TEACHING, TREATING AND TRACKING: WORK IN KENYA CONTINUES

John and Margaret Cooper

Based on a presentation to the BCG Symposium at the Open University, Milton Keynes, on 15th March 2014

During 2013 we continued work on chelonians and other reptiles in Kenya, where we have been involved in teaching and training for some years (Cooper & Cooper 2012). This paper briefly reports on our visits to Kenya in July and September.

Perhaps the most important single event was the One-Day Workshop on the Care, Health and Welfare of Reptiles, held at the National Museums of Kenya (NMK), Nairobi, on Wednesday 31st July 2013 and co-ordinated by Mr Jacob Mueti, Senior Curator, NMK, assisted by staff and interns at the Nairobi Snake Park. The aim of this Workshop was to broaden the knowledge of those Kenyans who already work with reptiles, to provide training to others, especially biologists, in the correct care of these animals and to guide veterinarians in the recognition of health and diseases.

The number of people expected to register was 40 but, in fact, on the day, the Workshop attracted 68 participants. These were a mixture of reptile-keepers, professional herpetologists/biologists, members of the veterinary profession and university academic and technical staff. African caterers are amazing and always manage to stretch the food they prepare – as one local friend put it "feeding the 5000 . . . . plus"!

The morning session was chaired by Professor John E Cooper (Visiting Professor, University of Nairobi). He invited all participants to introduce themselves. Professor and Mrs Cooper then presented books and journals donated by organisations in Britain, including the British Chelonia Group (BCG), to the NMK Librarian, Ms Asha Owano, and to the Snake Park's Senior Curator.

The initial talk was by Jacob Mueti – 'Introduction, Expectations, Programme, Objectives'. He acknowledged all those involved in organising the day and thanked the Director-General of the National Museums of Kenya (NMK) for approving, hosting and supporting the Workshop. Particular tribute was paid to Sally Dowsett, in London, who had designed and produced the Course Notes and other literature. Gratitude was expressed to the BCG and to the Dr Robert Andrew Rutherford Trust for their generous support.

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Dr Patrick Malonza (Head of Herpetology Section, Zoology Department, NMK), then provided an 'Introduction to Reptiles (Chelonians, Lizards, Snakes, Crocodiles)'. He described the different groups and species, with particular reference to East Africa, outlined their distribution and stressed their ecological importance.

Ms Beryl Bwong (Herpetology Section, Zoology Department, NMK) made the second presentation, entitled 'Husbandry Practices – Reptiles'. She gave a thorough introduction to the management and captive-breeding of reptiles, stressing that one must have basic information on the biology of the species kept and concern for the animals' welfare.

During coffee and the usual Kenyan 'bitings' (snacks) there was an opportunity for registrants to view literature provided by various organisations including the BCG, the British Herpetological Society, the British Veterinary Zoological Society (BVZS), the British Small Animal Veterinary Association (BSAVA) and, nearer to home, NatureKenya (The East African Natural History Society).

The next presentations covered the law relating to reptiles. Mrs Margaret Cooper (Visiting Lecturer, University of Nairobi) addressed the audience on the subject of 'Legal and Ethical Aspects of Keeping Reptiles in Captivity – the International Perspective'. She explained that international law requires countries to protect wildlife and their habitats in various ways and to control the trade in endangered species. Regional legislation also applies to reptiles – for example, the European Union Habitats Directive and the Council of Europe Berne Convention.

Mrs Margaret Mosse (Senior Warden, Kenya Wildlife Service (KWS)) then discussed 'Legal and Ethical Aspects of Keeping Reptiles in Captivity – the Kenyan Perspective'. She explained the legal regime for wildlife in Kenya and noted that most species are protected under Kenya's Wildlife Act (Wildlife Conservation and Management Act Cap 376). This means that a permit is required from KWS if such animals are to be taken into captivity or studied as part of a research programme.

The final lecture of the morning was given by Professor John Cooper who spoke about 'Reptile Health'. He pointed out that in the early 1970s substantial numbers of scientific papers about the health and diseases of reptiles had been published from Kenya. These were largely based on studies at the Nairobi Snake Park and at the Veterinary Research Laboratory, Kabete. This coincided with the time when (amongst others) Dr Oliphant Jackson was pioneering reptile studies in Britain, Professor Peer Zwart in the Netherlands and Dr Fredric Frye in the USA. Professor Cooper explained that the maintenance of health is important when reptiles are kept in captivity. Health can be defined as 'a positive state of physical and mental wellbeing, a disease-free state'. The aim should always be to *prevent* disease.

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Fig. 1. John Kimane learns the principles of clinical examination of a tortoise at the Nairobi Snake Park.

Fig. 2. Health monitoring of tortoises on the coast, in a large enclosure at Bio-Ken.

Fig. 3. Participants are given an introduction to reptiles and their biology. A hinge-back tortoise was used as part of this demonstration.

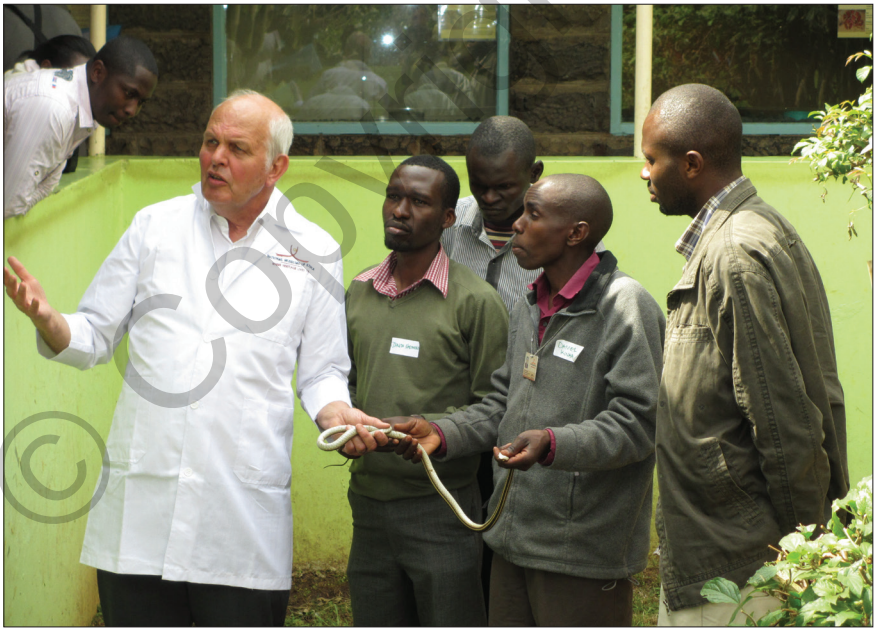

Fig. 4. Demonstration in the 'snake pit' of how to examine a sick reptile and take appropriate samples.

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The morning's lectures were followed by discussion and a practical demonstration of how to deal with a sick reptile (Fig. 1). During the lunch break registrants were again able to view herpetological literature and to talk to the lecturers.

The afternoon session was chaired by Dr Patrick Malonza and consisted of an extensive practical session (clinical examination, *post-mortem* examination and laboratory work) led by Professor Cooper. Live tortoises and snakes in the Snake Park were handled and examined (Figs 2, 3 & 4) and samples were taken. Registrants, particularly those with experience of reptiles – both professional and amateur herpetologists – were able to participate and to contribute their knowledge.

At the end of the afternoon a *post-mortem* examination of a snake was carried out by Kenyan vets, thus helping them gain both experience and confidence.

At the end of the day, in a closing ceremony chaired by Dr Patrick Malonza, there were concluding remarks and certificates of attendance were presented. Dr Malonza said that he believed that the Workshop had familiarised participants with the biology and importance of reptiles and helped them understand health and disease issues. Those who already worked with reptiles expressed pleasure at what they had learnt and said that they welcomed the opportunity to participate in the discussions and practical sessions. Attendees who had initially been less positive about the topic were now clearly significantly swayed in their thinking and stated that they were beginning to appreciate the importance and value of Kenya's reptiles.

We were delighted that members of the Leakey family were able to join the Workshop and that Harry and Elliot Leakey participated in the handling and *post-mortem* sessions. They are Kenyans, the grandchildren of Jonathan Leakey, who was the first Curator of the Nairobi Snake Park nearly half a century ago.

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Two other activities, both relating more specifically to chelonians, were the focus of the rest of our time in Kenya. These were micro-chipping (Fig. 5) and shell repair.

Probably for the first time in East Africa the new 8mm microchips were used in both tortoises (*Stigmochelys [=Geochelone] pardalis* and *Kinixys* spp) and terrapins (*Pelomedusa* spp). Following health-monitoring, transponders were inserted into a hindlimb of these animals, using equipment kindly provided by Micro-ID[1]. The work took place at three locations – at Bio-Ken (the reptile and venom centre on the North Coast of Kenya, referred to in early editions of *Testudo*), at the Nairobi Snake Park and at a private collection on the edge of Lake Naivasha in the Rift Valley. Interestingly, as reported in our BCG

1 Micro-ID, West Sussex, RH15 9UA, UK

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Fig. 5. Explaining micro-chipping to senior staff from Watamu Turtle Watch and Bio-Ken.

Fig. 6. The green mamba that appeared during health-monitoring of tortoises at Bio-Ken and was quickly and humanely captured.

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Symposium lecture in 2014, the micro-chipping at Bio-Ken proved to have an unexpected advantage (in addition to enabling individual tortoises to be identified). We were told that word had got round amongst local people that the implanted microchips enabled the tortoises to be tracked and thereby recovered if stolen. The number of thefts dropped markedly!

While doing health-monitoring of tortoises at Bio-Ken, a large (two-metre) green mamba (*Dendroaspis angusticeps*) was spotted in a tree by our sharp-eyed tuk-tuk driver, who was patiently waiting for us to finish our work. The beautiful creature was quickly captured by Bio-Ken staff (Fig. 6) for venom collection – a fate better than that suffered by most snakes seen by local people in Africa!

Our second activity, shell repair, was prompted by our concern over the number of captive tortoises in Kenya that have damaged, often disfigured, carapaces. Often the result of road accidents or bush fires, these are not only unsightly but also possibly painful (the 'shell' of a tortoise is well-innervated and sensitive even to vibrations). In addition, the breaches in the scutes permit the ingress of water during the rainy season and this in turn can result in an under-running bacterial/fungal infection. Shell repair was carried out at Nairobi Snake Park and at the private collection in Naivasha referred to above. The session held at the Snake Park in early 2014 evolved into an interactive training session, not only for Park staff but also for a young veterinary surgeon, Dr John Kimani (Fig.1). Dr Kimani is undertaking post-graduate studies at Chiromo Campus of the University of Nairobi within walking distance of the National Museum where the Snake Park is situated. He also saw the potential of the Snake Park for training other vets and vet students. A report on this and on a second workshop (held on the Kenyan Coast) will form the basis of a lecture or article for the BCG on a future date.

The shell repair session also involved Jacob Mueti's colleague, the Assistant Curator, and students on an internship at the Snake Park.

Shortage of funding and a paucity of equipment and expertise do not permit East African veterinarians to attempt the sophisticated techniques for chelonian shell repair that are commonly employed in Britain or North America (Mader & Divers 2014. However, we (the Coopers) successfully filled cracks and defects in the shells of tortoises in Tanzania 20 years ago using local car body filler. The repair material applied in our training session in Kenya in 2013 was of far higher quality – a new dental plaster called Crystacal, kindly provided *gratis* by the London Road Dental Laboratory in King's Lynn, Norfolk. Following cleaning and, when necessary, debridement, plaster was applied by hand to the shell defects (Fig. 7). It was found to penetrate fissures readily, to dry quickly and to provide an impervious layer for (to date) at least six months. We have only used the technique in older tortoises and so the problem of shell growth (which in younger animals

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Fig. 7. Shell repair using dental cement at a private collection near Naivasha, in the Rift Valley.

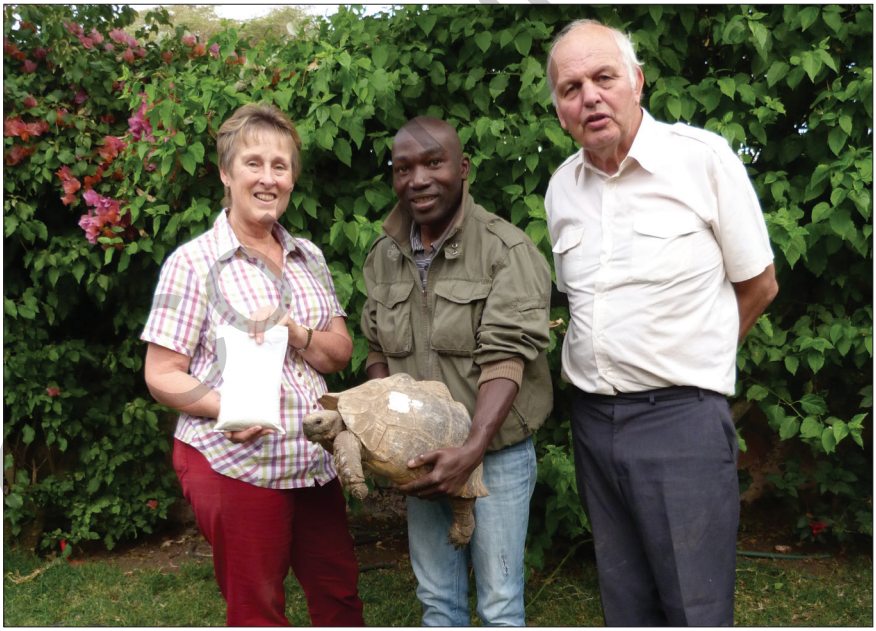

Fig. 8. Repair of one tortoise is completed.

would probably necessitate the removal of the plaster at intervals) has not been addressed so far. We have not yet made a decision as to whether the plaster should be painted, to help it match normal carapacial markings, or left as white patches (Fig. 8). The latter approach provides an easy, if temporary, means of identifying each tortoise (just like the BCG's 'fingerprinting') but also makes the tortoise conspicuous to would-be predators and also (in collections such as the Snake Park, which is open to the public) to human viewers. It was the critical comments of some members of the public about tortoises with damaged shells that encouraged the Snake Park to try this material. It remains to be seen whether visitors are less concerned now that many of the tortoises have obviously been repaired, albeit adorned with white dental plaster!

In closing, we repeat our thanks to the BCG and the Dr Robert Andrew Rutherford Trust for their interest, encouragement and support.

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