

REMOTE SENSING WORKSHOP (ERDAS TRAINING)

29th October – 2nd November 2007

1. OBJECTIVE

The Remote Sensing workshop (Maputo, 29th October – 2nd November 2007) was part of RBG Kew Darwin Initiative: “Monitoring and Managing Biodiversity Loss in South-East Africa’s Montane Ecosystems”.

The aim of this workshop was to train a team of professionals in Mozambique in Remote Sensing theory and the practical use of image processing software (Erdas Imagine) within Kew’s methods for vegetation mapping.

To provide this training in context and to ensure that all participants had the minimum GIS knowledge required, sessions on basis of GIS were conducted along with introductory talks on the Darwin Initiative Project and examples of the work done so far.

2. ATTENDEES

The workshop was divided into 2 days of open sessions and 3 days of restricted sessions. The open sessions covered basis of GIS, introduction to Remote Sensing and Introductory talks on the Darwin Initiative Project and they were directed at a broader audience.

The restricted sessions covered image processing techniques and practical used of Remote Sensing software (Erdas Imagine). Attendees for the restricted sessions were as follows:

Attendees	Institution
Carlos Bento	UEM-Museu
Jose Gonzalez Tanago	GTA-GTZ
Rogério Jamice	IIAM-CZC-EFM
Julian Bayliss	MMCT
Jacinto Mafalacusser	IIAM-DARN
Pachis Mugas	DNTF
Jorge Francisco	IIAM-DARN

Staff involved in the training:

Staff	Modules	Institution
Susana Baena	Remote Sensing	RBG, Kew
Julian Bayliss	GIS Basis	MMCT
Jorge Francisco	Darwin Initiative Project	IIAM-DARN

3. REMOTE SENSING PROGRAMME

The Remote Sensing training was divided into two general modules:

Module I: FUNDAMENTALS OF REMOTE SENSING

Timing: 30TH October

Duration: 2 hours

Prerequisites: Lecture based module, no participant limit

Background: None

Learning outcomes:

- Understanding of Remote Sensing basic concepts
- Familiarity with the different Remote Sensing products available and potential use for environmental purposes
- Visual interpretation of images
- Kew's Remote Sensing projects

Outline:

- Fundamentals of Remote Sensing
 - Electromagnetic energy (spectrum)
 - Interactions with the atmosphere
- Characteristics of images
 - Resolution: spatial, spectral and radiometric
 - Basics of visual image interpretation
- Remote Sensing technology. Overview of different satellites and sensors
- Vegetation applications of Remote Sensing
 - General principles for vegetation recognition
 - Remote Sensing for ecology, conservation and forestry
- Case studies: Overview and examples of Remote Sensing based projects at Kew

Module II: ERDAS IMAGINE PRACTICAL SESSION

Timing: 31TH October, 1ST November, 2nd November

Duration: 3 days

Participants: Computer based module, subject to number of computers and licences available. Maximum of 6 people

Prerequisites: Basic GIS knowledge required

Learning outcomes:

- Understanding of Remote Sensing basic concepts
- Familiarity with the different Remote Sensing products available and potential use for environmental purposes
- Visual interpretation of images
- Kew's Remote Sensing projects

Outline:

- Software essentials
 - Understanding imagery
 - Image display, inquiry options, examining attributes
 - Vector data for image analysis
- Image acquisition
 - Digital data resources: Access sites, types of data, costs...
 - Explore internet based resources for imagery
- Image pre-processing
 - Importing data
 - Layer stack
 - Study area: Sub-setting and Mosaic
- Georeferencing
 - Ground control points
 - Image rectification
 - Resampling
- Image classification
 - Thematic data
 - Unsupervised classification
 - Supervised classification: Define and evaluate signatures
 - Evaluate classification
- Case study: All these concepts and image analysis techniques will be applied in a case study based in Namuli

4. TIME TABLE

REMOTE SENSING WORKSHOP (ERDAS TRAINING)					
29th October – 2nd November 2007					
	Monday	Tuesday	Wednesday	Thursday	Friday
8.00 – 8.30	Opening Ceremony (Calisto Bias) OPEN SESSION				
8.30 – 10.00	GIS: A tool for Land Use (Julian) Introduction to GIS (Jorge Francisco) OPEN SESSION	GIS overview (Jorge Francisco) OPEN SESSION	Erdas Imagine practical (Susana) RESTRICTED SESSION	Erdas Imagine practical (Susana) RESTRICTED SESSION	Erdas Imagine practical (Susana) RESTRICTED SESSION
Tea break					
10:30 – 12:00	Introduction to GIS (general) (Jorge Francisco) OPEN SESSION	Erdas Imagine practical (Susana) RESTRICTED SESSION	Erdas Imagine practical (Susana) RESTRICTED SESSION	Erdas Imagine practical (Susana) RESTRICTED SESSION	Final presentations (Namuly and Chipero) expeditions) (Julian and Jorge) OPEN SESSION
Lunch					
13:00 – 14:30	Fundamentals of Remote Sensing (Susana) OPEN SESSION	Erdas Imagine practical (Susana) RESTRICTED SESSION	Erdas Imagine practical (Susana) RESTRICTED SESSION	Erdas Imagine practical (Susana) RESTRICTED SESSION	Introduction/outline of Darwin Initiative Project for Mozambique OPEN SEMINAR
Tea break					
15:00 – 16:00	Fundamentals of Remote Sensing (RS) (Susana) OPEN SESSION	Erdas Imagine practical (Susana) RESTRICTED SESSION	Erdas Imagine practical (Susana) RESTRICTED SESSION	Erdas Imagine practical (Susana) RESTRICTED SESSION	Example of MMCT/ Mulanje work using GIS and RS (Julian) OPEN SEMINAR