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Life All Around Us

a new series about the
**Invertebrates, the Earth's most
biodiverse creatures, that live
near, on—and in—us**

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Nematodes in soil, in sea, in plants, and in you

Nematodes are everywhere—perhaps even in your intestines! They are in the plants outside, and in the insects that eat them. They are in the soil, and the mud of lakes and seas, by the millions and millions.

Nematodes, sometimes called Nemata, are a major group of invertebrates—animals without backbones. There are thousands of species, or kinds, of nematodes. Many of them are not well known.

Nematodes are small. Most of them are too small to see without a magnifying glass or microscope. Some are several centimetres long, but so narrow that they are difficult to see. A few nematodes grow to several metres in length.

Nematodes are worms. The basic nematode shape is long and cylindrical. The body comes to a point at each end. At the head end the nematode has a mouth and some special sense organs. The nematode's digestive system runs down the middle of its long, cylindrical body. Different nematodes have different types of mouths, depending on their way of life.

Nematodes' outer covering is called the cuticle. It is usually tough, and may be smooth or covered with bumps and bristles. Most nematodes moult their cuticle four times as they grow from eggs to adults. With each moult they go through a stage of development. Adult nematodes are usually separate males and females.

Nematodes affect us in different ways. Nematodes break down dung and organic matter into particles that plants can use. Some live in insects that eat plants, and thus help to control insect pests. Others feed on crop plants and cause much damage. Some nematodes are parasites in people and animals. They are unpleasant, and a few have severe effects.



Nematodes live in a very wide range of habitats. From hot springs to icy seas, from mountain tops to ocean floors. When they are active, nematodes need moisture, but some kinds can survive long periods of drought. Many nematodes live in small, isolated habitats. They live among the mosses and lichens on tree trunks. They live in the water that collects in the rolled-up young leaves of certain plants. Some may even live on our eyelashes, feeding on bits of dust and micro-organisms.

Nematodes' habits vary greatly. Most nematodes live in the soil or in the mud of rivers, lakes and seas. They feed on tiny micro-organisms, on dead organic matter, or on the bacteria and fungi in the dead organic matter. Nematodes that feed on decaying matter, or food made by yeasts, just suck in fluids. Those feeding on tiny plants and animals have "lips" to surround their food.

There are nematodes that feed on the roots of larger plants, and become important plant pests. These worms usually have a piercing mouthpart called a stylet. The hollow stylet works like an injection needle. The nematode uses the stylet to pierce the plant cell and suck out its juices.

Carnivorous nematodes may be active predators, attacking and eating other small invertebrates. Some predatory nematodes use a stylet to attack their tiny prey. They pierce the prey, inject a substance to digest the

issues, and suck out the juices. Others have solid stylets, powerful pinners, or tiny teeth to stab, bite or shred their prey.

There are nematodes that have become parasites in most animals, vertebrate and invertebrate. Parasitic nematodes feed in several different ways.

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An earlier version of this series of articles first appeared in *Rainbow* magazine.

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Previous articles in this series:

Corals and Jellyfish: Builders and Sangers. *EANHS Bulletin* 30 (1): 20-29.

Flatworms, simple animals that wriggle inside us. *EANHS Bulletin* 30 (2): 1-5.

Free-Living Nematodes

Most nematodes are free-living, that is, not parasitic. They live in mud from mountain lakes to ocean bottoms and in all types of soils. They are among the most common creatures of the sea floor.

Eelworms and other plant feeders

Many nematodes feed on plants. Some live outside the plant, pierce the plant wall and suck out its juices. Other nematodes enter the plant itself. There are some small enough to crawl through the stomata, or respiration pores, of leaves. Inside the plant, they feed on the plant juices. The plant may wilt, or may form a lump called a gall.

Eelworms are nematodes that do a lot of damage to the roots of plants such as potatoes. They find the plant roots in the soil by sensing chemicals produced by the roots.

Some people say that leaving a marigold in a field among potato plants reduces the number of root nematodes.

Many kinds of eelworms feed on plants.



Nematodes and fungi

A number of nematodes interact with fungi. There are nematodes called vinegar eels, that live in the sediment of natural malt vinegar. The vinegar eels eat the food made by yeasts in the vinegar.

Certain nematodes use the hollow stylet in their mouth to inject bacteria into a fungus. The bacteria feed on the fungus, grow and multiply. The nematode then feeds on the bacteria.

Nematodes even use fungi as a means of transport! The eggs of a nematode that is a parasite in cattle pass from the host in the dung. A type of fungus grows on the dung. The young nematodes feed in the dung, then climb onto the fungi. When the fungus releases its spores, the young worms are carried away with the spores. The nematodes land on plants some distance away, where they are swallowed by cattle to continue the cycle.

Fungi, however, may fight back.

There are fungi that trap nematodes in their thread-like mycelium. Then the fungus eats the nematodes. Scientists are trying to learn whether these fungi can control nematodes that damage plant roots.

Parasitic Nematodes

Parasites on insects

A number of insects have nematode parasites. The nematodes usually live only part of their life cycle in the host insect. In some nematodes, it is the young worm that is the parasite; in others, it is the adult. Others live for a time in different hosts.

Some nematodes live in both animals and plants. A nematode may feed inside a plant, then enter an insect when the insect eats the plant. The nematode lays its eggs in the insect, which takes the young worms to another plant. Another type of nematode develops inside an insect, then enters a plant to mate and reproduce.

Nematodes that live inside insects usually weaken or even kill the insect host. People are now using these worms to control insect pests, instead of poisonous pesticides. A farmer buys a million nematodes in a package, and spreads them over his crops. This is a biological way of controlling insects.

Parasites in people

Some large nematodes are parasites in people. **Pinworms** (also called threadworms), are small, thin and white in colour, and live in the intestines. Female pinworms

deposit their young on the host's bottom or bedclothes. Pinworm infection is very common in small children. It does little harm, and is treated by medicines and washing hands. **Whipworms** are about 4 cm long, part of the body short and thick and part long and thin. They live in the intestines, sucking blood from the intestine wall. Whipworm infection is usually mild, but can lead to bleeding and anaemia. Large *Ascaris* **roundworms** are 15 to 40 cm long, whitish or pinkish in colour. They live in the intestines and feed on the food we eat. Most infections with roundworms are not serious, but in a few cases there are so many worms that they block the intestine or the nose. The eggs of roundworms and whipworms are passed with the faeces to the ground, where they may get onto vegetables or in the water supply. Using latrines, washing hands, and washing fruits and vegetables that are eaten raw, controls the spread of the worms. There are medicines to treat infection.

Hookworms are about one cm long and reddish pink in colour. A hookworm uses the hooks in its mouth to attach to a person's intestine, and feeds on the blood of its host. The worms mate in the host's intestine, and the eggs pass out through the faeces. The young hookworms are free-living in the soil; they need warm, moist conditions to survive. If a person

walks barefoot on damp soil, the young worms may enter through the skin. Hookworms may damage body organs as they travel through the blood stream, or consume enough blood to cause anaemia. To prevent hookworm, use latrines and do not walk barefoot in dirty places. Treat the infection with medicines, and eat plenty of protein food.

Trichina worms are parasites of meat-eating animals. The young worm forms a resting stage called a cyst. People or animals become infected if they eat meat with cysts, which are too small to see with the unaided eye. The young worms then hatch, burrow into the body and cause severe symptoms. Control is very simple—cook pork thoroughly (especially meat from wild pigs).

The **Guinea worm** is one of the largest nematodes. Guinea worms have two hosts and a free-living stage. First, a tiny copepod in the water swallows the young worms. Then, people who drink the water swallow the small copepods infected with the worms. The worms live in the person's body cavity, grow, and mate. The female migrates to the person's arm or foot, while the eggs develop into young inside her body. The female worm produces a blister on the host's skin, which bursts, leaving a hole. When the person puts the foot or arm in the water, the female worm hangs out and releases young

worms into the water. Filtering water before drinking it can break the cycle. **Guinea worm** is rare in East Africa, and there is an active control programme.

Filaria worms or **filariids** are parasites in the lymph system. Lymph is a fluid inside our bodies, and contains certain cells that fight diseases. Filaria worms may be up to 10 cm long, but so thin that they are difficult to see. They are spread from one person to another by biting insects such as mosquitoes, which are the *intermediate hosts*. The young worms, called *microfilaria*, travel from the lymph system to the blood system, where a mosquito sucks them with the blood. Inside the mosquito they go through a stage of their life cycle, then move to the insect's piercing mouthparts. When the insect bites another person, the microfilaria move to a new host, and travel to the lymph system to grow and mate. Some species of filaria worms may become so numerous in the lymph that they block the lymph passages. The lymph fluid then collects in one place, and the body tissues enlarge. This is the disease called filariasis or elephantiasis. A part of the body, usually the legs, swells enormously. Filariasis is not common in Kenya, but occurs in some parts of the coast. The disease is controlled by controlling the insect hosts or using mosquito nets.

Vulture Monitoring in Kenya

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In the Indian subcontinent, populations of at least three species of *Gyps* vultures have crashed by as much as 95% since 1997. The cause of this large-scale vulture mortality remains unknown, but a disease specific to *Gyps* vultures is highly suspected. The great majority of deaths (nearly 75%) are caused by renal failure manifested as visceral gout (the deposition of uric acid crystals in the internal organs). Indian *Gyps* vultures have been globally listed as critically endangered species.

The distribution of *Gyps* vultures is continuous from the Indian subcontinent, across the Middle East, right to the southern tip of Africa. The Eurasian Griffon *Gyps fulvus*, which winters in the Great Indian Desert, has also been recorded in Kenya. Thus, should the cause of the gout-associated vulture mortalities in the Indian subcontinent be a transmissible disease, populations of *Gyps* vultures in Africa are highly at risk.



Vultures play a vital role in the ecology of the East African savanna plains. They consume nearly 70% of large animals that die and would otherwise become a health hazard to both wildlife and people. In East Africa, vultures are already threatened by poisoning of carcasses, human persecution, felling of nest trees and the reduction of plains game populations, resulting in a food decline.

The possibility of a disease affecting vulture populations in East Africa is real, and cannot be ignored. A crash in East Africa's vulture populations similar to that in Asia would have dire ecological consequences.

Responding to the Asian Vulture Crisis, The Peregrine Fund Kenya Project, in collaboration with the Museum's Department of Ornithology and Nature Kenya, held a very successful workshop on 10 May 2001 to outline a vulture conservation strategy. Key elements that emerged from the workshop were the need to continue monitoring vulture populations in Kenya (so that a crash can be detected) and to establish baseline hematological values to monitor vulture health.

In March 2002, The Peregrine Fund biologists Simon Thomsett and Munir Virani conducted extensive aerial surveys at three key Rüppell's Griffon Vulture sites — Mount Olufokwe and two mounds at Sha'ba National Reserve. They also trapped and released one Rüppell's and one African White-backed Vulture to obtain blood samples for chemistry and serum profiles. Results are currently being analyzed. Further aerial surveys and trapping have been planned for July 2002. For more information about The Peregrine Fund's projects on vultures please check out their website www.peregrinefund.org/conserv_vulture_results.html

Vulture Status in Uganda

A workshop on the status and health of vultures was also held in Kampala, Uganda in April 2001.

The 31 attendees included biologists, veterinarians, academics, aviculturists, administrators, a journalist and a lawyer, and representatives of the newly-revived Uganda Society for the Prevention of Cruelty to Animals (USPCA) and Nature Uganda.

Workshop contents included monitoring populations, the use of minimally invasive methods of study for live birds, correct sampling procedures, and formulating protocols and codes of practice for work with vultures.

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Poisonous Aloes

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A. ruspoliana



Many people, even outside the fraternity of succulent plant enthusiasts, have heard of *Aloe vera* (sometimes referred to by the incorrect synonym *A. barbadensis*). This species (probably better regarded as an ancient cultivar) is well known as a medicinal plant, and there are numerous cosmetic and health products on the market that contain *A. vera* extracts. Many other species of *Aloe* also appear in lists of plants having medicinal value (e.g. Watt & Breyer-Brandwijk, 1962; Drummond *et al.*, 1975; Kokwaro, 1993), in some cases forming the basis of a lucrative industry (Newton & Vaughan, 1996). The leaf exudates of aloes are especially useful for treating skin problems, such as radiation burns.

What is not so well known, perhaps, is that there are also some poisonous species of *Aloe*. In January 2001, on an expedition to Mandera District (North-Eastern Province, Kenya) with Gilfrid Powys and Charlie Wheeler, I collected specimens of an aloe plant that was said by the local people to be used for killing hyaenas.

We were told that if the leaf extract is added to some meat that is left lying around at night, hyaenas will die soon after eating the meat.

The plant is *A. ruspoliana*, which is a fairly widespread species in Kenya and also occurs in Ethiopia and Somalia. Lavranos (1995) cited a comment from a collector in Somalia that this species is used for poisoning hyaena. Sebsebe and Gilbert (1997) stated that the leaves of *A. ruspoliana* smell strongly of mice. A similar smell is characteristic of *A. ballyi*, which is also known as "the rat aloe" because of the smell (Reynolds, 1996; Carter, 1994).

It has been found that in these two Kenyan species, and also in several other species in southern Africa, Madagascar and Arabia, this mouse or rat smell results from the presence of the toxic hemlock alkaloid g-coniceine (Dring *et al.*, 1984; Nash *et al.*, 1992; Reynolds, 1997). Another Kenyan species with a similar smell is *A. ulata*, presumably also containing g-coniceine. One Madagascan species has another poison, conine (Dring *et al.*, 1984).

There are published reports of human deaths resulting from the use of aloe leaves (Verdcourt & Trump, 1969; Drummond *et al.*, 1975). Interestingly, Kokwaro (1993) stated that *A. ballyi* is used as a purgative.

In Kenya, and probably elsewhere, several get-rich-quick merchants are paying local people in rural areas to collect aloe leaf exudates for (illegal) export, to be used in the cosmetics and health products industry. These local collectors, who are paid very little but are glad of any income, may collect indiscriminately from any aloes that they find in the bush. In my travels I have seen the remains of *Aloe ngongensis*, *A. scabrifolia*, *A. secundiflora* and *A. turkanensis*, hatched during harvesting of leaves. This is an alarming trend, not only for the threat posed to *Aloe* populations, but also because it is possible for exudates from some poisonous species to be included in the exported product. I have not seen defoliated *Aloe nuspolutana* plants in the wild, and perhaps they are avoided because of the absence of the conspicuous yellow exudate that is characteristic of most other species. However, it is a widespread species and there is the danger that it might be used.

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SHORT COMMUNICATION

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BULBUL TALK

The calls of bulbuls, *Pycnonotus barbatus*, have been part of my life ever since I can remember hearing. As children we had our own name for them long before we became ornithologically interested. Bin Petero—because in Tanzania where we grew up, they used to call “bin petero, bin bin bin petero”.

Bulbuls are probably among the most articulate and vocal of birds and they speak distinctly different dialects in different parts of Africa. Kenneth Newman (*Birds of Southern Africa*) describes the call as saying “wake up, Gregory”. In Bulawayo’s Matsheumblope area, one might be tempted to think there was an Italian-French influence somewhere, as members of the bulbul clan there keep calling “Alfredo-Frédérique”. Could he be a house painter, as just a little down the road in Bulawayo’s Burnside area another guy shouts “put paint by degree”? Or a rather concerned fellow repeating that “it’s quite dangerous.” In Lusaka you are greeted with a somewhat impatient “be quick, the telephone, be quick, quick, quick, the telephone” whereas on the Kenyan coast the Swahili influence becomes evident when someone complains “hi cha pili—did he see more than one menacing cat? Here in the Gilgil area we seem to have another more impatient version: “you be quick, don’t you hear!”

Whether you listen to the Cape bulbul *P. capensis* or the red-eyed bulbul *P. nigricans*, the East African yellow vented form of the common bulbul *P. barbatus* or its North African white vented cousin (also *P. barbatus*), the language is unmistakably the same, although the dialects differ.

Editor’s note: In Ghana, West Africa, the common bulbul (*P. barbatus*) calls “Quick, doctor! Quick!”

What do common bulbuls say where you live?

REVIEW: For the Waterproof Identification Sheets to accompany the book **A GUIDE TO THE SEASHORES OF EASTERN AFRICA AND THE WESTERN INDIAN OCEAN ISLANDS** (Ed. M.D. Richmond, SIDA 1997)

by Sally Crook

The six identification charts for plants and animals in the sea or near the shoreline of eastern Africa are condensed versions of the colour plates in the Guide. Their range, from mangroves to seaweeds, and from invertebrates to marine mammals, is wider than often found on ID charts capable of being taken into the field (that is, into the sea). Most others concentrate on the varieties of fish species, with few charts on plants, or corals and other invertebrates, and I have seen no waterproof charts for bird and mammal identification. These are a useful innovation and save textbooks from getting wet whilst splashing on foot through mangroves or observing whales from a boat in a lively sea.

The sheet illustrations are smaller than in the Guide, and serve best as a reminder of the plants and creatures observed until information can be read-up in the Guide at home. However, an indication of the size of creatures would have been useful as the small chromis and damselfish are shown almost as large as porcupine fish, and the sea slugs as large as the giant clams (wrongly labelled on the sheet).

The sheets have something the Guide does not. That is the common English names of seaweeds, and corals and some other invertebrates. Finding from the plant ID sheet that the globular green seaweed, *Ventricularia ventricosa*, is also known as Sailor's eyeball acts as a great memory booster.



The ID charts are available in some shops in Mombasa and the book from Nature Kenya



2001 CHAIRMAN'S REPORT

91th Annual General Meeting

of the East Africa Natural History Society



Leon Bennun

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Ladies and gentlemen

Gerard Manley Hopkins is not a poet to everyone's taste, but I have always been struck by his force of expression, as well as his profound identification with nature. It was he who wrote that

...the mind, mind has mountains:
cliffs of fall
frightful, sheer, no-man-fathomed.

I don't suppose he had Nature Kenya in mind—after all, our venerable Society did not yet exist in 1885! But I did think of this poem during our strategic plan review in December 2001. Not because of its title (it is called 'No worst, there is none'—and even strategic plan reviews are not *that* bad), but because at times working with Nature Kenya, and I

suppose in conservation generally, is like climbing a very large and very steep mountain. Every step ahead seems an enormous effort, and a bit of loose scree can even send you slipping backwards. There never seems to be enough oxygen to breathe comfortably. Sometimes the only way up is to crawl along the brink of an abyss, where the slightest misjudgement could send you hurtling to destruction. You pause to catch your breath and look back, and are astonished by how far you have already come—the landmarks you left behind now diminished to specks in the distance. Then you look up and feel a sinking sense of dismay at how far you still have to climb.

All this by way of saying that it has again been a year of progress, but reversals too, and there remains a lot still to do. My task in this report is

much easier than usual since for the first time at an AGM all our committees and major projects will be talking about themselves. Therefore I don't need to tell you about the Plant Committee's outings, the Insect Committee's live exhibit plans, HARI's forthcoming launch, FONAs's resurfacing of the Arboretum walk, the Youth Committee's intensive international workshopping, and the impressive achievements of the IBA Site Support Groups.

Let me touch instead on a few more general issues. At the strategic plan review we awarded ourselves good marks for progress over the last two years. However, there are areas where we have not been moving nearly as fast as we had hoped, the paramount gaps being in fundraising, membership and publications. (See pages 14 - 16)

I would like to thank all those who have helped the Society over the last year—our tirem e n d o u s l y committed and hard-working staff, dedicated volunteers, members of the Executive and Management Sub-committees, and varied supporters and donors, especially GEF/UNDP and the RSPB.

We still have a long way to the top of the mountain, but as I look at our members here this evening I feel encouraged that we can continue to climb.

Thank you,



Site Support Group members camping

*Kidsongi Bauruwaru adichazda (KIDP) offices
Poo-cuall, Solomon/Ngor*





Nature Kenya has been active in the Kenya Forest Working Group and protested against the forest cuttings in Kenya 2001

Funding, Planning

It was disappointing when a major proposal to the UK National Lottery Charities Board, of which we had high hopes, was turned down (essentially because they felt it had too much emphasis on biodiversity and too little on human development). Corporate fundraising was a dead loss in 2000, to put it bluntly, and the corporate membership scheme that we debated at the 90th AGM has failed to materialise. Membership rose to around 1,250 by the end of December 2000: not bad, but a long way still off our target of 2,000 members. Things were not helped by the departure of our much-valued Executive Officer, Shiri Rajani, in May 2000.

Her successor Philip Adolwa, was just starting to settle down when he also decided to leave. Other staff, and members of the Management Sub-committee, had to step in to fill the administrative vacuum—a major distraction from more strategic work.

The workplan for 2001 puts much emphasis on fundraising, marketing and business planning in general. Several other proposals have now gone in to potential funders, and more are in the pipeline, using some of the ideas earlier proposed to NLCB. We intend to have a business plan and a marketing strategy in place by the end of the year. The staff structure has been reorganised to allow staff to carry out such work more effectively.

One major setback to our work on several fronts was the loss of our GEF project Landrover in November 2000. Very fortunately no-one was injured when the vehicle rolled near Sagana town and was extensively damaged. The Landrover itself has been written-off by our insurers and we are in the process of obtaining a replacement. This is likely to take some time and there will inevitably be some disruption of programmes as a result.



A membership recruitment programme targeting universities and colleges, including an illustrated talk on Nature Kenya, has been developed and began in October 2000. Kenyatta, Moi and Egerton Universities have all been visited, as well as ICIPE and UNEP. This has generated good publicity for Nature Kenya, and some new members too—the anticipation is that more will follow.

One of the recommendations of the Youth Workshop last year was to set up a Youth Committee, and this has been done. Exactly what constitutes a 'youth' has tactfully been side-stepped in their terms of reference. The important thing, though, is that an active group is meeting and coming up with good ideas as to how we can better involve, and tap the potential of, our more youthful members.

Other members' activities continued very successfully this last year, with a full programme of short and long outings, plant, insect and tree walks, and evening lectures and videos. Much to my regret, I rarely have a chance to participate in these myself, but there seems to have been something to suit almost everyone, and the feedback has generally been highly positive.

Publications & Website

We have not done so well with publications. An issue of *Kenya Birds* and an issue of the new-style *Bulletin* both appeared, but there should have been two.

Publications aren't easy. Once they cease to manifest regularly they tend to go into a downward, self-reinforcing spiral, which is tough to reverse. Nevertheless we are doing our best to put things back on track, and appreciate the patience of the members in the meanwhile.

The Journal, on the other hand, has made great progress in the past year. A bumper volume 87 appeared, dedicated to papers on the Eastern Arc mountains; this is a superb piece of work and will no doubt be a standard reference for years to come. Vol. 88 arrived soon after. I would like to thank the many people who worked so hard to make the Journal a success. But I need to give special thanks to our editor, Lorna Depew and to Benny Bytemer, joint editor, who have really pulled out all the stops to make sure that these volumes appeared. Benny has now left for Stellenbosch University to continue work on his beloved orchids; we shall miss him greatly but I am pleased to say that he has agreed

to continue as Editor-in-Chief of the Journal. This is very good news, and made possible by the wonders of modern communication—now that most business is conducted by e-mail, physical location is much less important than it used to be.

We also have a fine new website—www.naturekenya.org. The site's existence is thanks to the efforts of web designer Jake Kidde-Hansen, who generously volunteered a great deal of time to put it together, and continues to help us update it. The website provides a window on Nature Kenya for organisations that might wish to support us. Its secure page is also proving useful for those outside Kenya who wish to join, make donations or buy publications. We would appreciate suggestions from members as to how we could improve the page and make it even more useful.



Advocacy

Across the border, Nature Uganda is making tremendous progress and doing work that everyone in the Society can be proud of. I should briefly mention their hosting of the Tenth Pan-African Ornithological Congress, in Kampala in September 2000, a major challenge that the Nature Uganda staff and volunteers rose to superbly. This was widely agreed to be the best PAOC ever and has dramatically increased the organisation's profile both inside and outside Uganda.

Nature Kenya itself continues to make a considerable advocacy input to many national processes and issues, too many to list here today. There is no doubt that we are now widely recognised and respected as an organisation that makes objective, constructive and technically solid contributions. It was particularly gratifying to note Kenya's accession to AFWA (the African-Eurasian Waterbird Agreement) earlier this year, a process initiated and pushed along by your Society. At the Kenya Government's invitation we also formed part of the small national delegation to the Convention on Biological Diversity's subsidiary Body on Scientific, Technical and Technological Advice (STTA) (which I know it is STTA) - not quite the

acronym to end all acronyms, but close). This followed on from our successful participation in COP 5 of CBD, and is another indication of the seriousness with which Nature Kenya's input is taken.

While this recognition is encouraging, it remains essentially at the technical level. Unfortunately, high-level decision-making still often brushes aside environmental concerns, as evidenced by the Government's recent step to de-gazette a substantial portion of Kenya's forest estate. Through the Kenya Forests Working Group and our own site-support groups, we have been very active in the campaign to have this startling move reversed. Unfortunately there still seems little promise of this happening, and the environmental consequences are likely to impact on all of us.

As Francis Bacon pointed out nearly 400 years ago, "Nature, to be commanded, must be obeyed". It is frustrating that those who are presently determining our future refuse to open their eyes to this reality. In the long term, of course, this simply underlines the importance of the work that your Society is doing to spread awareness of the extraordinary value, complexity and beauty of natural systems.

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Other Society Publications

The *Journal of East Africa Natural History* is published twice yearly, in collaboration with the National Museums of Kenya. Contributions must follow the style directed in the Notice to Contributors found in the back of every issue of the JEANH and should be sent to the Nature Kenya office at the address above.

Scopus is an ornithological journal published by the Bird Committee of the EANHS. All correspondence should be sent to the Nature Kenya office at the address above.

Kenya Birds is also a publication of the Bird Committee, in conjunction with the Ornithology Department of the National Museums of Kenya. Published twice yearly it contains popular and informative articles on birds and birding in Kenya. Correspondence should be sent to the Editor, Fleur Ngweno, at the Nature Kenya address or by e-mail fleur@africaonline.co.ke.

For more information about our publications you can go to our web site **www.naturekenya.org**

or you can reach the office on phone 254 (2) 3749957 / 3746090 or fax: 254 (2) 3741049

Front cover: Important Bird Areas Site Support Groups from local communities, mobilize for conservation



*Think all doves are soothing?
Think again, page 8*

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