Central African Regional Program for the Environment

SOS Fund number - # 6b.052

Proposal Title: ***Mapping of biodiversity and identifying gaps in the protected area system in the Congo Basin:***

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Duration: **8 months**
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Abstract

Improved information on the geographic distribution of biodiversity is critically needed as a basis for setting conservation priorities, as well as for planning and implementing effective conservation strategies. Unfortunately, there are significant gaps in our understanding of the geographic patterns of biodiversity for many parts of the world that are often costly because of lost opportunities and misdirected funding. Much of the available information on biodiversity in the Congo Basin is inadequate for regional conservation planning because it is derived from unstandardized surveys that cover inappropriate spatial scales and focus largely on vertebrates, which represent only a small proportion of the biota relative to plants and invertebrates. Because threats to biodiversity are greatly increasing in the region, many conservation decisions will be made in the near future. Such decisions would benefit greatly from more accurate information.

The project is planned in two phases which are intended to provide sufficient analyses to significantly enhance the accuracy of predictive models for patterns of biodiversity and responses of ecosystems to disturbance and, subsequently, increase the effectiveness of conservation guidelines and planning. The program proposed here specifically targets several critical questions that, if answered, will vastly improve our ability to conserve biodiversity in the Congo Basin. These questions are:

- What are the most useful biophysical parameters (e.g., rainfall, temperature, topography, rivers, soils) for indicating areas of high species richness, endemicity, unusual communities, or change in species assemblages at landscape scales?
- Where are high priority conservation areas or sites for conserving (1) highly distinctive units of biodiversity (i.e., areas of high richness and endemism), (2) representative units of biodiversity to contribute to the conservation of the full range of biodiversity within an ecoregion (not necessarily rich in species or endemics), (3) relatively intact habitats or large vertebrate faunas, or (4) habitats that are particularly important for their functionality.
- Are there gaps in protection efforts for high priority areas for biodiversity conservation?

The funded proposal covers the activities of the first phase of the project. The first phase will (1) develop reliable predictive models for mapping patterns of biodiversity with a modicum of time and resources, (2) apply these models to the forested ecoregions of Central Africa to identify areas or sites within ecoregions that are top conservation priorities, (3) assess the predictive value of biophysical characteristics derived from satellite imagery and other remote sensing data for mapping patterns of biodiversity, and (4) contribute to ongoing tests of landscape-scale data (e.g., infrastructure, topography) for identifying threatened or defensible areas through predictive modeling. This research is intended to yield an improved perspective on:

- Areas of high biological importance, and whether they are primarily valued for (1) significant richness or endemism, (2) their contribution to representation of biodiversity within ecoregions, (3) intact habitat or vertebrate faunas, or (4) the keystone functionality of certain habitat types (e.g., mangroves, cloud forests).
- Gaps in the current protected area system within the context of the priority areas.
- Blocks of habitat that will have high persistence because of low threats or defensibility.