff were also kind and caring and made us feel at home—I even had my first ever horse ride on the park horse "Brullo". The weather was most of the time just like home—sunny.

During our excursions, with I enjoyed very much, we visited the beautiful Monasteries and had spectacular views of the sea and country up the mountains. The mountaineering was exciting, especially when we went up the mountains searching for the midwife toad and even managed to find the tadpoles—I was thrilled! The sheep and goats with bells around their necks and the countryside covered with olive trees and pinewoods were intriguingly different from Kenya. Our visits to the markets (in Sa Pobra and Alcudia) were exciting too, with such a variety of things; I had a good time shopping and met other people from Africa.

The meals we had were all delicious and I was able to taste some of the Spanish and traditional Mallorcan food. I even managed to copy some of the recipes. I learnt a few Spanish words, even species names. Our encounters with the tourists was interesting too as they had many questions to ask and I learned some German words too.

On the second day after our arrival we were lucky to have a journalist to interview the Principal Investigator, Nick Riddiford and the man who stated the idea of the park, Max Nicholson. For the first time I had my name and photograph in a newspaper.

At one time Rob had a mystery for us to solve. One day when he came from the mammal traps, he found that one mouse had gone into the trap, but five came out! One of the captured mice had delivered in the trap! This was amazing.

There were other adventures as well, like watching owls at night, visiting bat caves and many more wonderful things—truly thrilling experiences.

Evaluation of the project

I must say that there was nothing I did not like about the project. The only disappointment was when some of the team members had to leave early. Otherwise, I enjoyed every moment working on the project (and I was sad we it was all over). It was excellent and everything was well organised and ran smoothly. The right moment, right place and right team—it was great!!!

I was highly impressed by the immense knowledge of the Principal Investigator, Nick Riddiford and about the park and conservation issues. I was impressed by all the other scientists and volunteers in the team, too.

Participating in the project was one of the best things to happen in my life.

Esther Fondo, KMFRI, P.O. Box 95832 Mombasa, Kenya

BOOK REVIEW

A Guide to the Seashores of Eastern Africa and the Western Indian Ocean Islands, Matthew D. Richmond, Editor. Published by SIDA, Department of Research Cooperation, SAREC. All proceeds to the SEA Trust. Price about Kshs.1,800 in bookshops, available to members at a discount from the East Africa Natural History Society office.

This wonderful new book has given a new dimension to any outing at the coast. Now at last we can identify the astonishing diversity of life at the shore, from the sea strand to beyond the reef.

A Guide to the Seashores of Eastern Africa is many books in one: first and foremost it is a field guide to the living things of all seashore habitats. I could wax ecstatic over the 154 (yes, 154!) pages of colour illustrations by Ann Alexander and other gifted artists, ranging from mangroves to sea grasses, from sea slugs to sand dollars. The pictures of corals, sponges and sea anemones are particularly outstanding, showing the animal colony in its living colours, the fish most often associated with it, and black and white detail of the hard skeleton built by the coral polyps. Indeed, throughout the book the illustrations give more than just a picture of an animal or a plant—they also often indicate its habitat, other creatures associated with it, and details of its anatomy needed for identification.

A delight of the book is that it covers groups neglected by many field guides—worms, smaller crustaceans, sea squirts, coralline and encrusting algae, lichens, even plankton are here in colour and detail. Now you can identify everything! Well, nearly everything. Naturally, in a book of this wide a scope, only the commonest, most characteristic or most outstanding species in each group have been included. The book probably features more crabs and prawns than you might expect, and perhaps fewer fish. However, the representative families and most of the common species in our area are there.

This is a book I had been waiting for: the familiar creatures of countless walks and swims seemed to leap out of the brilliant colour pages. I remembered trying to identify what I had seen, poring for hours over a motley assortment of references: old editions of the *Journal of the East Africa Natural History Society*, magazine articles, American field guides, worn photocopies of *A Natural History of Inhaca Island, Mozambique*. Now the living things of our East African shores have all been brought together between the covers of this book.

A Guide to the Seashores of Eastern Africa is also a textbook and an encyclopaedia. Each phylum of living things is introduced by a summary of its classification, morphology and life histories, written by a battery of experts from Africa and Europe. A glossary explains the scientific terms used in each group. The book's opening pages cover the geology, climate, tides, currents, and coastal habitats of Eastern Africa, with excellent maps. There is a section on the people of the coast and

their activities, from traditional boats to pollution. At the back, the appendix includes explanations of scientific terms and an impressive bibliography.

A review would not be complete without some criticism. My main complaint is that the scale of each page of illustrations is not immediately obvious, and since the coverage ranges from plankton to whales, it can be a bit misleading. The size can usually be found in the text on the opposite page, but who reads the text when the illustrations are so gorgeous! Well, of course it is important to check the habitat and distribution, and often it will be necessary to read the description to confirm identification. Leafing through the illustrations, I could not find the small hermit crab with green and orange stripes that is common in very shallow water on Kenyan beaches. When I am at the coast I shall try the scientific descriptions to pin it down, as the colours of sea animals vary with seasons and regions, and I found the pictures of stinging coral and box crab much greener than the ones I have seen. It would also have been useful to have toxic species flagged with a bright marker, since the section on coastal dangers and treatment is tucked away in the introduction.

The scientific names and terminology in the text are a bit daunting. It's true that there are glossaries, and that the few English names for these marine creatures have usually been included. However, the text would be more user-friendly if the common names of the families (such as "Violet shells") stood out in bigger and bolder text. Perhaps, now that we have *A Guide to the Seashores of Eastern Africa*, members can collect more Swahili or coastal names of these living things, and add to our knowledge of the world at the edge of the sea.

Fleur Ng'weno, c/o P.O. Box 44486, Nairobi Kenya

APPRECIATION

GURNER CUNNINGHAM VAN SOMEREN, 1913–1997

Van Someren is a Dutch name. In the last century, however, a family of van Somerens became British. By the time that Vernon (or V.G.L. as he was known) van Someren joined the British East Africa Protectorate Medical Service in 1910, these van Somerens were Cunningham van Somerens and as Scottish as Meinertzhagen was English. Gurner (or Chum) Cunningham van Someren, whose memory we honour here, was the first of seven children born to Vernon and Elizabeth van Someren, and outlived them all.

As a good Scot, Chum was educated at Herriott Watts and attended an agricultural college. One of his first undertakings on returning to Kenya in 1933 was to build the house on Miotoni in which he lived for the rest of his life. His early employment was varied. Among many things, he laid the original Karen Estates water pipelines and helped build the Karen Golf-course. As an employee of the Nairobi Municipal Council's Health Service, he

was briefly Nairobi's head rat-catcher. In the late 1930s he joined Pest Control (a Quin Geering company that was the forerunner of Fisons) with whom he remained (with the exception of war service in the Royal Army Medical Corps in Ethiopia and Somaliland) for the remainder of his official working career.

In 1938 he met Eleanor MacDonald whom he married in 1940 and with whom he had two sons. Fisons and even more, Eleanor, steadied Chum somewhat: as employers and wives usually do.

Eleanor MacDonald was born in Uganda, but educated in Scotland. Aged 18 and having passed her Scottish 'highers' she returned to East Africa. Joining the Medical Research Laboratories and despite no formal training, she was quickly established as a technician in the pathology section. Later she switched to entomology which became her forte, developing into a world authority on African mosquitoes. In recognition she was awarded an Honorary Doctorate by Burnell University. Not only was Eleanor Chum's loving helpmate, but her first class brain kept up with and stimulated Chum's own scientific research.

After the war, Chum grew a beard which was always well groomed and Chum was quite vain about it. It wasn't until after several intermittent stays in the Gezira cotton project in the Sudan between 1963 and 1968, where it won him high praise from his Arab colleagues, that he refused to trim it and it evolved into the wild, greying, prophet's growth so well known to many of us.

In his career Chum van Someren was a hard-working company man who concentrated upon insect pests, but could turn his hand to anything, going further than most company men would hold reasonable. Many of the experiments on plants undertaken for Fisons were carried out on his own property at Miotoni. Characteristically, when he did something, he undertook it without reservation, throwing everything into finding the right answer.

Then there was the other Chum: van Someren the naturalist. In this he followed his eminent father's footsteps. With a Victorian's insatiable curiosity, throughout his life he was fascinated by nature and never ceased to marvel at the life about him. Over the years he became a veritable encyclopaedia, not only on Africa's natural history, but the whole planet's. And he gave out his knowledge freely and enthusiastically. Anyone who asked was given whatever he knew in full measure.

Chum was a compulsive note-taker and diarist. He wrote many papers, though they were fewer than he might have produced, given the information at his disposal. He did not write up all his material because his primary interest was discovery and not reporting. He was one of those whose interest was doing and not the fame of having done.

After a professional career dominated by entomology, when he left Fisons he became the National Museums of Kenya's ornithologist. When he retired for the second time, the Museum made him *Ornithologist Emeritus*. While he loved all nature, his work with birds pleased him best and gave him greatest satisfaction. He, and his father V.G.L. van-Someren, were outstanding naturalists,

contributing more than any other two men this century to East Africa's ornithology and entomology.

Summing up: Chum was a man who could have, some would say should have, been better known than he was. He was charitable, liked people and had a loving family. Without question he benefited his fellow humans, lived a long and happy life, and shared this happiness with others. His time was well used. Chum knew his sands were running out. The way he put it to me three days before his death was "I have written my last paper." He is now gone. That he be mourned is inevitable and right. Yet it was the nature of the man to prefer being remembered, not with a tear, but a smile between friends with noggins in hand, recalling incidents past. He was not religious. Chum marvelled at Nature, saw it as a grand act of creation and mystery immensely beyond human comprehension—which is where he left it.

Ian Parker, Langata

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COMMENT

Nairobi was mostly forest a hundred years ago. A thick belt of forest lay between the grasslands of the Maasai people and the cultivated hills of the Kikuyu people. To build the city, the forest was cut down. The colonial government claimed forest as Crown land, and allocated it as needed for the city's infrastructure. Most of us in Nairobi live on former forest land.

Three large patches of forest were retained, managed by the Forestry department: Karura Forest adjacent to Limuru and Kiambu roads; Ngong Road Forest between Langata and Ngong roads; and the forest in Nairobi National Park. Rainfall ranges from much higher in Karura, in the middle in Ngong Road Forest, to much lower in the Park. The three forests therefore have different plant communities and bird life, and together form a very rich reservoir of biodiversity.

Ololua Forest, in Kajiado district but adjoining the City boundary, completes the picture of the remnant forests of Nairobi.

At Independence, Crown land became State land, but it continued to be parcelled out for public use or private development. Large areas of forest, including Karura, were given out to people connected to the administration of President Kenyatta. Windsor Hotel, for example, is built on South Kiambu Forest land. Even the UNEP and ICRAF headquarters are built partly on Karura Forest land.

Today, there is much less State land available for allocation. Therefore schools, hospitals, agricultural show grounds and private developers turn to forest land as their last source of "free" land. All the forests in Kenya currently face immense pressures. Landless people, migrants from overcrowded areas, public utilities and political supporters all want more and more land. Meanwhile loggers and sawmillers try to harvest as much timber as they can today.

Karura Forest was apparently divided in two by the Government a few years ago. One half, containing the finest stands of indigenous forest and the Forestry Department headquarters, remained as forest. It is now protected from further allocation by a title deed.

The other half, which contained some indigenous forest, some plantations of exotic trees, and

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some grassland and wetlands, was given out. However, this was not reflected in excision notices in the Kenya Gazette. Those who had bought the land started developing it, thinking their titles were in order. The public continued to think that the whole forest remained gazetted.

In September 1998, forest destruction reached the road, and the "forest hotline" at the Kenya Forest Working Group began ringing. The print and electronic media followed the story and brought the damage to the forest to the public's attention. As part of a public outcry, groups of environmentalists set out to plant trees on the cleared land. They were joined by opposition politicians. At the construction site there was a confrontation, and some of the buildings and equipment went up in flames.

Was it a dramatic indication of how much people have become environmentally aware since the Earth Summit—the United Nations Conference on Environment and Development—in Brazil in 1992? Or was the environmental bandwagon hijacked by politicians for their own ends? Will protesters also confront bhong growers in Mount Kenya forests, sawmillers in South Nandi forest, wood carvers in Arabuko-Sokoke forest, cattle keepers in Kakamega forest and landless settlers in Mau forests?

Forests are a tiny fraction of Kenya's land area, but contain nearly half of its biodiversity. They are vital water catchments, stabilise the climate, serve as carbon sinks, and are sources of food, fodder, building materials, medicines, ornaments, recreation and inspiration for people now and in the future. All of Kenya's forests need to be conserved and cared for, and all are under threat.

Protecting forests will require action in legislation, education, enforcement, benefit-sharing and many other areas. Environmentalists need to keep politicians and other decision makers well informed about the values of forests and the dangers they face. Let us hope that the outcry over Karura is an indication that Kenya's people really care about their forests.

Fleru N'gweno, Honorary Secretary

ARTICLES

A BOTANICAL SURVEY OF ROCK SLABS AND SEASONAL WETLAND HABITATS IN NAIROBI NATIONAL PARK

INTRODUCTION

Nairobi City and its environs lie within a once active volcanic zone. At many places volcanic tuff, a porous rock which is a favourite building stone, is observed (Morgan, 1967). The region south of the city, including parts of Nairobi National Park, is a borderline between dry evergreen forest and savannah grassland vegetation, with scattered rock outcrops and seasonal springs. The rock slabs form a unique habitat, consisting of rock surfaces with small pockets of soil in the rock crevices. During the rains, water fills shallow depressions in the rock slabs, soaking the soil. The various microhabitats on the rock slabs support a wide range of plants adapted to extreme conditions: flooding during the rains and drought during dry seasons.

Rock slab habitats are colonised by plants very sensitive to seasonal weather changes. With rains, the rock surface collects water, soaking the shallow soil layer. Plants dominating the slabs are adapted to respond quickly to the water available for optimum growth. For example, in the months of March and October, early season showers induce flowering among cryptophytes such as *Drimia calcarata*. The flora of rock slabs is therefore specialised and unique.

In Nairobi, most rock slab habitats are on private land and deemed suitable for infrastructural development. Their plant communities are therefore doomed. Information on the distribution and conservation status of rock slab plant communities in the Nairobi area would thus contribute to informed decision-making in the management of biodiversity.

A survey of rock slab wetlands at the proposed Biodiversity Park, a privately-owned plot near the

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Carnivore restaurant, adjacent to Nairobi National Park, revealed an interestingly rich plant diversity, including rare and endangered species (Muasya & Ojiambo, 1995). Interesting plant species include the endemic and endangered *Euphorbia brevitorta*, and the rare *Brachystelma lineare*, *Drimia calcarata* and *Crassula* sp. A (*sensu* Agnew & Agnew, 1994). However, this site, its habitats, and its rich plant diversity are on private land and the future is uncertain—at the mercy of the landowners.

A number of questions arose which stimulated the present study. Were there similar rock slab habitats in the adjacent Nairobi National Park? Were such rock slabs dominated by similar plant communities? What was the distribution of the rare and endangered plant species in the Park?

MATERIALS AND METHODS

Field studies were conducted between March and July 1995, in cooperation with the Kenya Wildlife Service. Transport inside the Park was provided by KWS. Five field visits were made, first driving to various rock slab habitats to locate sites with at least one of the target species. Sites with target species were noted and herbarium specimens prepared. Initial field naming was completed at the East African Herbarium of the National Museums of Kenya. Notes were made on the target species present, their density, phenology and population size. The population size was estimated by sight.

FINDINGS AND DISCUSSION

Four sites were identified as containing populations of the target species (figure 1):

- *Euphorbia brevitorta* and *Drimia calcarata* were found at site A, situated east of the Park headquarters, overlooking the Carnivore restaurant and the Army barracks.
- Several populations of *D. calcarata* were found at sites B1 and B2, near Impala Point.
- *Crassula* sp. A grew in the seasonal pools at site B, near Kampi ya Ndogo, and site C, beside the Kisenbe Valley Circuit.
- *Brachystelma lineare*, the fourth target species, was not found.

Euphorbia brevitorta

This plant is described in Agnew & Agnew (1994) as "a densely tufted succulent with short, unbranched spiny-winged stems from a fleshy tuber" and listed as "rare in rocky dry bushland". It had previously only been collected from the rock slabs on the privately owned plot near the Carnivore restaurant, Kajiado and Nyeri. According to Heriz-Smith (1962) it has reportedly been sighted in Nairobi National Park. The present status of *E. brevitorta* in Kajiado and Nyeri is very uncertain.

During the survey, about 250 clumps of *E. brevitorta* were found in Nairobi National Park. They were concentrated within about 40 square metres in an area of rocky dwarf bushland, east of the Park headquarters and northeast of the water pump (site A). This area overlooks the Carnivore restaurant, and is part of the same hillside as the privately owned plot where the species had first been collected.

E. brevitorta was not found on other rocky outcrops in the Park. Its distribution is thus limited to one hillside, with one population in the Park, and one outside. We recommend that site A on the map be marked and strictly protected to preserve this endemic species.

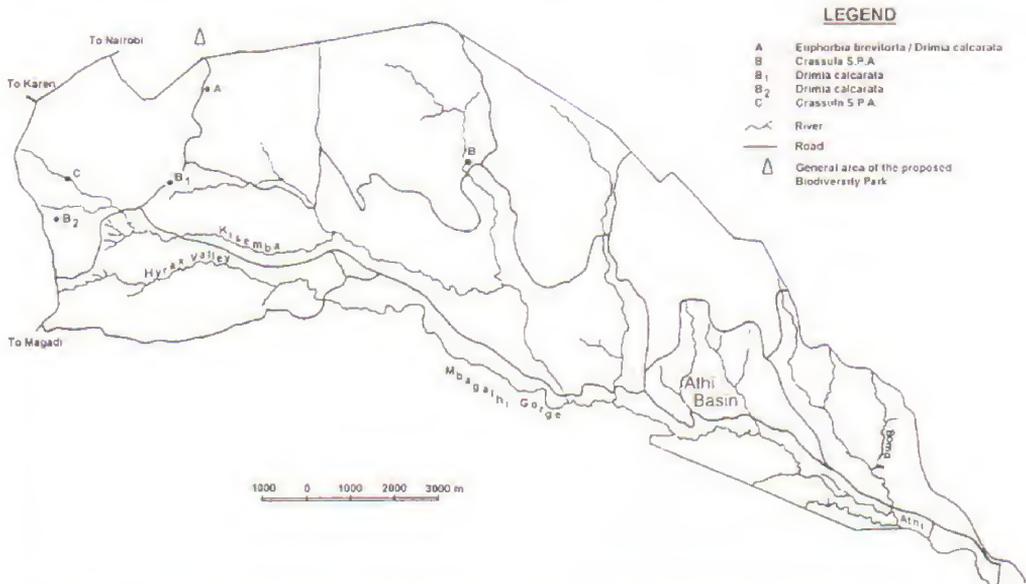


Figure 1. Map of Nairobi National Park showing sites where the target species were found.

Drimia calcarata

This is a delicate little lily, with a single stalk arising from a bulb wedged between rocks, its raceme of white flowers opening in the afternoon. Agnew & Agnew (1994) list it as "local and rarely collected in rocky shallow-soil grassland, known only around Nairobi". A number of sites where *D. calcarata* once grew on Nairobi Hill have since been converted to high-rise buildings and housing estates.

Several populations of *D. calcarata* were seen at sites B1 and B2, on a rocky area beside the escarpment track, not far from Impala Point. It was also found at site A. There were up to 350 tiny plants counted at each site. Outside of Nairobi National Park, the plant was noted along Forest Edge Road near the Bomas of Kenya, at IUCN's Wasaa Conservation Centre, and along Bogani Road between the East African Catholic University and the Magadi Road.

Although several sites were found, the distribution of *D. calcarata* is very local. Rocky outcrops where this plant is found should be marked and protected.

Crassula sp. A

This is a small plant of seasonal wetlands, described by Agnew & Agnew (1994) as "a trailing, possibly annual herb with ascending or erect stems; leaf linear; flowers solitary, pink to white. Locally common in ephemeral pools" in Nairobi and Machakos districts. It is probably also found in rock pools in Kajiado District.

This tiny *Crassula* was recorded at two sites: B near Kampi ya Ndogo and C beside Kitembe Valley Circuit, growing in ephemeral pools. The population of the species at each site was large, especially at Kampi ya Ndogo, but the distribution is very local. We recommend that seasonal pools containing this species be marked and given protection.

Brachystelma lineare

This species is listed by Agnew & Agnew (1994) as "rare in shallow-soil grassland around Nairobi". It flowers sporadically in the rainy season. The leaves are grass-like and the flowers smell of cow dung. It was not found during the survey, and its status therefore remains uncertain.

Professor L. E. Newton of Kenyatta University notes that the plants from the "proposed Biodiversity Park" site may be an undescribed species of *Brachystelma* (personal communication).

CONCLUSION

Within Nairobi National Park, three of the four target plant species were found growing in certain rock slabs and seasonal wetland habitats. The distribution of these plants is very local and their habitats are small in area and often next to roads and tracks. The plants themselves are small and may be overlooked in the dry season. These habitats can therefore easily be destroyed by road construction and/or other development activities, even

within the Park. We therefore recommend that the sites containing the rare plants be marked on Park maps and given strict protection to save the few remnants of these unique habitats and species.

Outside the Park, the rare plants and their habitats are not secure, because they are on private land that may be developed at any time. The proposed Biodiversity Park on the plot between Nairobi National Park, the Carnivore restaurant, and the Army barracks, has a unique hydrology and diverse microhabitats rich in plant diversity. It should also be conserved to protect its biodiversity for present and future generations.

Acknowledgements

We are grateful to KWS for allowing us entry into the Park and providing transport within the Park. A report has been given to KWS.

Abraham M. Muasya, Fleur Ng'weno and Laban O. Ojiambo

c/o Nature Kenya, P.O. Box 44486, Nairobi

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PROJECTS

KIPEPEO PROJECT WINS INTERNATIONAL PRIZE

On 5 October, 1998 the Kipepeo Project was one of ten (out of 470 projects nominated from more than 40 countries) to receive the Dubai International Award for Best Practices in Improving the Living Environment. The Dubai Award was established under the directive of H.H. Sheikh Maktoum Bin Rashid Al Maktoum, Vice President, Prime Minister of the United Arab Emirates, and Ruler of Dubai, during the 1995 UNCHS/HABITAT conference in Dubai. This conference adopted what is known as the Dubai Declaration which, among other things, set down clear criteria for the recognition of best practices. These are initiatives which have demonstrated a tangible impact on improving the living environment for the benefit of humanity, and which are worthy of dissemination on a global scale. The Dubai Declaration was subsequently adopted by the Second United Nations Conference on Human Settlements (Habitat II Conference in Istanbul, Turkey in June 1996. The first six Best Practices Awards were presented at this conference by the then Secretary General to the United Nations, Dr Boutros Boutros Ghali.

The Kipepeo Project was nominated by UNDP Kenya in May 1998 and was one of 40 projects short-listed for the Award by a meeting of technical experts hosted by the City of Vienna from 7-10 July. It was subsequently chosen for the Award by an independent international Jury of eminent persons on 26 July. The other Award winners were from Zuhai (China), Medellin (Columbia), Cairo (Egypt), Vera Cruz (Mexico), Surat (India), Dar-es-Salaam (Tanzania), Naga City (Philippines), Malaga (Spain), and Kennesaw (USA). With the exception of Kipepeo, all the award winners were urban or industrial initiatives, reflecting the close connection of the Award with the problems of cities and urban areas. Kipepeo broke new ground as the first award winner to connect human settlements with biodiversity conservation.

A common theme for all the award winners was the belief, expressed in action, that practical solutions to difficult environmental problems can be found. For example, Surat, a city devastated by plague in 1994, was transformed in the space of 18 months, into what has been judged as the second cleanest city in India, with major reductions in the transmission of infectious diseases through participatory planning, proper waste management and improved water supplies. Looking ahead to the next century, Interface Inc., in Georgia, USA, offers a model for sustainable industry in the next century, through its detailed attention to recycling, waste reduction and renewable sources of energy, saving US\$ 50 million since 1994 and showing that green policies pay economic dividends.

Each of the winners gave a presentation at the Dubai

Awards Seminar on the day before the Award Ceremony. They were asked to concentrate on impacts, success factors and the lessons learned. The following an edited copy of the presentation given by Dr Ian Gordon, the founder and outgoing manager of Kipepeo. The project was also represented at the Award Ceremony by Washington Ayiemba, Dr Gordon's counterpart and the incoming manager of the project.

CONTEXT AND PROBLEM

The majority of human settlements in Africa are in rural areas. Some of these settlements present special problems and opportunities because they are adjacent to habitats of global conservation importance. The settlements around Arabuko-Sokoke Forest on the north coast of Kenya are a good example of such a situation. Arabuko-Sokoke is one of the last surviving remnants of a coastal strip of forest that once stretched from southern Somalia down to northern Mozambique. It harbours six globally threatened bird species, four threatened mammals and unknown numbers of other threatened species. It is one of the most important forests in Africa for bird conservation and is under consideration as a World Heritage Site. Around 90,000 people live in the 12 administrative sub-locations that surround the forest and about 5,000 live in approximately 400 households immediately on its borders. The Kipepeo Project currently works with about a third of these households.

Despite the proximity of the forest to the relatively prosperous tourist resorts of Malindi and Watamu, famous for their beaches, fine hotels and big game fishing, the people around the forest have desperately few resources. Their per capita cash incomes have been independently estimated at between thirty and fifty dollars a year. They survive by what they can grow on their farms, with the major crops being maize and cassava, supplemented by coconuts and cowpeas. Illegal hunting for small game in the forest provides much-needed protein. A once thriving cashew nut industry is now in serious decline. Social services in the form of schools and clinics are meagre and severely under-resourced. Traditional cultural attitudes and practices do not favour women with respect to access to education, other resources and free time.

In such a situation, there is understandably little concern in the local communities over the conservation of Arabuko-Sokoke Forest. Instead, the forest is seen as the source of many of their problems. In 1991, 96% of the farmers were unhappy with the forest and 54% wanted it completely cleared for settlement. The following quotes give a good impression of community feelings at that time: "This is Government's forest, you cannot get inside, if you are caught there with even a grass twig you are arrested"; "You receive a thorough beating even when goats are found browsing at the edge of the forest"; "It is not useful to me but to the Government because it benefits from it"; "Elephants have made us poor here"; "We don't plant here because

of elephants"; "The land is frustrating because whatever you plant is destroyed"; "Those of us who live near the forest endure a lot but this is unknown to the authorities"; "It [the forest] is a saving for farm land".

To anyone working with communities and conservation in the developing world, these will be familiar themes: poverty, resource denial, wildlife crop-raiding, and hunger for land. The time has long since passed when such problems could be brushed aside by the rhetoric and spectacle of glossy wildlife magazines, movies and videos. The human settlements on the margins of protected areas cannot be wished away or their needs ignored. To always put wildlife before people is not only fundamentally inhumane, it is also counterproductive as a conservation strategy. It is a potent recipe for conflict between local communities and wildlife managers. This conflict wastes time, energy and resources, prevents collaboration with those who could be valuable allies, and gives dangerous political leverage to those opposed to conservation.

It is now widely recognised that conservation must go hand in hand with development. This approach is hard to implement but it is based on a strong foundation of common sense. It recognises that the future for conservation is bleak if rural communities do not support conservation efforts in their areas. It recognises that poverty destroys biodiversity as well as human lives. It recognises that if we want the people around Arabuko-Sokoke Forest to support its conservation, they have to benefit from it. And they have to benefit sustainably, in ways that do not harm the forest.

This then was the problem that had to be addressed: how could the forest edge community benefit from its presence in a sustainable way? The East Africa Natural History Society (EANHS) in partnership with the National Museums of Kenya (NMK), found a surprising and innovative answer—butterflies. There was a considerable demand for tropical butterflies for the live butterfly exhibit industry in Europe and America. If the Arabuko-Sokoke butterflies could be reared for export, then substantial revenues could be earned by the forest-edge community without a single tree needing to be cut.

Initial funding for the project came from a US\$ 50,000 grant from the Global Environment Facility Small Grants Programme, administered by UNDP. Further support has come principally from the Chicago Zoological Society, the Netherlands Committee-IUCN Tropical Rainforest Programme, and the BirdLife International Arabuko-Sokoke Forest Conservation and Management Project funded by the European Union.

SUCCESS FACTORS

The key contributing factors to the success of the project were (i) partnerships, (ii) market conditions, and (iii) simple and appropriate techniques. The partnership between EANHS and NMK is long-standing and is greatly strengthened by the sharing of personnel at a senior level. As a local NGO, EANHS was able to act

quickly to implement the project at a grassroots level in a flexible manner, entrusting decisions on the ground to a project manager with appropriate experience. As a parastatal, NMK provided technical and financial resources that a local NGO acting alone could never have commanded. The contribution and involvement of other partners in the project was also crucial. A Memorandum of Understanding between the Kenya Wildlife Service (KWS) and the Forest Department (FD), backed by a national policy that encouraged sustainable biodiversity utilisation, eased the way for the issue of forest licenses and wildlife export permits. The financial benefits for the local community ensured their participation and the co-operation of local government officials, aided by a clear procedure for project approvals at District level. All of these factors together created an enabling environment for the partnerships that have underpinned the success of Kipepeo.

The importance of market conditions for the project is obvious. Without the demand for African butterflies for the live butterfly exhibit industry in Europe and America, Kipepeo could not even have been conceived. Although this industry had been established for some time, most livestock had come from Asia and South and Central America. Butterfly exhibitors were eager to get new species and there were no large-scale suppliers of butterflies from Africa. There was therefore a vacant market niche. Access to this niche was facilitated by the relatively good communications and transport facilities that exist in Kenya, including telephone, fax and email links and the proximity of the project to international courier facilities in Mombasa.

Simple and appropriate techniques for rearing butterflies ensured that farmers could be trained quickly and provided with the requisite material inputs. Rearing procedures for caterpillars could be boiled down to three simple rules: keep clean, keep safe, keep fed. Basic equipment consisted of plastic containers (old margarine and cooking fat tubs) and mosquito-net bags, together with butterfly nets and traps. Local knowledge of forest trees and plants meant that appropriate foodplants for the different butterfly species were easily recognised and remembered. Two other factors contributed to the rapid adoption of a butterfly farming: quick rewards (four-six weeks from butterfly egg to the finished product) and flexible input of time and effort (from less than an hour a day to a full time activity, depending on commitment).

PROJECT IMPACT

The initial GEF grant was received in June 1993 and the first export went out in February 1994. By the end of the year Kipepeo had netted almost 16,000 US dollars in export earnings, and the forest edge community had earned over 250,000 Kenyan shillings (ca. US\$ 4,000). By 1997, these annual earnings had risen to over US\$ 37,000 and KSh 800,000 respectively. By August 1996, cumulative export earnings had exceeded the

amount of the original grant, and in the following month total community earnings had topped KSh 1,000,000. Early in 1998, the US\$ 100,000 and KSh 2,000,000 milestones were passed. Markets have expanded from one UK client in 1994 to 7 in Brazil, UK and the US in 1998 and the number of butterfly species exported has risen from 14 in 1994 to 32 in 1998.

Surveys were conducted on the target community before the project began in 1993 and again in 1997. The 1997 survey found that the project had had significant impact on both attitudes and incomes of the participating farmers. The proportion wishing to conserve at least part of the forest had risen from 41% in 1993 to 84%, and butterfly earnings were estimated to contribute some 73% of farmer's cash incomes from farm products. These figures may however have been influenced by the respondents desire to please, and need to be independently validated. The African Wildlife Foundation (AWF) will do this later this year (1998) using more sophisticated techniques.

A more concrete demonstration of impacts on attitudes has emerged from the farmers' actions, which have helped to influence land use policy at the local and national level. Part of the forest has been threatened with excision and was invaded by squatters in 1994. Some of the Kipepeo farmers protested to the local District Commissioner against this development. One of the Kipepeo Self-Help Groups (formed with the assistance of the project) delivered a protest letter to a Presidential Commission, when it visited to investigate the matter. In December 1997, a spokesman for the farmers went to the press, saying in the *Daily Nation* that the forest should be left alone and that any excisions would deprive them of their butterfly farming income. President Moi has now made it clear that there would be no excisions at Arabuko-Sokoke.

Kipepeo has also contributed to awareness raising about the forest and its global biodiversity significance. Two short videos on the project have been broadcast on international television (one on more than 80 different TV channels worldwide), and radio interviews have been aired on the Kenya Broadcasting Corporation and Studio Brussels. There have been numerous articles on the project in magazines and the national and international press. Talks on the project have been given in Kenya, Britain, Costa Rica and the US. One of the American exhibits which purchases Kipepeo butterflies (the Philadelphia Academy of Sciences) also features photographic and textual displays on the forest and the project and two more will do so in 1999. Over 4,500 local and international visitors to the project have learned about the forest, and 17 Wildlife Clubs have been established by Kipepeo in forest adjacent schools. More than 30 school, polytechnic and university groups have also visited the project.

Contributions to capacity building have included community training in butterfly farming and in the organisation and running of Self-Help Groups, linguistic training for Kipepeo guides, overseas training in Conservation Biology at the University of Chicago, and supervision and assistance in obtaining funding for

postgraduate degrees (one MSc and two PhDs) for two Kenyan scientists.

LESSONS LEARNED

Some of the lessons learned relate to the success factors described earlier: the value of partnerships, the importance of market conditions, and the simplicity and appropriateness of operational techniques. Others relate specifically to the technical aspects of rearing butterflies. The following lessons are additional:

- **Business Skills.** No-one on the Kipepeo team had any formal business skills, and this led to weaknesses in financial management, commercial negotiations and marketing and promotion. Cash flow problems and bad debts were mishandled, particularly in the early years when almost \$ 4,000 was lost when a client went bankrupt. For almost two years the project had only one market outlet. These mistakes would have been avoided or lessened if professional business support had been available from the beginning. Kipepeo now has a financial and small business advisor, a Japanese volunteer, and is receiving further assistance from the Community Economics and Commerce Programme (CECP) of the African Wildlife Foundation (AWF).
- **Community Response.** At the beginning of the project there was skepticism from some quarters as to whether small-scale farmers from a conservative ethnic group would take up an activity like butterfly farming. Yet once the first farmer had received money for the first butterfly, we had problems in keeping project recruitment to manageable levels. If an idea works and if it brings quick rewards with little effort, it will be adopted even when it is culturally bizarre.
- **Attitudinal Impact.** There are signs of a backlash against the community and development approach to building local support for conservation. The only way to properly evaluate this issue is through careful before and after surveys. The 1993 and 1997 surveys of the Kipepeo farmers were therefore vital, but more sophisticated techniques are available now than the straight-forward questionnaires that were used. With the assistance of the AWF CECP, these will be used to test the conclusions of the 1997 survey.
- **Project scale.** Kipepeo is a small project facing a big problem and it is painfully obvious that it cannot resolve the complex issues of community-forest relationships on its own. Yet its impact relative to input has been significant. A much larger earlier project at Arabuko-Sokoke, backed by millions of dollars of bilateral aid, collapsed without any benefits to the local community when funding was withdrawn after a three-year planning phase. Kipepeo is a paradigm for thinking globally and acting locally, and big donors should find more ways to support small projects.

- Community groups and individuals. When the project started Kipepeo worked directly with individuals. Subsequently, to ease operations, and under donor pressure, the farmers were assisted to set up Self-Help community groups. These have not been successful, partly because they were artificial but also because the officials abused their positions. This experience has raised unresolved questions as to which approach is best. Should donor thinking on this issue be re-examined, or did we do it wrong?
- The power of novel ideas. If Kipepeo had been a conventional project such as bee-keeping or tree planting, it would never have attracted the attention that it has received, even if the financial benefits to the local community had been far greater. It is a reality that we live in an age of image and sound bite, and we need to make this reality work for the public good. The idea of using butterflies to alleviate poverty and to save trees has considerable public appeal, and it has been enormously rewarding in raising awareness of the plight of Kenya's coastal forests and of the human settlements on their margins. The Dubai Best Practices Award has lifted this process into a new order of magnitude and we are all deeply grateful for the honour.

Kipepeo Project owes a very large vote of thanks to the late Minnie Gitahi for its nomination as a Best Practice.

Dr I.J. Gordon

Manager, Kipepeo Project, P.O. Box 58, Gede-Malindi, Kenya.

EARTHWATCH

THE EUROPEAN SONG BIRD PROJECT IN HUNGARY (19 JULY-31 JULY 1998)

INTRODUCTION

The EARTHWATCH fellowship to participate in the European Song Bird project in Hungary came to me at the right time. For a long time I had wished I could get a chance to go to Europe. The nomination fulfilled my dream and I will live to remember the good time I had in Hungary. I left Kenya on the 19 July 1998 at 11.00 p.m. and arrived at Budapest on the 20 July 1998 at 11.30 a.m. I traveled together with another Kenyan EARTHWATCH fellow, Muok who was very happy to be on a plane for the first time in his life. We were later joined at the airport by Jeffrey, Karren, Jane and Patricia, all from United Kingdom. At 3.00 p.m. we were met and taken to the Ocsa bird ringing camp. At the camp we met Dr Tirbo (principal investigator) who gave us a

warm welcome and introduced us to the Hungarian volunteers in the project. At 4.00 p.m. we joined the rest of the team in the project activities.

DESCRIPTION OF THE WORK CARRIED OUT

The project

The European Songbird Project in Hungary has been going on for 14 years. It aims to mist-net and ring migratory birds. These are birds which spend their winter in Africa and then migrate to spend their summer in Europe. The activities of this project provide information on bird migration and hence lead to a deeper understanding of how birds work, where they go and which habitats should be conserved for their long-term survival.

Project design

There were six 120 m net lines. Each net line was composed of ten 12 m nets. The distribution of the net lines was by habitat. The habitats were as follows: wet reed, dam, dry reed, dead wood with scattered trees, reed edge and forest. This was necessary in order to capture birds in the different habitats. The net lines were at least 50 m apart.

Controlling nets

This was the main activity in Hungary. It started at 6.00 a.m. and progressed the whole day up to 9.00 p.m. In the first week of the fellowship we were guided by the Hungarian volunteers. The activity involved visiting nets at intervals of 30 minutes and extracting birds from the nets. We put the caught birds in bags and carried them to the ringing table at the camp. In the second week of the fellowship we had learned how to extract birds from the nets and therefore controlled the nets without any supervision.

Bird processing

This was mainly done by the Hungarian licensed ringers. They demonstrated how to put a ring on the leg of a bird, the different ring types for birds of different sizes, determining fat content and grading it into different codes. Mould, wing length, tail length, beak length (for some species), toque spots (for some species), weight and other biometrics were also determined. Processed birds were released back to the wild at the ringing table. Young birds were taken back to sites where they had been trapped. Birds processed after 9.00 p.m. were not released until the following morning.

Ringling Sand Martins

Dr Tirbo organized a trip to ring Sand Martins at a salt mining dam. Sand Martins leave their roosts very early in the morning (4.00 a.m.) to start feeding. We erected our nets at 4.30 a.m. and caught 28 Sand Martins. By 9.00 a.m. the activity was low and there was little chance that we would get any more birds. We closed the nets and went back to the camp. At 10.00 a.m. we joined the rest of the group in controlling nets.

Number of processed birds

A total of 47 species were ringed between 20 July and 29 July 1998. A total of 965 individuals were processed with 271 retraps and 694 fresh trappings. Many of the birds ringed were warblers and were mostly caught from the wet reed habitat. The average daily catch was 87 birds. We caught a Moustached Warbler with an Italian ring. I was happy to see some species that are also found in Kenya but during winter. These included Golden Oriole, Marsh Harrier, Nightingale, and many warbler species.

Searching for the Black Stork

We left the camp to look for the Black Storks not seen in the ringing site. We went through forests and plantations for a total of two hours but with no success. We had a nice drive in to the Osca forest reserve. For 30 minutes we provided food to the starving mosquitoes in the forest.

Osca Museum and church

We were taken to the museum to see preservations of the Hungarian culture. We saw a lot of what used to be Hungarian domestic goods (furniture and beds) and houses. I was impressed to see a church that was built in the 13th century. We had a very good view of breeding White Storks at the museum grounds.

KNOWLEDGE GAINED

Project

The European Songbird Project at Osca gave me an experience that I would not have gained else where in the world. I now know how to extract birds from mist-nets. I can ring and obtain important biometrics. I now can determine fat content and tell a bird ready to migrate from a bird that has just reached its migratory destination. This knowledge will be central to studying migratory birds in Kenya and other parts of Africa. As a bird ecologist I will apply the knowledge gained in studying distribution and movement patterns of the Kenyan avifauna. I will use the same to train amateur ornithologists on how to carry out mist-netting. The project gave me an opportunity to closely observe and identify many bird species that would be impossible to identify in the wild. I saw species that I had not seen in Kenya and probably that I will never see again unless I go to Europe. I saw a crane trap that I had not seen before and I believe it would be useful in Kenya. I gained a lot of knowledge from the informal lectures given by the principal investigator Dr Tirbo. He explained how birds migrate, what makes them migrate, where they go and why they have to come back to same sites they came from. The project involved working with people from different parts of the world and I gained a lot from our discussions. I now think better, view the world differently and have more friends than I had before I went to Hungary.

OTHER EXPERIENCES

Weather and day light hours

I had never experienced a summer before. I was very surprised to experience temperatures approaching 40 degrees Celsius in Europe. It was unbelievable. I thought a summer should actually be cooler than any temperature within the tropics. Here the conditions were comparable to what exists along the East African Coast. How do the plants adapt to changes in temperature from below zero during winter to 40 degrees Celsius in the summer? Probably that explains why there is lower faunal and floral species diversity in Europe than in the tropics.

Most striking was the time the day light breaks and disappears. I only used to read that different parts of the world have significantly different day light lengths. In Hungary day light was breaking at 4.00 a.m. and the sun was setting at 9.00 p.m.. I was not used to working up to 9.00 p.m. then saying good night in the day light. So after the day's activities I stayed for around three hours to sleep at 1.00 a.m. I found nights too short, and true to say my sleeping timetable remained offset for the whole time I was in Hungary. I used to get in to my sleeping bag, then in what seemed like 30 minutes I would hear Tirbo's loud voice "control time". That truly meant that it was 6.00 a.m. and I had to wake up to go and control nets.

Meals and drinks

Hungary is a country blessed with a lot of food. Tirbo, the chief chef really took care of us. I saw a sausage the size of my hand. It was not only big but very delicious. It was my first time to eat mushrooms freshly collected from the wild. It was not only the variety but also the style. Everyday food tested different but more delicious than the previous one. I did not have a chance to wait to see their most delicious. I hope such a chance will come another time.

Mosquitoes

This was the most interesting of all the experiences. For two weeks we provided food for mosquitoes. I had to be alert all the time. At least one hand had to be free all the time. They knew no day and night. They were active throughout. They were not the mosquitoes I was used to in Kenya. These were big and very courageous. They pierced through any cloth. They sucked a lot of blood. Good news, they do not have malaria. To survive in Osca eat and drink heavily to maintain your life and that of the mosquitoes.

Language barrier

My stay in Hungary would have been more interesting if the Hungarians could at least speak English. Many of them could not speak or even understand this language. It was my first time to have an experience of using gestures to people who are not deaf. The language barrier was a great problem. It forced me to learn some basic Hungarian to be able to say that there were birds or no birds in the nets.

Hospitality

The Hungarians are very friendly people. They treated us with a lot of respect. They gave us the best of service and always the first preference. They always wanted to learn a lot from Kenya. I taught a number of them basic Swahili and Kenyan Swahili songs. What I saw was good. The people I met were good. If the whole of Hungary is like that then I will always want to visit it.

Seeing the rest of Hungary

There were a lot of interesting features to be happy about in Hungary, for example, going to Osca village museum, driving in the Osca forest reserve and the project activities. On my departure I felt that it was very necessary for me to have a chance to see at least Budapest. But here was no time and I had to come back to Kenya. It is like being air-lifted from Nairobi to Osca and Osca to Nairobi. I strongly recommend that future fellows be given at least an afternoon in Budapest. This would make the fellowship more complete.

Paul Matiku

Nature Kenya, (The BirdLife partner for Kenya) PO Box 44486, Nairobi

SHORT COMMUNICATIONS

NEW RECORDS OF SIDE-STRIPED JACKAL AND AFRICAN STRIPED CUCKOO AT BUYANGU, KAKAMEGA FOREST

The more I continue going back to work in the Kakamega Forest, the more exciting it becomes, especially with records of new fauna. I have collected a semi-fossilised elephant tooth (Gathua, 1993, in EANHS Bulletin 22: 4), and 3 years later, I recorded the first serval cat in Kakamega (Gathua, 1996, in EANHS Bulletin 26: 3/4). This time round, I stayed at Buyangu, KWS Station for 15 months, and with the help of Nixon Sagita, I studied differential habitat use and feeding by red-tailed guenons (*Cercopithecus ascanius*).

A field biologist is bound to record new occurrences in an area by the mere fact of being present much of the time. In my 15 month stay, I sighted and photographed a side striped jackal *Canis adustus*. On 19th March 98, I was following monkeys along the grassland by road to Udo's campsite. To my surprise, I saw a carnivore which turned out to be a side-striped jackal. Fortunately, I was taking slides of monkeys during that week, and I was able to take a slide of the jackal on the move. It is interesting to record a jackal at Kakamega since it is a dry land mammal while Kakamega is lowland rainforest. It is possible that this animal was in transit because I never saw it again. About a week before the sighting, I had seen a very unfamiliar greyish and hairy cat in the grassland where the jackal was seen, implying that the individual might have been there for a few days.

The second species recorded was the African Striped or Levaillant's Cuckoo *Oxylophus levaillantii*. The first sighting of an African Striped Cuckoo was in October 1997 when Nixon Sagita and I were returning to Buyangu camp after long hours working on red-tailed guenons. The bird drew our attention because it was an uncommon sighting there. On closer look, the bird had a prominent black crest and black streaks on its white throat. The bird was in dense *Acacia abyssinica* scrub. The second sighting was 11 months later, in September 1998. This time I observed the bird about 300 metres away from the initial sighting, and in guava scrub. In September, I saw the bird feeding on caterpillars. This bird stayed in that general area for about 3 days. It was interesting to find that the bird was solitary. According to *Birds of Kenya and Northern Tanzania* (Zimmerman *et al.*, 1996) the African Striped Cuckoo is an intra-African migrant. In Kenya, it is common in the West of Rift Valley between May-September. The African Striped Cuckoo has not been collected at Kakamega Forest, but it has been collected at Bungoma, some distance to the north of Kakamega. Elsewhere in Kenya, the cuckoo has been collected sporadically all the way to the coast.

Mwangi Gathua

Mammalogy Dept., NMK, P.O. Box 40568, Nairobi or Department of Anthropology, Columbia University, New York, NY 10027

Reference

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HUNTING FOR AFRAMOMUM, FAMILY ZINGIBERACEAE, IN MASAKA DISTRICT UGANDA

During the course of the research for our proposed new book, "Wild Food Plants of Uganda", we had driven to Bukukata ferry intending to cross over with our University Suzuki to the Ssesse Island of Bugala, but there was a strike of the ferry workers as they had not been paid for four months!! Tony Katende spotted a good clump of *Aframomum* in a forest patch nearby, Jubia Forest. We explored and noted two species, *Aframomum angustifolium* over 2 m and clumped, and *A. mildbraedii* much lower and creeping along by rhizomes below the soil (figure 1), its leaves "pleated" in contrast to the tall one. Back and forth to the vehicle for the flash as we were in a shady forest. How to take a successful photo? Then a pad and paper to do a hasty sketch of plants *in situ*, heat and humidity combining to add sweat to the pages.

But we still wanted to see flowers and fruit.

Days later (the ferry workers still on strike) we were now resident at Lake Nabugabo, still near the lakeshore.



Figure 1. *Aframomum mildbraedii* from Jubia Forest.

We tried again, clambering over a steep bank and down into a big leafy stand of *A. angustifolium* about 3 m tall. To our delight, right at ground level were the stumpy flowering stalks only half a metre high bearing the most fascinating pink-maroon flowers at their tips. Older specimens under the shade of the towering fronds held up their bright orange-red "banana-like" capsules (figure 2). The botanical threesome took photos, gathered specimens and tasted the booty. The ripe fruit is not bad, something rather nicer than passion fruit. One photo at least was of the other photographer crouched at ground level, camera aimed at macro length for the astonishing flower, only a hump and hat visible below the green leafy cover.

Some children gleefully took the fruit we handed to them, biting into the bright red capsules and sucking out the soft fruit inside. I managed a quick photo while they enjoyed their snack. Tony and Paul had approached a compound in a small village nearby. The women were busy with household tasks but they listened politely to the elderly man and his young assistant. Did they gather any fruit or vegetables

from the forest or from the wild places around? Well, the children gathered fruits when they were ripe and, of course, a lot of plants could be used for vegetables to add to the fish their menfolk brought from the lake. Paul recorded notes and later filled in his carefully prepared questionnaire.

Along the dusty road once again. While the Ugandans interviewed a group of men selling freshly killed pork, I strained inside the oven of the vehicle to record the flower detail of the *Aframomum*. The men returned with James, the "butcher", who guided us to a school compound next to a forest edge. He showed us another *Aframomum* fruit. *Mussaenda* was a surprise addition to our snack fruits and we were pleased to find again the tasty little fruits of *Tristemma* in addition to the well-known *Dovyalis macrocalyx*. The chief attraction for the milling crowd of schoolchildren at their playtime was this strange mzungu woman with big boots and dark glasses.

We finally reached Bugala, Sseese, by boat and local matatu. The driver stopped his headlong drive across the ridge of the island to Kalangala so we could examine both flower and fruit of the common *Uapaca*

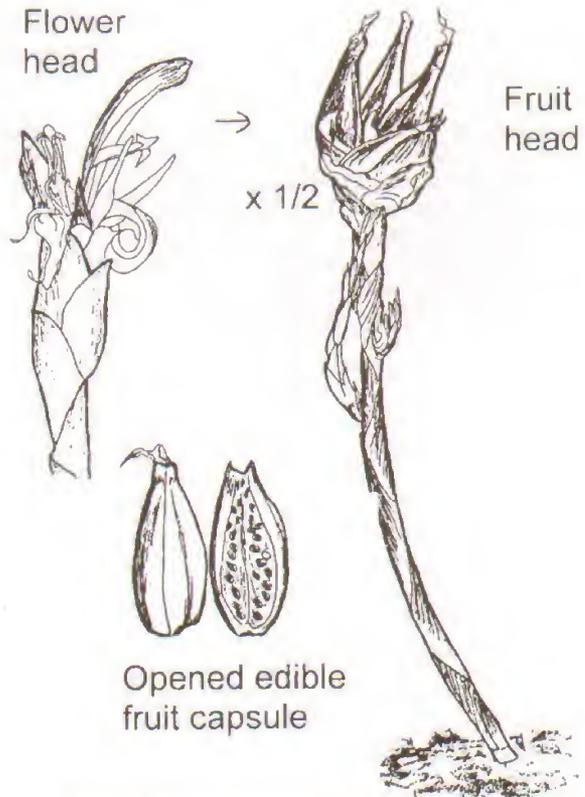


Figure 2. *Aframomum angustifolium* at Lake Nabugabo.

paludosa, a tree that dominates the adjacent rainforest. Luckily, no rain added to our discomfort on the journey.

Forest trophies here were trailing lianes bearing edible fruits: *Saba*, *Landolphia* and *Dioscorea bulbifera*. One intelligent lad claimed his rewards from Tony's pocket for a real collection of forest fruits. He walked away very happy, the envy of his small friends. The artist continued to sweat, sitting at Andronicus' famous Hotel, trying faithfully to record the forest bounty as black lines on paper for readers of the proposed new book.

Ann Birnie, Tony Katende & Paul Ssegawa
Nature Kenya (FONA), PO Box 44486, Nairobi,
Kenya

SOCIETY NEWS

EANHS ANNUAL GENERAL MEETING, 15 JUNE 1998

CHAIRMAN'S REPORT, 1997/8

Ladies and gentlemen

A warm welcome to the Society's 88th Annual General Meeting. All AGMs are important, but some are even more important than others, and I am happy that you have found time to attend what is likely to be a particularly significant meeting this evening.

At the last AGM, my report examined some of the opportunities and challenges facing the Society. I also outlined the Executive Committee's plans for the coming year. I am pleased to say that we have made considerable progress in 1997/8 in positively re-shaping our organisation—both literally and figuratively. In our Society, forward progress generally happens in a rather chameleon-like manner: it is cautious, tentative and above all, sedate. By this standard, events this year have been moving at positively breakneck speed. I have reported on some of the key developments in the April newsletter, but let me go over them again very briefly here.

Soon after last year's AGM, we circulated a questionnaire to all members asking for their views on the Society's strengths, weaknesses and present and future activities. The responses, outlined in the latest *Bulletin*, were very helpful in guiding discussions during our Strategic Planning Workshop held in Naivasha towards the end of August. The results of the workshop were an outline plan and a set of immediate next steps, which the Executive has been busy working on since then. We shall be discussing and, I hope, approving some of the outputs later this evening. They include a revised Constitution, bringing up to date the way the

Society is set up and manages its affairs, and the draft Articles and Memorandum of Association for 'Nature Kenya'. The latter documents set up a company limited by guarantee, wholly owned and controlled by the Society, that will undertake the national activities of the EANHS in Kenya.

It had been our hope and intention to present the completed Strategic Plan to the AGM this evening too. Unfortunately, there has been too much other work—your Executive Committee members all have other jobs!—and this hasn't been possible. The essential elements of the plan can be found in the logical framework produced during the Strategic Planning Workshop, copies of which are available in the Society office. Progress on the plan is being made and we shall keep members updated through the newsletter.

The Society's administration and staffing have made great leaps forward during the year. The Executive Committee had been finding itself increasingly bogged down in needless deliberation of day-to-day detail. A Management Sub-committee was therefore set up soon after the AGM to assist with making some of the day-to-day administrative decisions. The MS-c has clear terms of reference approved by the Executive, and has proved very useful in keeping the Society's administration on track. On the advice of the MS-c, we purchased a new photocopier, computer and printer to replace and upgrade the equipment relocated from our office by the Kenya Wetlands Working Group convenor. The MS-c also drew up job descriptions, and between September 1997 and April 1998 interviewed applicants, for five new posts. We have been very pleased to welcome the following new staff (in chronological order): Elizabeth Nyambura as General Assistant, Shriti Rajani as Executive Officer, Solomon Mwangi as Sites Conservation Officer, Paul Matiku as Conservation Promotion Officer and Anthony Kuria as TBA/EANHS Project Officer. They join Catherine Ngarachu, our existing Office Manager, and Vincent Owuor, Administrative Assistant, who is now working full-time for the Society.

By some invariant organisational law, the amount of work expands even faster than the number of people available to do it. Nonetheless we now have an excellent team in place that should be able to respond to the needs of the membership as well as carry out our expanding conservation work effectively.

Unlike the workload or the staff, the size of our office is completely static. In April we completed office renovations intended to make better use of the available area. The results are pleasing. Everyone now has a desk and the 'new' design is much more comfortable and practical to work in. I urge any members who haven't been to the office recently to pop in and see the changes for themselves.

The BirdLife Partnership in Africa, of which we are part together with six other NGOs from Sierra Leone, Ghana, Tanzania, Uganda (also the EANHS), Ethiopia and South Africa, has held two meetings of its Council and the wider network in the past year. The first was hosted by us at Elsamere, Lake Naivasha in

November 1997. This was most successfully organised by Shriti—a veritable baptism by fire in her first month with the Society! I have just returned, over the weekend, from the second meeting in Zimbabwe, where I again represented the Society's Kenya operation. The range of discussion at these productive (though extremely exhausting!) meetings 'show that the Partnership is developing at remarkable speed right across the continent. Fuelling this is the GEF/UNDP-funded project 'African-NGO partnerships for sustainable development', which involves all the BirdLife Partners in Africa, and on which I touched briefly in last year's report. Un-knotting the governmental and United Nations red tape involved in starting up this project has proved a formidable challenge. Nevertheless, we have been working since January on a provisional arrangement and the last necessary approval, from Treasury, has been received within the last few days. Paul Matiku and Solomon Mwangi have the challenging but exciting task of taking this innovative work forward at the national and local levels, respectively. We hope that many Society members, especially those living or working near Important Bird Areas, will become involved in this project. It offers ample scope for those concerned about conservation to make a tangible contribution. The Important Bird Area directory for Kenya, to be published by the Society, is in the layout stage and we hope will appear later in 1998.

Earlier this year we also formalised a long-standing relationship with the Tropical Biology Association, which is involved in training graduate biologists from Africa and Europe. Our Memorandum of Agreement with TBA will bring the Society a substantial number of new members—young biologists from across the continent—over the next three years. The Society should also start to become the hub of an information network for contacts and opportunities in biological research and study. Anthony Kuria is the one responsible for this work.

That was a lot to report on administrative and policy matters. It leaves me little time for a detailed account of the Society's other activities over the year—even though these may be of more interest to many members! Luckily the monthly newsletter should be keeping everyone up to date, so this task is largely redundant. We have had, as usual, an excellent and varied menu of outings, lectures and films. As usual, too, the number of members partaking has been variable: at times people have turned out in droves, more often rather the reverse.

The Friends of Nairobi Arboretum and Friends of City Park have continued their fine work. Following on from the World Environment Day celebrations in City Park last June, FCP organised a successful art exhibition, 'The soul of a tree in the heart of the city' in December 1997. I was sorry to miss the event itself, as the artwork accumulating in the EANHS office beforehand was exhilaratingly varied and wacky. Despite inclement weather, FONAs annual outdoor concert extravaganza, 'Wind in the Trees', was again a very enjoyable day out. Sadly, FONAs Chairman Dr Peter Wass, who is also responsible for the Arboretum Master

Plan, was taken seriously ill last December and had to travel for treatment abroad; I am sure that we all wish him a speedy recovery.

Succulenta EA continued a remarkably active and exciting programme focused on fleshy plants. The Ornithological Sub-committee and BirdLife Kenya, meanwhile, very sensibly decided to merge and form a single Bird Committee. As well as having a name that is much easier to say and understand, this new Committee will carry forward the work of both groups in bird research and conservation. The new Committee's first task was to assist with the organisation of World Birdwatch '97, when Kenyan birders again recorded the highest national total in the world—777 species over the weekend of 4–5 October. Funds raised in sponsorship will go towards the production of an introductory bird guide for schools. The Wednesday Morning Birdwalks continued to attract large numbers of enthusiastic participants—rather *too* many at times, and because of a shortage of transport, participation has had to be confined more strictly to bona-fide Society members. This enthusiasm is also manifested in the bird-watching groups affiliated to the Society that are springing up in various parts of the country, for example Kakamega, Kinangop, Lewa Downs, Naivasha and Tsavo. This fits in nicely with the enthusiasm for regionalisation evident among our non-Nairobi members, and where appropriate these groups will be encouraged to develop as site-support groups for Important Bird Areas. A special Conservation Group membership category is proposed in the new Constitution to build on this encouraging development, and link to group members more closely to the EANHS.

The Kipepeo Project continued its excellent work and is receiving ever-increasing international recognition. The importance to local people of the butterfly farming around Arabuko-Sokoke Forest was a key factor in the successful campaign, in which the EANHS was closely involved, to prevent (yet again) the threatened de-gazettement of the Kararacha-Mpendakula area. This issue, involving one of the most important biodiversity sites in the country, has unfortunately not gone away and the Society must remain vigilant.

The EANHS (Uganda) continues to flourish, and I will leave it to Achilles Byaruhanga to report on their progress shortly. Constitutional discussions have made it clear that the Uganda section wishes to formalise its status as an autonomous branch of the Society (it is presently, formally, a 'sub-committee'). The revised constitution makes appropriate provision for this.

The Executive Committee last year approved a set of guidelines that will help to clarify the working of the Society's present 'sub-committees' (such as the Bird Committee and Succulenta) and 'projects' (such as Friends of the Arboretum and City Park). These are really action groups of interested members, and almost all are now working on producing their own terms of reference to guide their operations. The exception is the Kenya Wetlands Working Group, which has been inactive since suffering severe internal convulsions in

mid-1997. Most regrettably, these problems do not appear to have been resolved to date, and the status of this group will need to be reviewed by the incoming Executive Committee.

The Society's various publications have had a somewhat difficult year. Only *Ballya* has appeared promptly as scheduled, for which the Editor, Professor Len Newton, deserves warm congratulations. The 1997 *Bulletin* issues were much delayed (issue 2 & 3 has only just emerged, somewhat mangled, from the printer's clutches), although the new format, which is livelier and more readable, seems to have met with general approval. *Kenya Birds* re-jigged its publication schedule to appear in October/April rather than June/December. Even so, the combined issues of vol. 6 were still six months late. A bulky issue of *Scopus* including several years' bird reports finally went to press last month, unfortunately coincident with disastrous floods that inundated the printer's machinery. The *Journal* board finally decided to change printers after experiencing many problems and delays. Unfortunately they discovered what scarcely seemed possible, that the new firm was yet more ineffectual than the old. An arrangement being negotiated for assistance from the Royal Museum for Central Africa in Tervuren, Belgium, may finally solve this particular problem. These tales of woe find echoes in many annual reports down the last 89 years. Producing the Society's publications has never been an easy task, though always a worthwhile one. The heavy workload of the various (volunteer) editors is a major delaying factor, and more people with the skills, experience and time to assist with writing, editing and laying-out material are badly needed.

The Society's finances remain healthy, thanks in large part to the sound advice of our outgoing Hon. Treasurer, Andrew Brass. The expansion of our staff and improvements to the office have been underwritten by generous support from the RSPB, the BirdLife Partner in the UK, and as part of the capacity-building component of the GEF project. This support gives us a few years' breathing space to develop a sensible long-term financial strategy, and I hope the new Executive will be giving close attention to the options, including the possibility of an endowment fund.

As always, the Society is indebted to the many people who have given much of their time and energy over the last year to assist its operations. The list of those to whom I should offer thanks is lengthy, but a few at least should be acknowledged here. Andrew Brass has once again spent a great deal of time and effort (much more than we would have wished to be necessary) handling our finances and putting our books in order for audit. Numerous other commitments caused him to step down in January, but he has agreed to continue to avail his expert financial advice when needed. Improved accounting procedures in the office should make the Hon. Treasurer post much less burdensome in future, but this is an important position that we must seek seriously to fill—there are no nominations for this AGM to consider. Jim Birnie, as appointed at last year's AGM, has generously made his time available to audit our

accounts on an honorary basis—a very substantial contribution. John Silvester has invested enormous effort in drafting and re-drafting our revised Constitution and the documents incorporating Nature Kenya, as well as letters of appointment for staff; he deserves the Society's sincerest thanks. Members of the Executive Committee generally have had a taxing year, with much to decide and discuss and many lengthy meetings. Those who are also on the Management Sub-committee—Theresa Aloo, Tom Butynski, Fleur Ng'weno, Joseph Oyugi and John Silvester—have spent even more time attending to the Society's affairs. A number of volunteers have contributed to the running of the office this year. In particular Narinder Heyer has stepped in steadfastly to look after the front office when necessary, and Githinji Kamau has been of great assistance over the past few months. Finally, all our staff deserve praise for their hard work and dedication during a strenuous period.

Next year is our 90th anniversary and we are discussing how best to mark the event. Members will have their own suggestions and ideas are welcome. We hope to celebrate our 90th year as a stronger, bigger, healthier, wealthier, more effective and above all more active and fun Society. Together, we can make this happen.

Thank you very much.
Leon Bennun, Chairman

REPORT OF THE TREASURER ON ACCOUNTS AT 31 DECEMBER, 1997

Mr Chairman and Members,

The financial report for the year ended 31 December, 1997, has been comprehensively audited and, after your approval, as required in terms of the concession exempting the Society from taxation, will be lodged with the Kenya Revenue Authority.

The finances of the Society are in a healthy state. The Balance Sheet reflects an increase in the General Fund of one and a quarter million shillings to KShs 2,239,593, including a grant of KSh 460,000 from the Royal Society for the Protection of Birds to update the Society's office technology, which is reflected in increased furniture and fittings to Shs 468,100. Cash on hand resulted from a deposit maturing at the end of December which, together with other retained earnings, was invested in early January in Treasury Bills yielding 26¼%. Prudent investment of temporary cash surpluses during the year resulted in an increase in interest earned by Shs 56,000 to Shs 135,928. The weakening of the shilling resulted in a currency translation surplus of KShs 58,660 justifying the policy to keep some funds in foreign currencies. The Balance Sheet also contains the balances of Designated and Project Funds which continue to be administered in terms of their individual financing agreements.

Membership remained static. The income and expenditure account reflects a surplus of KShs 611,520, an increase of KShs 406,311, due mainly to funding, in excess of KShs 1,200,000, by Birdlife International and The Royal Society for the Protection of Birds for operational changes in the Society. A Birdlife Seminar was hosted which, together with related travel costs, absorbed KShs 523,030. The practice of running the office on an honorary basis was discontinued in favour of paid employees which cost an extra KShs 224,555, and should cost even more in the years to come. All the necessary employment and tax legislation has been complied with in respect of these changes. Alterations in the financing of the Bulletin and Journal saved KShs 183,165.

Office sales show a surplus of KShs 118,458, an amount substantially lower than last year but that remains satisfactory in relation to turnover. The Society now restricts sales of technical books to members only to comply with trading laws and value added tax legislation.

Thank you.

Andrew Brass, Treasurer

REQUEST FOR INFORMATION

REQUEST FOR INFORMATION—EAST AFRICAN CROCODILE SIGHTINGS

A team of herpetologists is currently preparing a field guide to the reptiles of East Africa, to be published by Academic Press. We would like to receive from EANHS members details of any sightings of Nile crocodiles, accompanied by the latitude and longitude of the locality, if this not obvious. At present, we have records of crocodile sightings from the following areas:

- Kenya
 - Athi River from Nairobi National Park downstream to the sea,
 - Tana River from Kindaruma downstream to the sea,
 - Mara River,
 - Uaso Nyiro (north) from Samburu NR to Lorian Swamp,
 - Lakes Baringo, Turkana and Victoria;
- Uganda
 - Victoria and Albert Nile,
 - Lakes Edward and Albert;
- Rwanda
 - vicinity of Akagera National Park;
- Tanzania
 - Mara and Grumeti Rivers,
 - Lake Tanganyika,
 - Rovuma and Rufiji Rivers.

Please send records of sightings for Tanzania to

Prof. Kim Howell (Dept of Zoology, University of Dar-es-Salaam, P.O. Box 35064, Dar-es-Salaam, e-mail khowell@twiga.com), sightings for Kenya, Uganda, Rwanda and Burundi to Steven Spawls (The Stanford English School, P.O. Box 30056, Addis Ababa, e-mail sandford@telecom.net.et).

All information will be acknowledged and observers credited in the book. We are particularly interested in sightings from isolated water bodies, small rivers, high-altitude records, appearance of crocodiles in recent man-made reservoirs, etc.—but please make sure you didn't just see a Nile monitor lizard! Any other interesting reptile records (if identification is certain) will also be gratefully received.

Stephen Spawls The Stanford English School, P.O. Box 30056, Addis Ababa

Kim Howell Dept of Zoology, University of Dar-es-Salaam, P.O. Box 35064, Dar-es-Salaam

EANHS MEMBERSHIP RATES PER ANNUM

	Local	US\$	UK
Life	now closed to further subscription		
Corporate	5000	200	130
Sponsor	1000	50	35
Institutional*	700	30	20
Full	500	20	15
Family	700	30	20
Pensioner	250	-	-
Student**	250	15	10

*Schools and Libraries

**Only children under 18 and full-time University undergraduates. Graduate students register as full members.

Membership offers you free entry to the National Museums; free lectures, films or slide shows every month in Nairobi; field trips and camps led by experienced naturalists; free use of the joint Society-National Museum Library (postal borrowing is possible) and a copy of the EANHS Bulletin every four months. The Society is the BirdLife Partner for Kenya. It organises the ringing of birds in eastern Africa and welcomes new ringers. It also runs an active Nest Record Scheme.

Subscriptions are due on 1 January. From 1 July you may join for half the yearly subscription and receive publications from that date. Application forms may be obtained from the Hon. Secretary, Box 44486, Nairobi, Kenya.

THE EAST AFRICA
NATURAL HISTORY SOCIETY
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 Vice-Chairman: Dr G. Abungu
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 Uganda Wetlands Working Group: Mr T. Otim (Convenor)
 Herpetological Group: Mr M. Behangana
 Executive Officer & Editor: J. Arinaitwe
 Deputy Executive Officer: A. Byaruhanga
 Events Officer: Maria Nakabito
 Conservation Officer: Ambrose Mugisha

The *Bulletin of the EANHS* is a printed magazine issued three times a year, which exists for the rapid publication of short notes, articles, letters, and reviews. Contributions may be in clear handwriting, printed or on disk. Black and white photographs and line drawings are most welcome. Please send to the Editor (EANHS) Box 57, Kilifi, Kenya.

The *Journal of East African Natural History* is published in collaboration with the National Museums of Kenya. It is published two times a year. Contributions, typed in double spacing on one side of the paper, with wide margins, should be sent to the Editor (EANHS), Box 57, Kilifi, Kenya. Authors receive 25 copies of their article free of charge.

Scopus is the publication of the Ornithological Sub-committee of the EANHS. It is published two times per year. All correspondence should be sent to D.A. Turner, Box 48019, Nairobi, Kenya.

Kenya Birds is a publication of BirdLife, Kenya. It is published two times per year and contains popular and informative articles on birds and birding in Kenya. Correspondence should be sent to Dr Leon Bennun, Box 44486, Nairobi, Kenya.

Ballya is published three times a year by Succulenta EA, a division of the EANHS. Members of the EANHS can join Succulenta EA, and receive *Ballya*. Contributions to *Ballya* can be sent to Professor L.E. Newton, Box 38995, Nairobi, Kenya.



Edwin Salempo 1992

Eastern Yellow-billed Hornbill
by Edwin Salempo