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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 thechange.

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-

INSIDE

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 16.30–1900 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

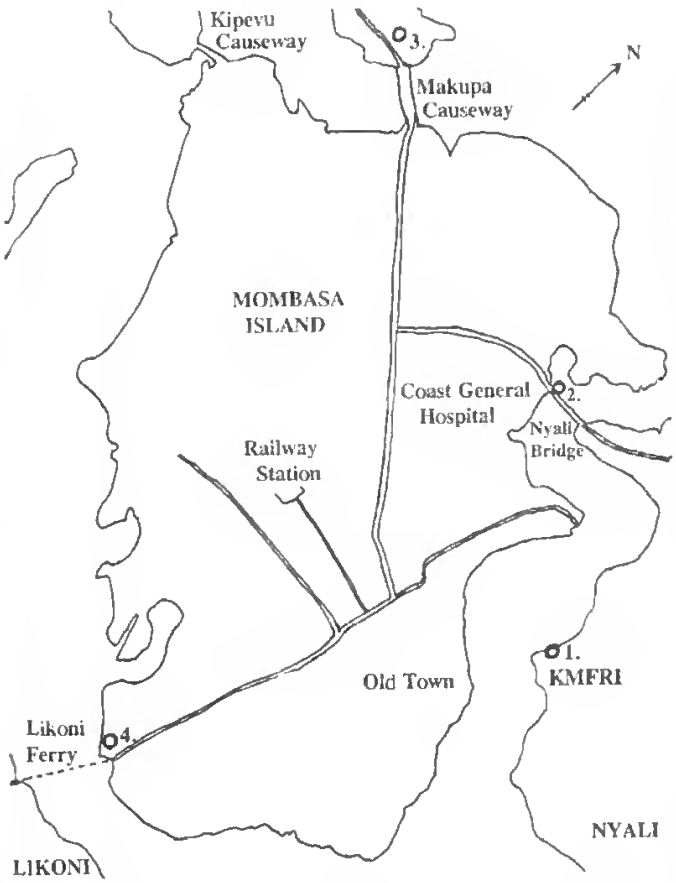

Figure 1. Map of the Mombasa area, showing the location of the counting stations mentioned in the text.

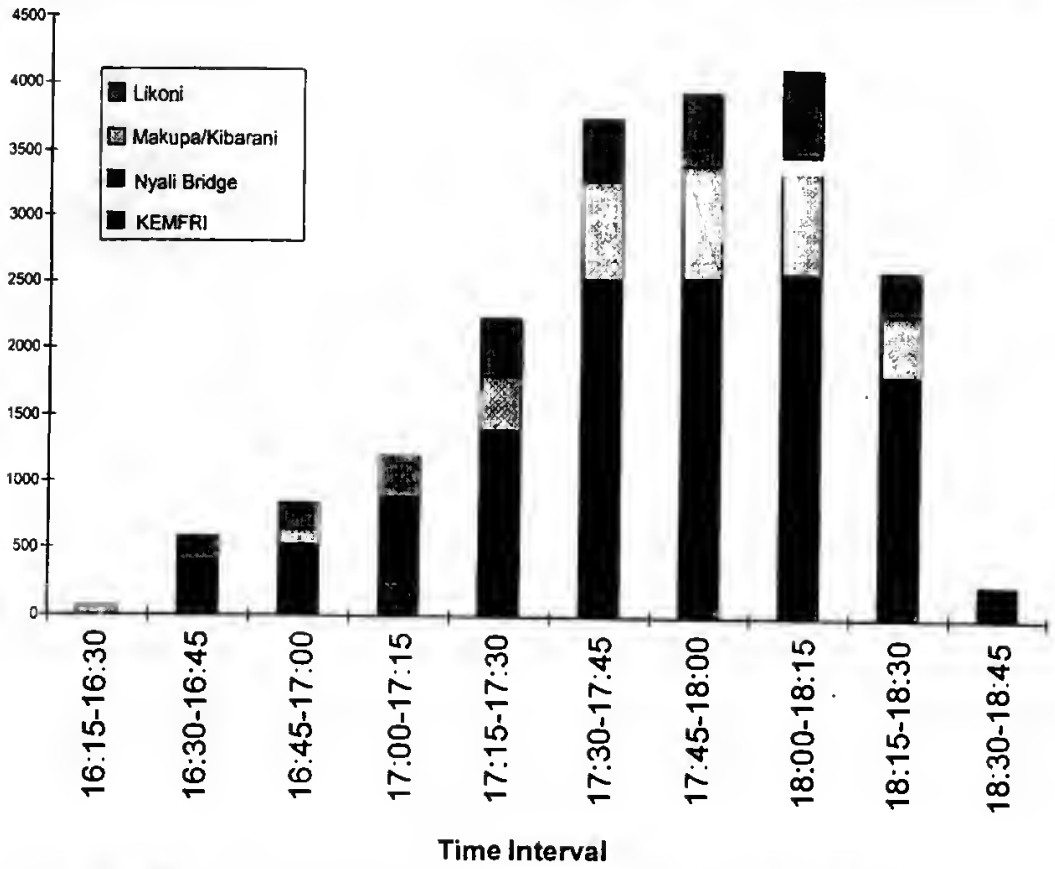

Figure 2. Results of counts of the Indian House Crows crossing towards Mombasa island at the four observation points during the different time intervals (date: 28 August 1995).

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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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, noone 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 *Uuifiti* 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 Cbawia. *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 batch (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 waggling 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*, *Trimerio* 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 *Aphloio*. 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 *Aphloio*, *Trimerio* 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 *Aphloio* 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. teito* 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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*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 Mntmot, bave 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 beigbt at whicb 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 km^2 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 tlie 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 sbows that human degradation of habitat could not have caused this pattern. The pattern of extinctions means that, over this century, the average distribution bas 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 bill' to higher elevations wbere 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 wbich 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 eco-system. 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 Gamga 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 form 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

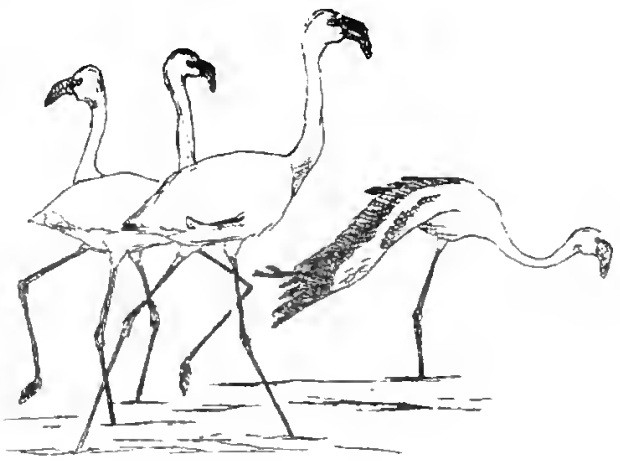
On 25 August 1997, at approximately 18:15 while driving from the Hippo Pool towards the main gate, I saw, to my surprise, a Collared Palm Thrush *Cichladusa arquata* apparently feeding on the ground in the middle of track. The bird was so close that identification could be confirmed without binoculars: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



Lesser Flamingo
Edwin Solombo 1998

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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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 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, Nsbenyi. This makes it a site of national importance (D. Pomeroy, pers. comm.). The count also shows a marked increase

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 Kasbaka 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.

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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. May 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 ad 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.

Herbanum 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 invertabrata communities in relation to water quality (leader: Michella 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 raddomly at the marine site to establish a baseline of the marine biota found in the area around the park.

Systamatic 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 Pohla and Aleudia) 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 wooderful 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 encrustiog algae. lichens, even plankton are here in colour and detail. Now you can ideotify 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 heen included. The book probahly features more crahs 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 hrilliant 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 historics, written hy 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 bibliograpby.

A review would not be complete without some criticism. My main complaint is that the scale of eacb page of illustrations is not immediately obvious, and since the coverage ranges from plankton to whales, it can bc a bit misleading. Thc 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 brigbt 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 hit daunting. It's true that there are glossaries, and that the few English names for these marine creatures have usually heen included. However, the text would be more user-friendly if the common names of the families (such as "Violet shells") stood nut in bigger and bolder texi. 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, Nairohi Kenya

APPRECIATION

GURNER CUNNINGHAM VAN SOMEREN, 1913–1997

Van Someren is a Dutch name. In the last century, however, a family of van Somerens hecame British. By the time that Vernon (or V.G.L. as be was known) van Someren joioed 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, wbose memory we honour bere, 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. Ooe of his first undertakings on returning to Keoya in 1933 was to build the house on Miotoni in which he lived for the rest of his life. His early employmeot was varied. Amoog many things, he laid the original Karen Estates water pipelines and helped huild the Karen Golf-course. As an employee of the Nairohi 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 creatinn and mystery immensely beyond human comprehension–which is where he left it.

Ian Parker, Langata

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