
data are also calibrated against known standards and expressed in parts per million. In particular the new multi-element package is likely to produce repeatable results into the future. Thus the use of these two techniques together appears to offer a much cheaper and more efficient way to get reliable, calibrated and

quantitative measures of the abundance of a whole suite of heavier elements and isotopes. Analysis may cost as little as 100 South African rand (approximately USD 10) per sample.

We will keep readers of *Pachyderm* informed of any future developments.

Training in radio collar assembly, telemetry and GPS for Tsavo ecosystem rhino staff

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The Kenya rhino programme has translocated numerous rhinos to Tsavo East National Park (Galana IPZ). The translocated rhinos are fixed with horn-implant transmitters or radio collars before they are released so that their movements and ranging patterns can be tracked. This has been found essential in rhino monitoring and surveillance.

To consolidate the security of the Tsavo rhinos, rhino staff from Tsavo East and Tsavo West National Parks (Ngulia Sanctuary) were trained in radio telemetry (rhino radio tracking) and the use of global positioning system (GPS) receivers. These skills are used for rhino monitoring and security. During this period, selected Kenya Wildlife Service (KWS) personnel in veterinary and animal capture units were also trained in assembling, using and recovering radio collars.

KWS procures radio collars as needed from abroad. The collars are costly and delivery usually takes a long time. This hampers the release of rhinos. The delay in delivery and the exorbitant prices are often attributed to collar assemblage processes involving skills that KWS personnel lack.

The training exercise for nine participants was held between 29 October and 3 November 2001 at Tsavo East National Park. Mr Gus van Dyk of North West Parks and Tourism Board in South Africa trained the participants in radio collar assembly and telemetry, and Mr George Muriuki, senior research technologist at KWS, trained them in the use of GPS.

Training in assembling, fixing and recovering radio collars

In this training exercise, focus was on two KWS personnel from the veterinary and animal capture units. The topics covered included

- general information on radio collar and implant transmitters
- introduction to radio collar parts
- procedures for fitting radio collars and related equipment
- practical hands-on training in radio collar assembly
- recovery of transmitters

Training in radio telemetry

Although the rhino staff at Tsavo East and West National Parks had undergone basic training in tracking radio-collared animals, a refresher course was necessary to improve performance. The focus was on four rhino officers and two veterinary staff. The two main topics covered by the training were the introduction to radio telemetry technology and application, and detailed training in rhino radio tracking techniques and equipment.

Training in use of GPS receivers

GPS receivers are currently being introduced into rhino sanctuaries in Kenya for use in routine surveil-

lance and monitoring. The correct and timely use of these receivers provides precise information on location of rhino sightings, carcass sightings, patrol movements and illegal activities. It is therefore important that the rhino monitoring staff are fully conversant with GPS technology and the correct use of the equipment. Focus was on the rhino monitoring officers. The topics covered included

- introduction to coordinate reference systems
- introduction to GPS, how it works and what it can do
- different GPS receiver models
- the Garmin 12XL, its operational features and setup
- Garmin 12XL GPS accuracy and interpretation of displayed data
- downloading of GPS data into a computer and display of patrol routes, sightings, incidents, and so on
- care, risks and troubleshooting of GPS receivers
- practical sessions and examination in using the Garmin 12XL

In all the training, theory lessons were accompanied by practical sessions. Detailed training manuals that were produced formed an important component.

Sustainability

It is expected that the rhino and veterinary officers in charge of radio collar operation from the two parks

will train other KWS staff on a continuous basis. In this way, we will ensure that efficient monitoring standards are maintained. These subsequent on-site training courses will also serve to realize the maximum possible benefit from the original investment.

Main benefits

The training exercise has increased the capability of the KWS rhino staff and will lead to improved monitoring and security for the black rhino populations of the Tsavo National Parks, which are key to achieving the goals of the Kenya black rhino conservation strategy. Both aerial and ground monitoring of the rhinos will improve, and although costs might not be significantly reduced, the long delays in delivery time will be alleviated. KWS staff can now easily recover transmitters.

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