World Atlas of Great Apes and their Conservation

By Simon Blyth, Phillip Fox, Lera Miles and Shan-Khee Lee.

Abstract

The role of UNEP-WCMC within the GRASP (The Great Apes Survival Project) is to collect and organise information provided by the various partners in advance of the publication of The World Atlas of Great Apes and their Conservation.
A comprehensive review process using an IMapS service has enabled the datasets on species distribution and levels of protection to be refined and verified.
This atlas will be a landmark publication, a unique compendium of all that is known about the world's great apes and the work being done to seek to ensure their long term survival. It will be a complete account of the distribution and status of all the great ape species in all the countries and territories where they occur in the wild, alongside expert reviews of what is currently known about their evolution, behaviour, ecology, threats and opportunities for conservation action.

The Great Apes

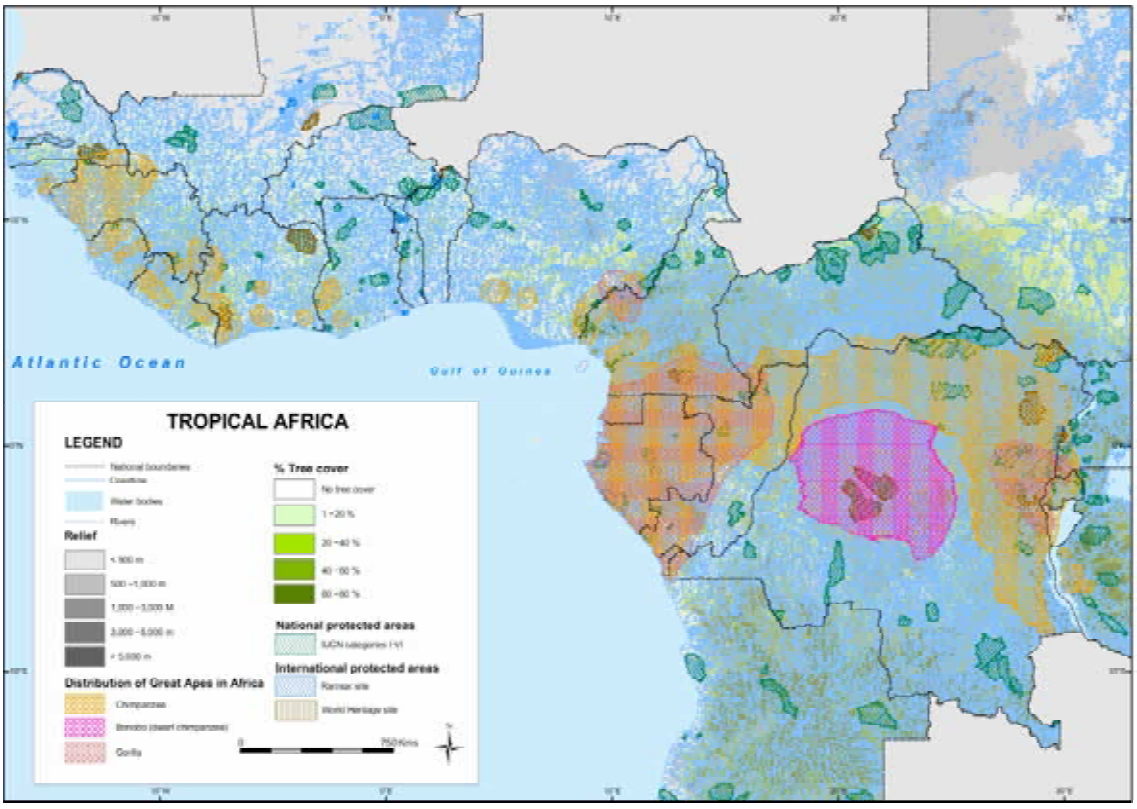
The six species of great apes comprise the chimpanzee and bonobo (*Pan troglodytes*, *P. paniscus*), and the eastern and western gorillas (*Gorilla beringei*, *G. gorilla*) of equatorial Africa, and the Sumatran and Bornean orangutans (*Pongo abelii*, *P. pygmaeus*) of South- East Asia. As their habitats have become reduced, degraded and fragmented, great ape populations have fallen, often dramatically. War and conflict, human expansion, mining, farming, logging, forest fires, hunting for bushmeat, and the capture of live specimens for sale threaten the remaining

scattered populations. Hence the survival in the wild of any great ape species beyond this century – and in the case of some species and sub-species beyond the next decade or two - is starting to look increasingly unlikely. Threats to their populations and habitats continue to escalate, and are simply overwhelming the measures that governments and NGOs are taking to oppose them.

The GRASP Project

The Great Apes Survival Project is an innovative and ambitious project of UNEP and UNESCO with an immediate challenge - to lift the threat of imminent extinction faced by gorillas, chimpanzees, bonobos and orangutans.

GRASP is a dynamic alliance of many of the world's leading great ape research and conservation organisations and is uniquely placed to mobilise and pool resources, ensure maximum efficiency and provide a communication platform in order to bring the dramatic decline of great ape populations to a halt. UNEP-WCMC's main role within GRASP is to coordinate the information from this network of ape specialists and to compile the forthcoming World Atlas of Great Apes and their Conservation. Partners range from Governmental Organisations, IGO's, NGO's to individual scientists and local experts.



The Atlas and the Review Process

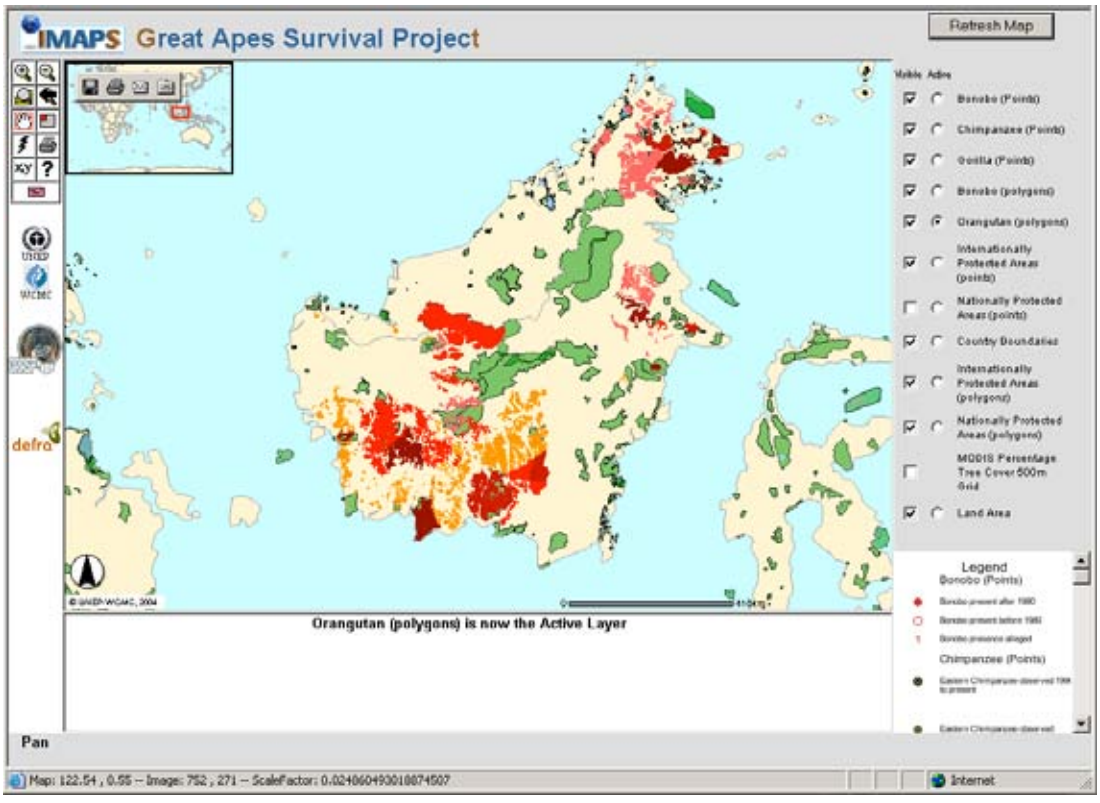
The "World Atlas of Great Apes and their Conservation" will be the first comprehensive review of current knowledge about great apes, including a description of their ecology, distribution and the key threats that they face. It will also include an assessment of the great apes species for each of

the countries where they are found, together with an overview of current conservation action and priorities. The atlas will contain chapters on species with associated species distribution maps and individual country profiles. The management and development of the underlying spatial and aspatial datasets is a key component of the atlas and is being done in parallel with the atlas texts. The aim is to ensure that the most complete and reliable information on the occurrence of great ape species is presented in the atlas.

In addition to the coordination of data/information, UNEP-WCMC is managing the review process and integrating diverse datasets. Information received is in a variety of formats and includes GIS data, maps, proceedings from meetings and workshops, information on list servers, spreadsheets and personal communications. Close collaboration between scientists and GIS staff has resulted in the most up-to-date dataset of Great Apes in existence. We were fortunate to be able to build on a dataset for African Great Apes from Tom Butynski (Conservation International). The Orangutan data derives from an IUCN "Population and Habitat Viability" workshop (15 – 18th January 2004) in Jakarta, Indonesia.

Several UNEP-WCMC datasets have supported the project, particularly the 'World Database on Protected Areas', which has spatial and aspatial components, and also the Species Conservation Database (SCD). The WDPA was particularly important early on in the development of maps of the Great Apes' distribution. Some initial distribution maps were defined by known occurrence of certain apes within certain protected areas. Then it was found that some protected area boundaries were in need of updating or refining. In this way data enhancement became a two way process. In many instances more up-to-date and refined information on protected areas, species and habitats have arrived and been incorporated into many of the Centre's datasets. The amount and extent of different information used has presented many challenges in this project, not least of which are the variations encountered in the names of locations and names and designations of protected areas. Reconciling these issues to make sure that the Atlas text and the text on the associated maps are consistent has been a major task.

Of particular benefit to the review process was the development of an IMapS service dedicated to the GRASP project. This provides interactive access to spatial information on the locations of great apes, together with basic supporting information, including protected area boundaries.



All information has been stored within an ESRI Spatial Database Engine (SDE) – a distributed, standards based, open interface which allows effective management of the datasets. Other supporting datasets have included ESRI's Digital Chart of the World base layers and the MODIS 500m % Canopy cover data.

The ability to indicate source information together with the maps has enabled reviewers to immediately see whether updates had been incorporated. The information flow is indicated in the data flow diagram (Figure 1).

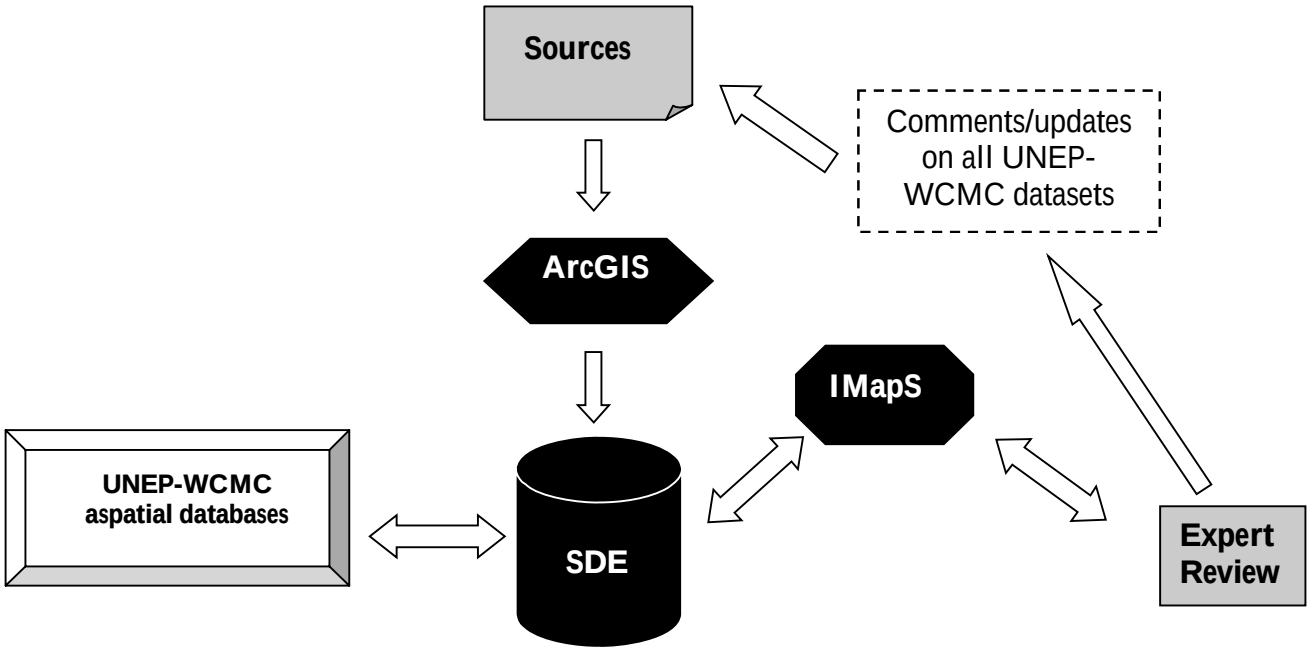


Figure 1. Data Flow within the GRASP data review process

Primatologists and conservation activists working in the field have been encouraged to review the information relating to the species and areas they are familiar with, and to send comments or additional data. The IMapS service has enabled rapid review of new information by a wide diversely located audience.

Conclusion

The "World Atlas of Great Apes and their Conservation" will be a snapshot of the Great Apes information in 2005 and will provide a sound scientific basis upon which conservation priorities can be focused.

The data layers which underlie the maps will continue to be updated in the future to allow the continued monitoring of the population ranges in the future.

End Notes

A full list of GRASP partners can be found on the GRASP web site:
http://www.unep.org/grasp/partners.asp

References

http://www.unep-wcmc.org/species/GRASP/datasources.htm
Protected areas: IUCN & UNEP (2004) World Database on Protected Areas (WDPA), WDPA Consortium, UNEP-WCMC, Cambridge. Accessed September 2004

Tree cover: Hansen, M., DeFries, R., Townshend, J.R., Carroll, M., Dimiceli, C., Sohlberg, R. (2003) 500m MODIS Vegetation Continuous Fields. The Global Land Cover Facility, College Park, Maryland, USA. http://glcf.umiacs.umd.edu/data/modis/vcf/. Accessed 13 September 2004.

Rivers: Petroconsultants (CES) Ltd (1990) Mundocart/CD: Verison 2.0. Petroconsultants (CES) Ltd, London.

Roads, country boundaries, coast, inland water bodies: Defense Mapping Agency (DMA) (1992) Digital Chart of the World. Defense Mapping Agency, Fairfax, Virginia.

Cities: ESRI (2003) ESRI Data & Maps 2003. ESRI, Redlands, California.

Primary Author:

Simon Blyth
Simon Blyth has worked at UNEP-WCMC for 14 years on the maintenance, organisation and presentation of Biodiversity information.
Address:
UNEP-WCMC
219 Huntingdon Road
Cambridge
CB3 ODL
Tel: +44 (0)1223 277314 Fax: +44 (0)1223 277136
email: simon.blyth@unep-wcmc.org

Co-authors:

Phillip Fox
Head of Internet and GIS services at UNEP-WCMC.
Address:
UNEP-WCMC
219 Huntingdon Road
Cambridge
CB3 ODL
Tel: +44 (0)1223 277314 Fax: +44 (0)1223 277136
email: phillip.fox@unep-wcmc.org

Lera Miles
Lera Miles is Senior Programme Officer at UNEP-WCMC focusing on spatial analysis of biodiversity values in the context of environmental change, and biodiversity trends indicators.
Address:
UNEP-WCMC
219 Huntingdon Road

Cambridge
CB3 ODL
Tel: +44 (0)1223 277314 Fax: +44 (0)1223 277136
email: lera.miles@unep-wcmc.org

Shan-Khee Lee
Shan-Khee is working on a number of projects at UNEP-WCMC including map design for the World Atlas of Great Apes and their conservation.
Address:
UNEP-WCMC
219 Huntingdon Road
Cambridge
CB3 ODL
Tel: +44 (0)1223 277314 Fax: +44 (0)1223 277136
email: Shankhee.Lee@unep-wcmc.org