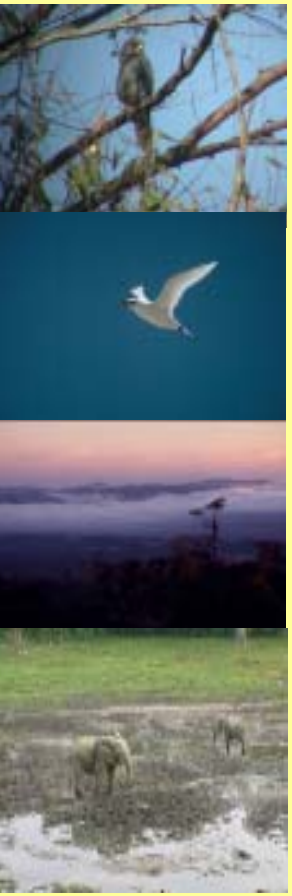
# Outcomes Monitoring: Status & Trends in Biodiversity

Guatemala, November 2006



## Instituting a standard regional monitoring system

## Outcomes Monitoring Support Program

CONSERVATION INTERNATIONAL

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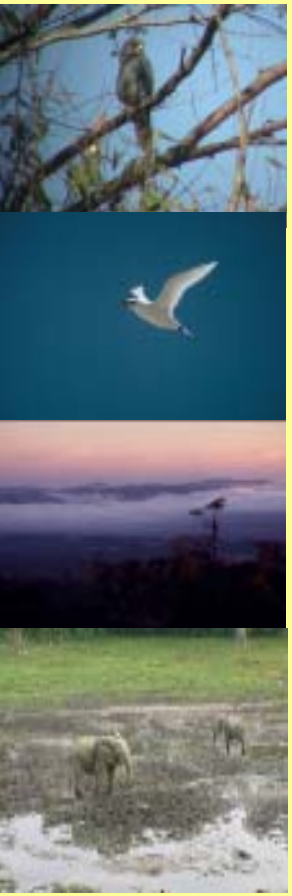

Strengthening the relationship between local data collection and large-scale data representation through standardized regional biodiversity monitoring

***'from disparate data to coordinated reporting'***

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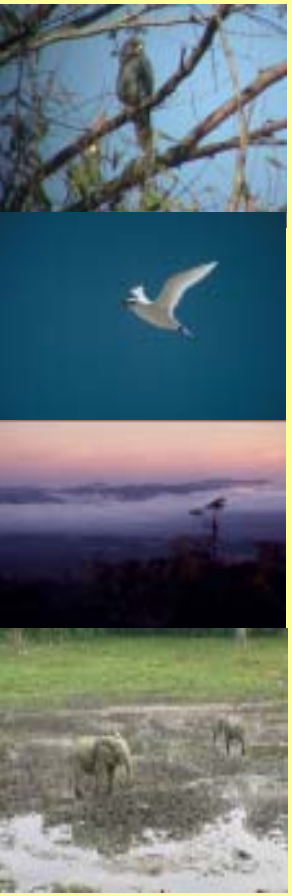
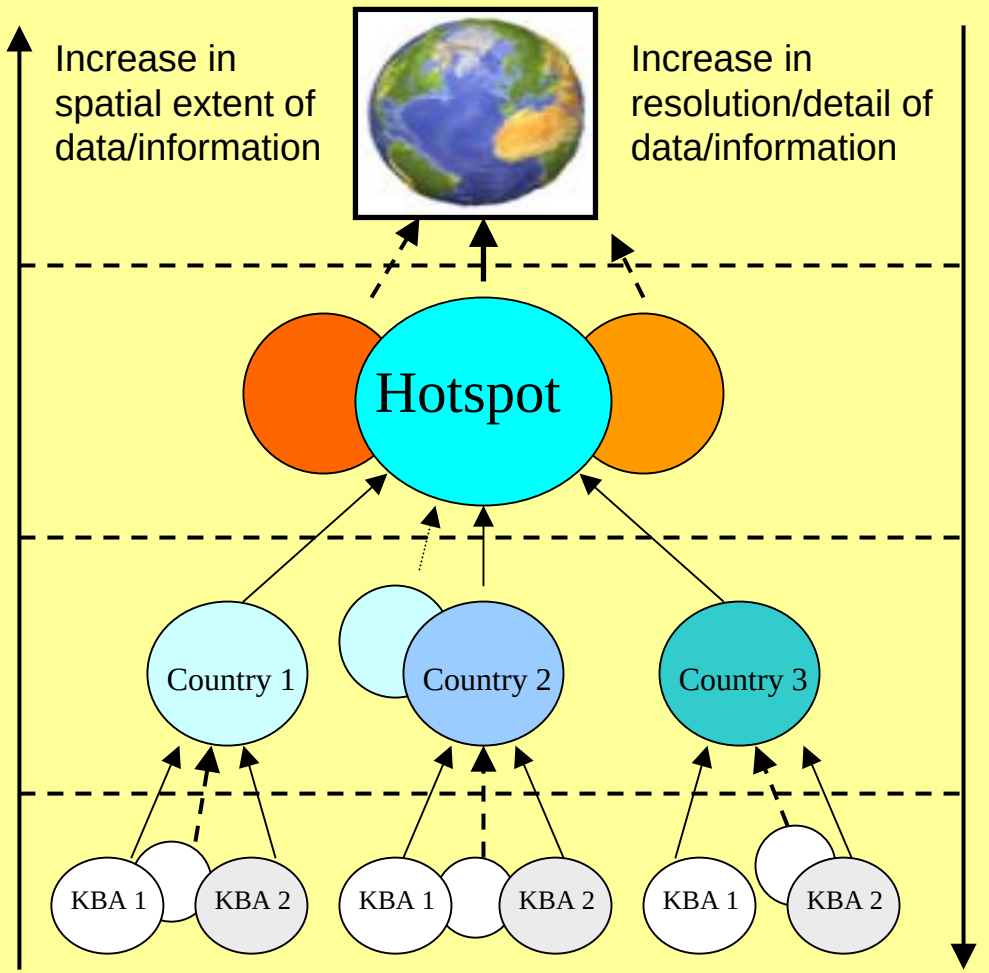
## Scales of monitoring and reporting





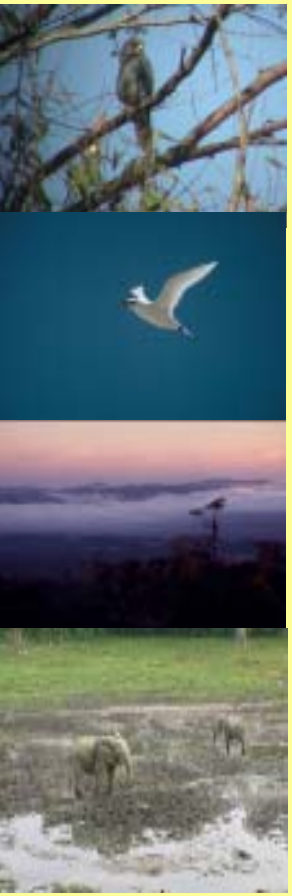

Regional trends identify gaps in conservation priorities at finer scales as well informs management & policy decision making

Standard & compatible local data required to report regional and global trends.

# Outcomes Monitoring: Status & Trends in Biodiversity

**Guatemala, November 2006**

What is the INFORMATION relationship between different scales of monitoring and what process must be put in place for data to flow?



Field data

Species, sites and scapes data centralized in Outcomes database

**Filter**

Data is aggregated using Red List Index & site prioritization mechanisms (IBAs, KBAs, Eco-regions).

Aggregated species & site baseline data. Analyzed with other variables (protection & management status, habitat change)

Report baseline data at hotspot level

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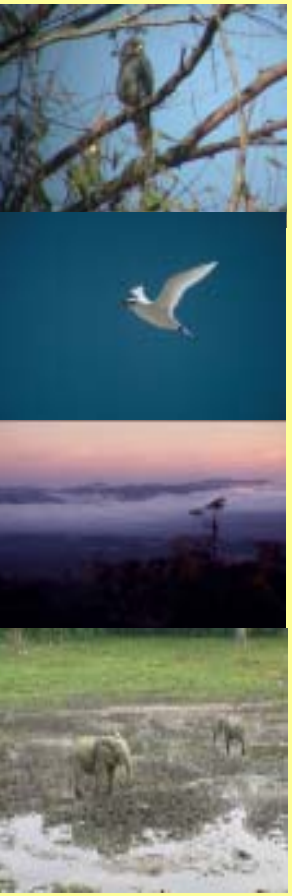

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Report baseline data at hotspot level

Disseminate data to policy decision makers

Disseminate biodiversity data back to stakeholders

Strengthen fundraising to ensure sustainability

# Outcomes Monitoring: Status & Trends in Biodiversity

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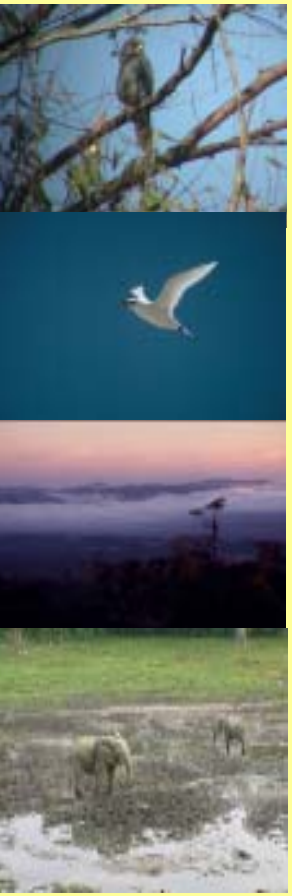
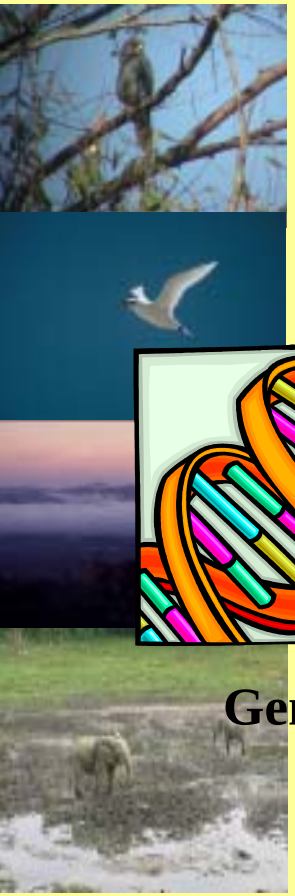


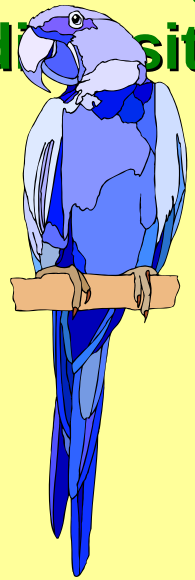
Collection of status & trend data improves our effectiveness to:

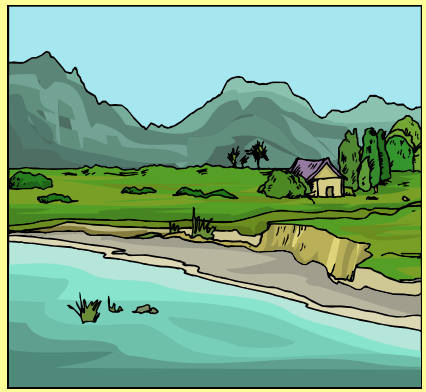
- **Track and assess trends in the status of biodiversity**
- Assist in demonstrating impact of actions and investments on biodiversity
- **Justify and direct future conservation, policy and investment decision making**
- Communicate successes and failures of conservation strategies to government agencies, investment bodies, industry and society as a whole.
- Better understand the dynamics of biodiversity components and threats and adapt accordingly.
- **Contribute to international biodiversity status reporting, e.g. Convention on Biological Diversity and the Millennium Development Goals.**

# Outcomes Monitoring: Status & Trends in Biodiversity

Guatemala, November 2006







**Species**

***Extinctions Avoided***

**Sites**

***Areas Protected***

**Landscapes/ Seascapes**

***Corridors Created***

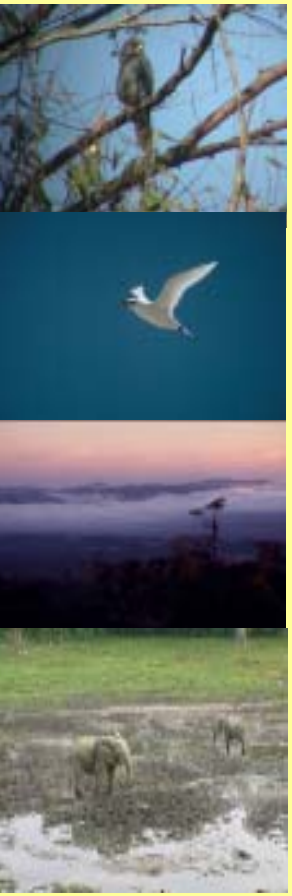
**Genes**

**Biosphere**

**Increasing scale of ecological organization**

# Outcomes Monitoring: Status & Trends in Biodiversity

**Guatemala, November 2006**

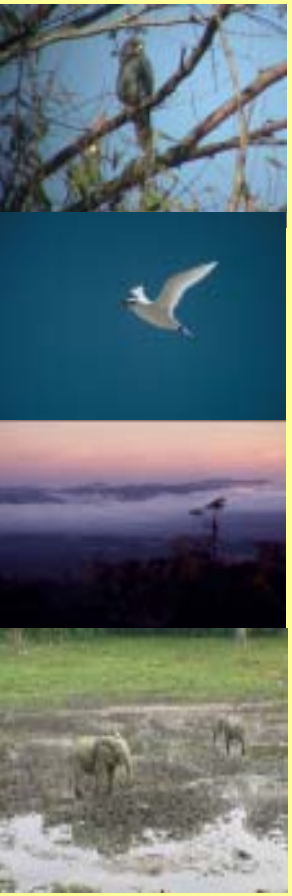


Indicators, defined regionally, are globally applicable measures that contribute to Convention of Biological Diversity recommendations.

- ***Core Indicators:***
  - Red List Index: Change in Red List status of species
  - Protected status of Key Biodiversity Areas
  - Change in habitat cover of Key Biodiversity Areas
  - Fragmentation of habitat in corridors
- ***Additional intervention measures*:**
  - Number of Protected Biodiversity Areas with governance structures & management plans in place
  - Percentage of globally threatened species that have ongoing studies that focus on ecology, population, or distribution & monitoring in place

# Outcomes Monitoring: Status & Trends in Biodiversity

Guatemala, November 2006

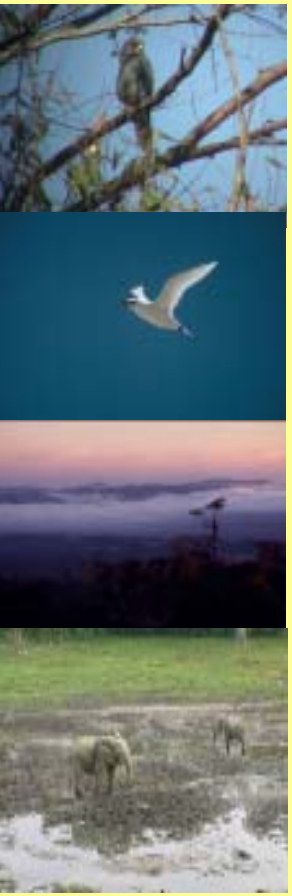


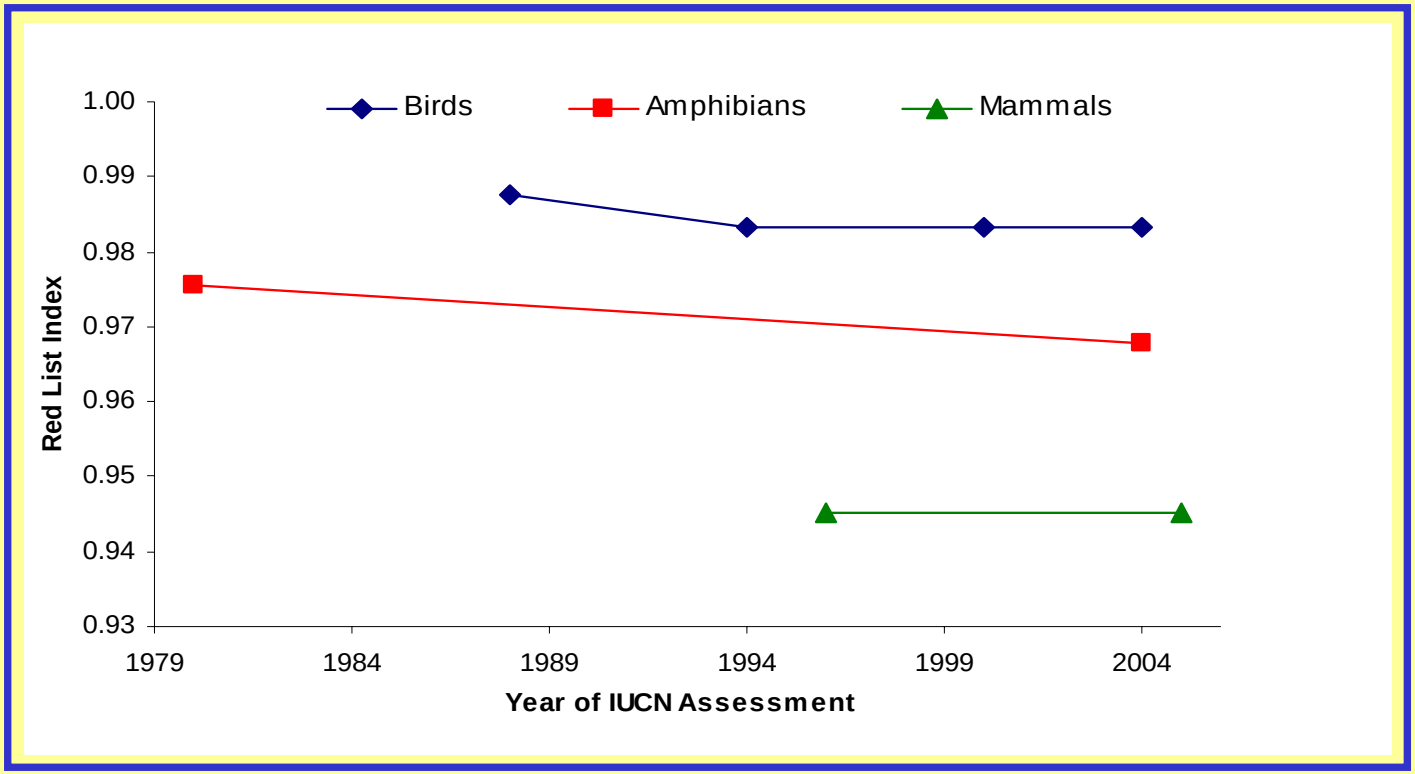
## Data collection, analysis and reporting. Examples from Madagascar and the Philippines

# Outcomes Monitoring: Status & Trends in Biodiversity

**Guatemala, November 2006**

## Red List Index: *Change in IUCN Red List status of species*





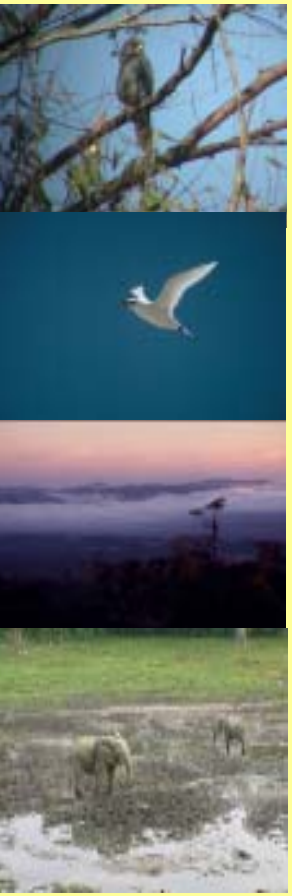

**RLI** : Measure the relative rate at which the number of sp in each IUCN Redlist category change by tracking genuine change in sp extinction risk between Redlist assessment

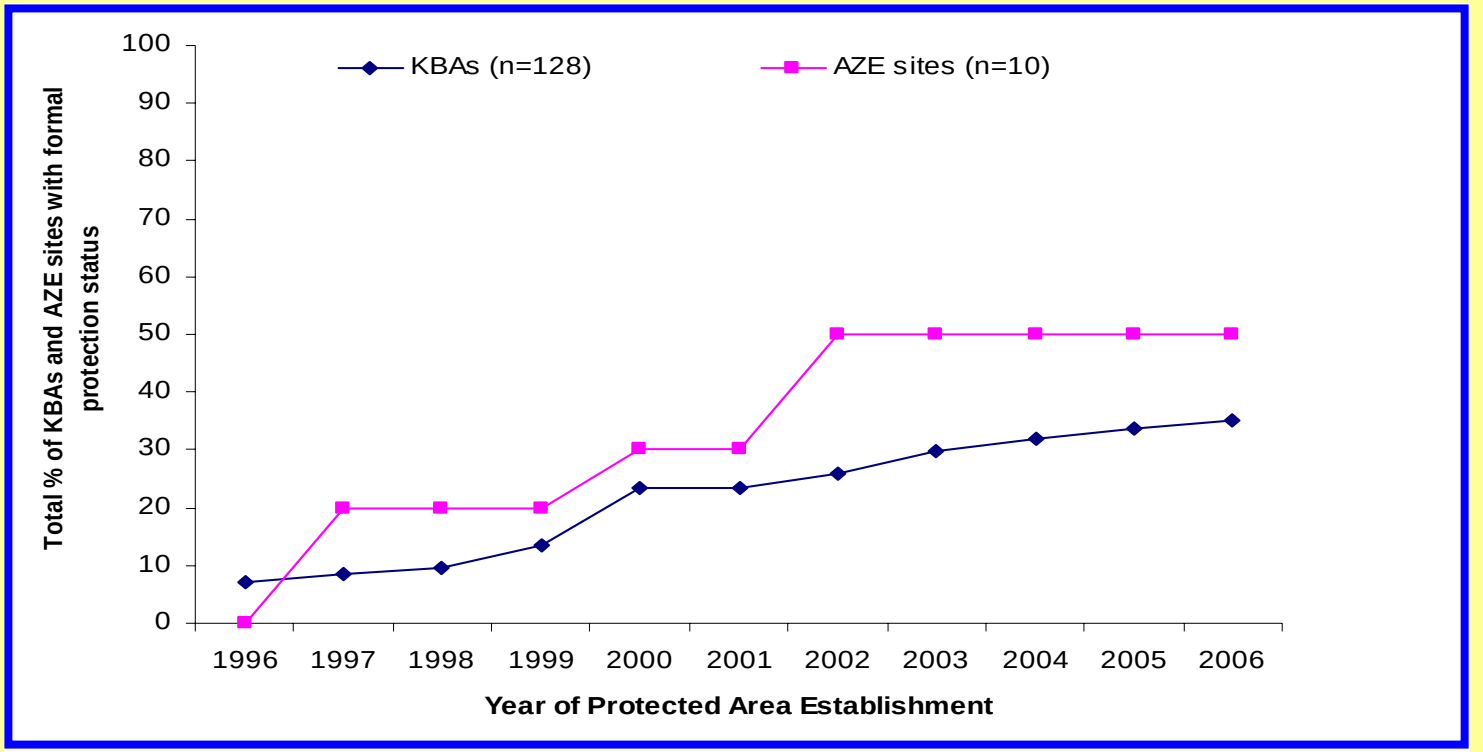
-B & A: the RLI reveals deterioration in the conservation status over the last two decades

# Outcomes Monitoring: Status & Trends in Biodiversity

**Guatemala, November 2006**

**Change in Protection Status of Conservation Priority Areas in the Philippines:** *Key Biodiversity Areas, including Alliance for Zero Extinction Sites*






*Time period 1996 – 2006. In the Philippines, 45 of 164 KBAs (35.2%) including 10 of 15 AZE sites (50%), benefit from official safeguard status*

**AZE sites**: *highly irreplaceable and highly threatened sites that contain the last remaining population of one or more Critically Endangered or Endangered species.*

# Outcomes Monitoring: Status & Trends in Biodiversity

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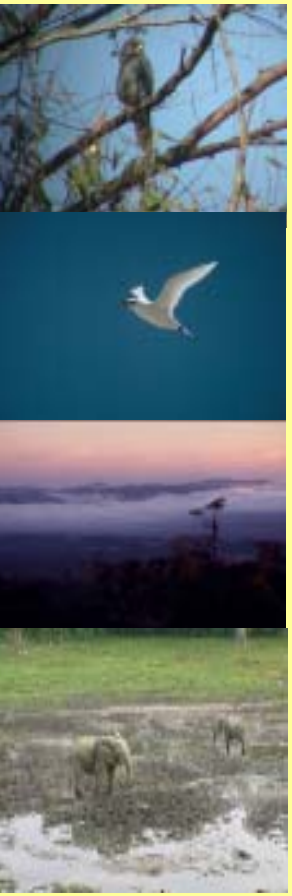

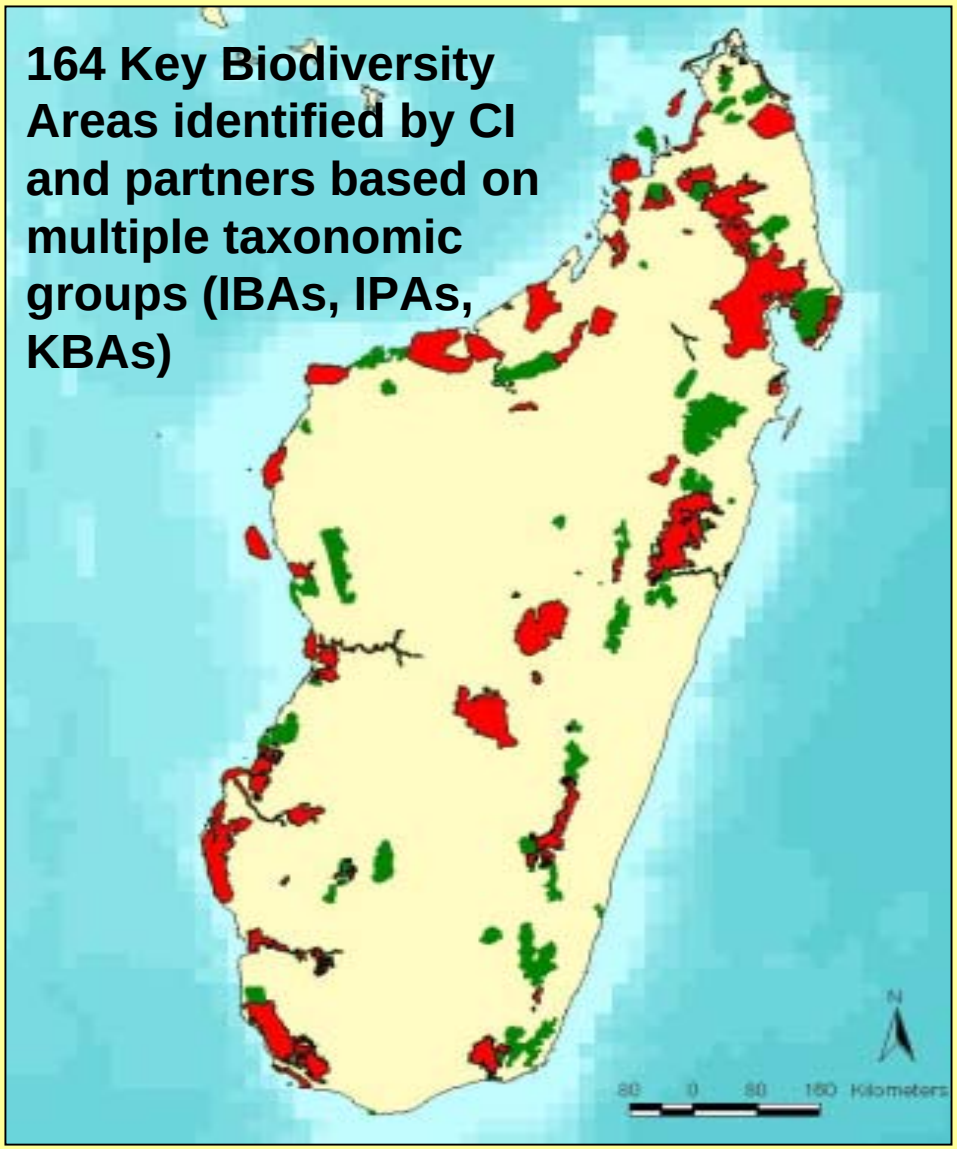


**Protected status of KBAs**

**GREEN = Protected KBAs (n=50)**

**RED = Unprotected KBAs (n=114)**

# Outcomes Monitoring: Status & Trends in Biodiversity

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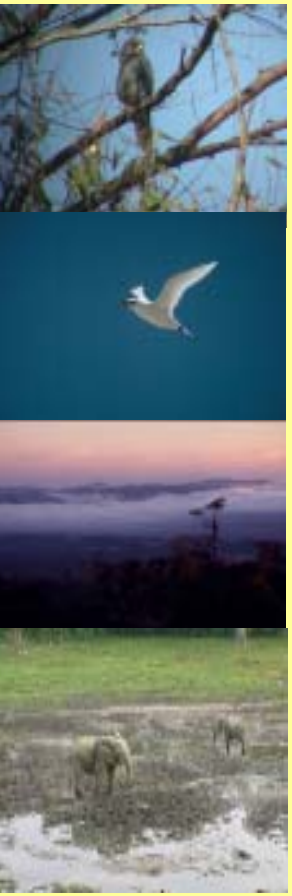
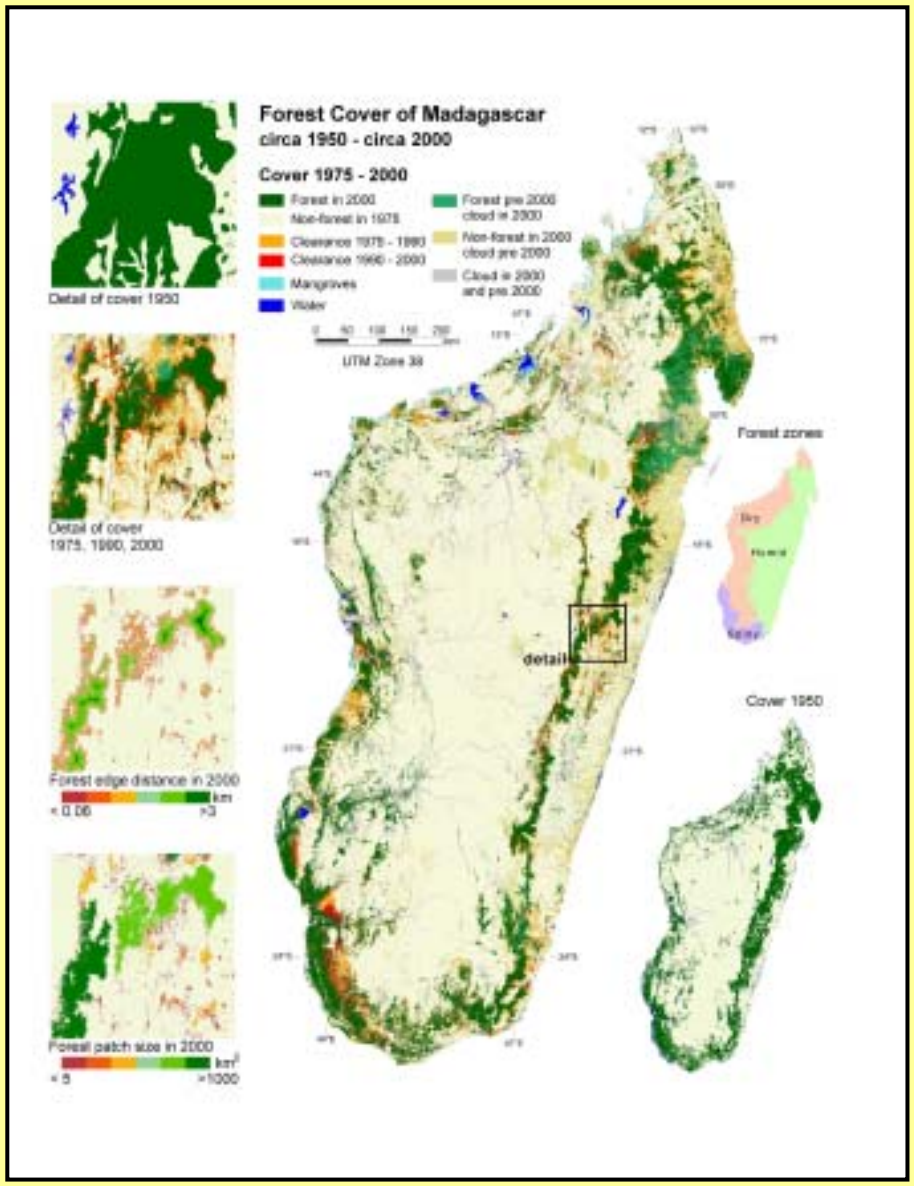




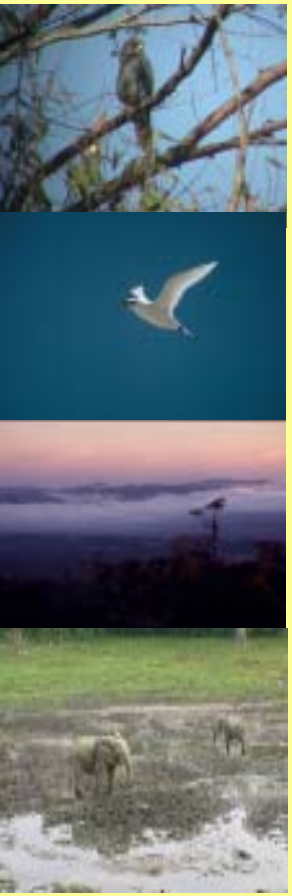

**Change in Forest Cover of Madagascar:**

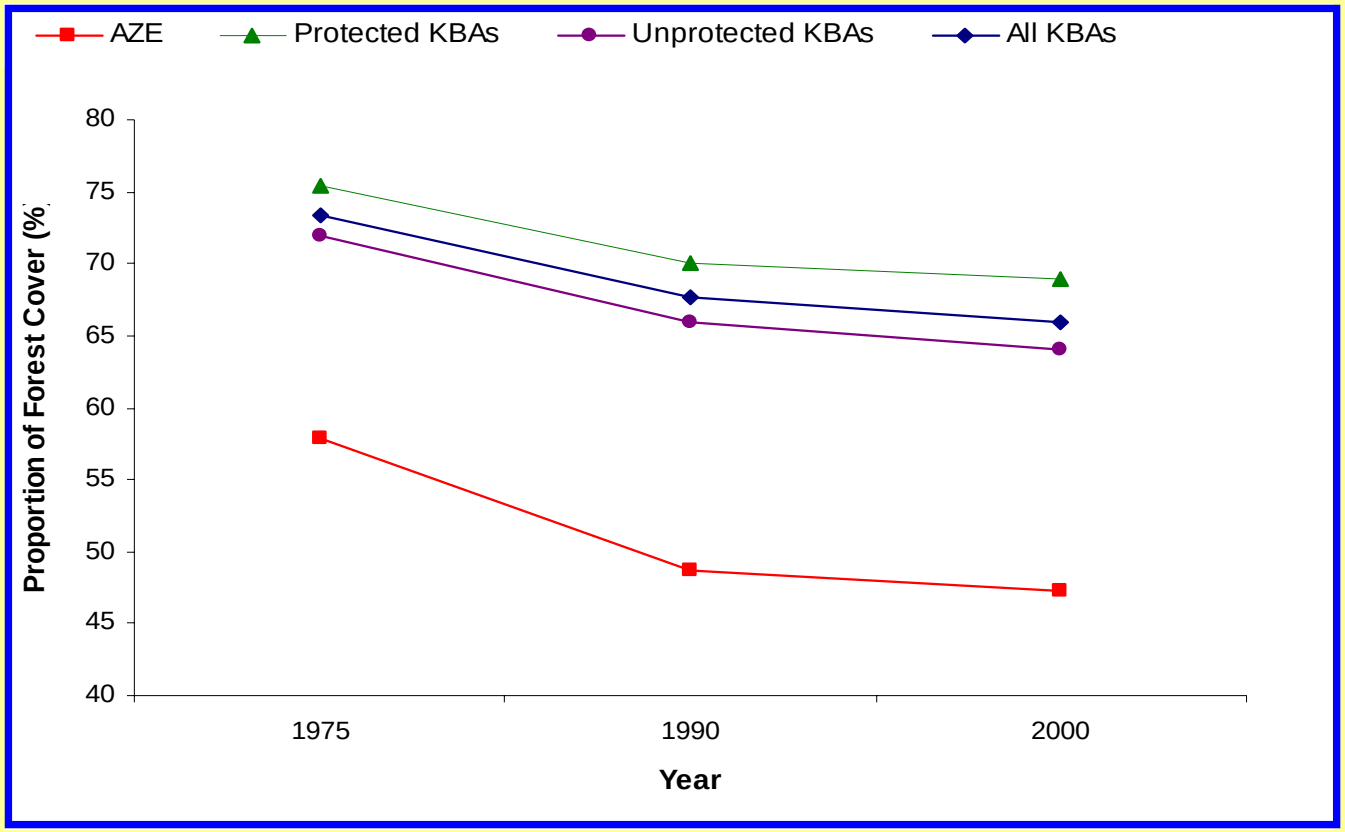
Primary habitat loss over the period of time :1975, 1990, 2000.

# Outcomes Monitoring: Status & Trends in Biodiversity

**Guatemala, November 2006**

Change in Habitat Extent in Key Biodiversity Areas, including Alliance for Zero Extinction sites for Madagascar






*AZE sites had the highest rate of decline in the proportion of habitat cover during 1975 to 1990. During 1990 to 2000 the rate of decline slowed for all KBAs*

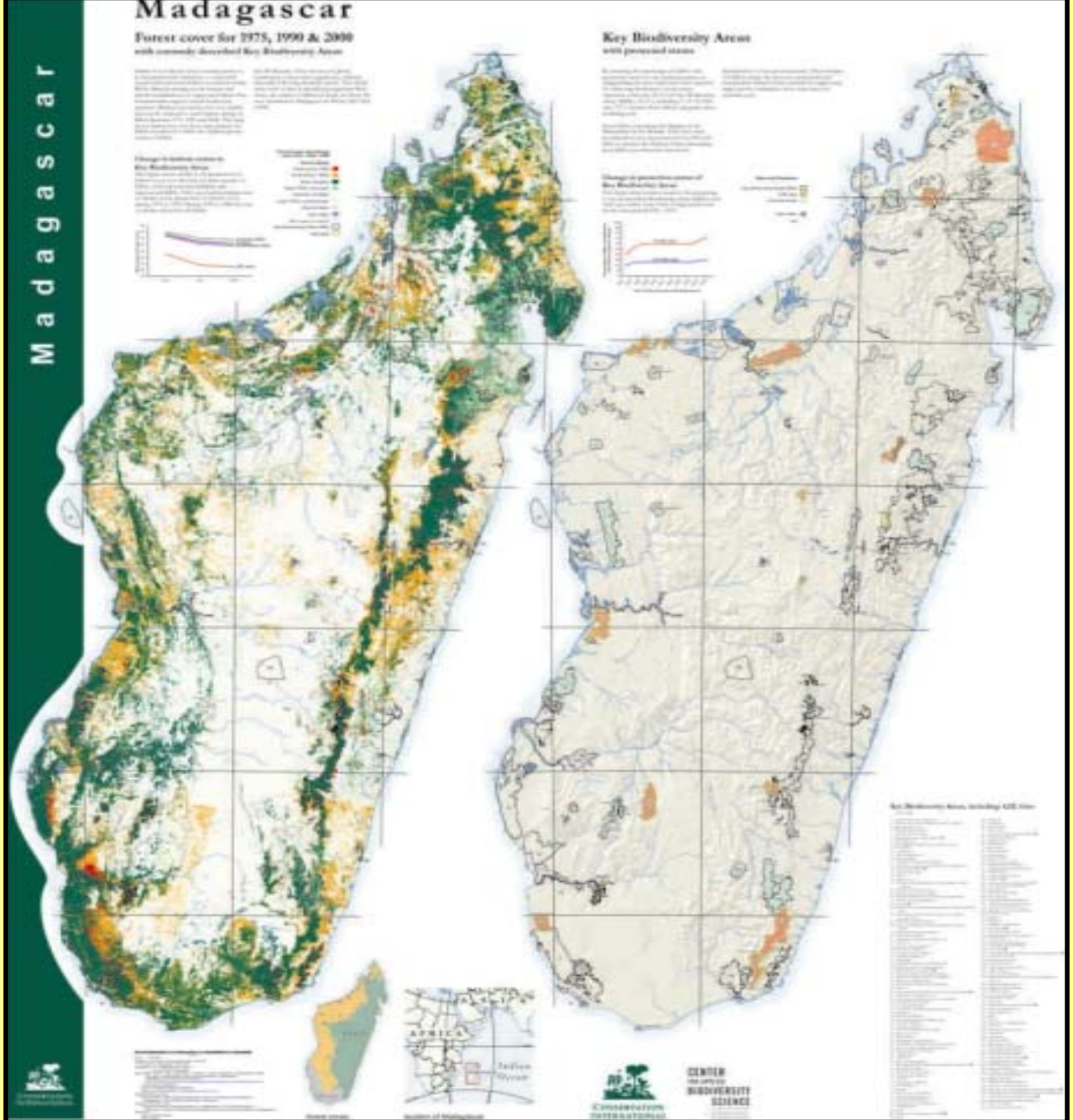
# Madagascar

## Forest cover for 1975, 1990 & 2000

with commonly described Key Biodiversity Areas

## Key Biodiversity Areas

with protected status



# Outcomes Monitoring: Status & Trends in Biodiversity

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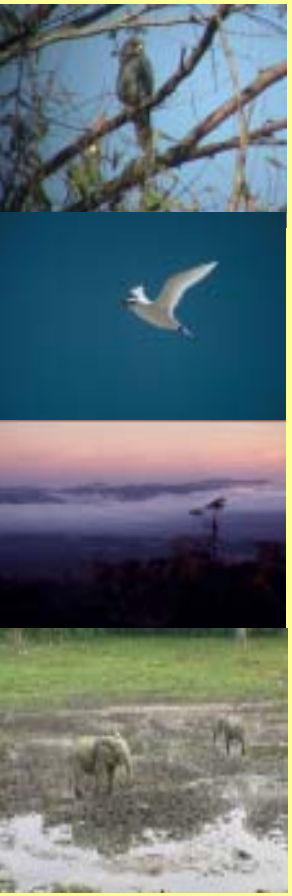
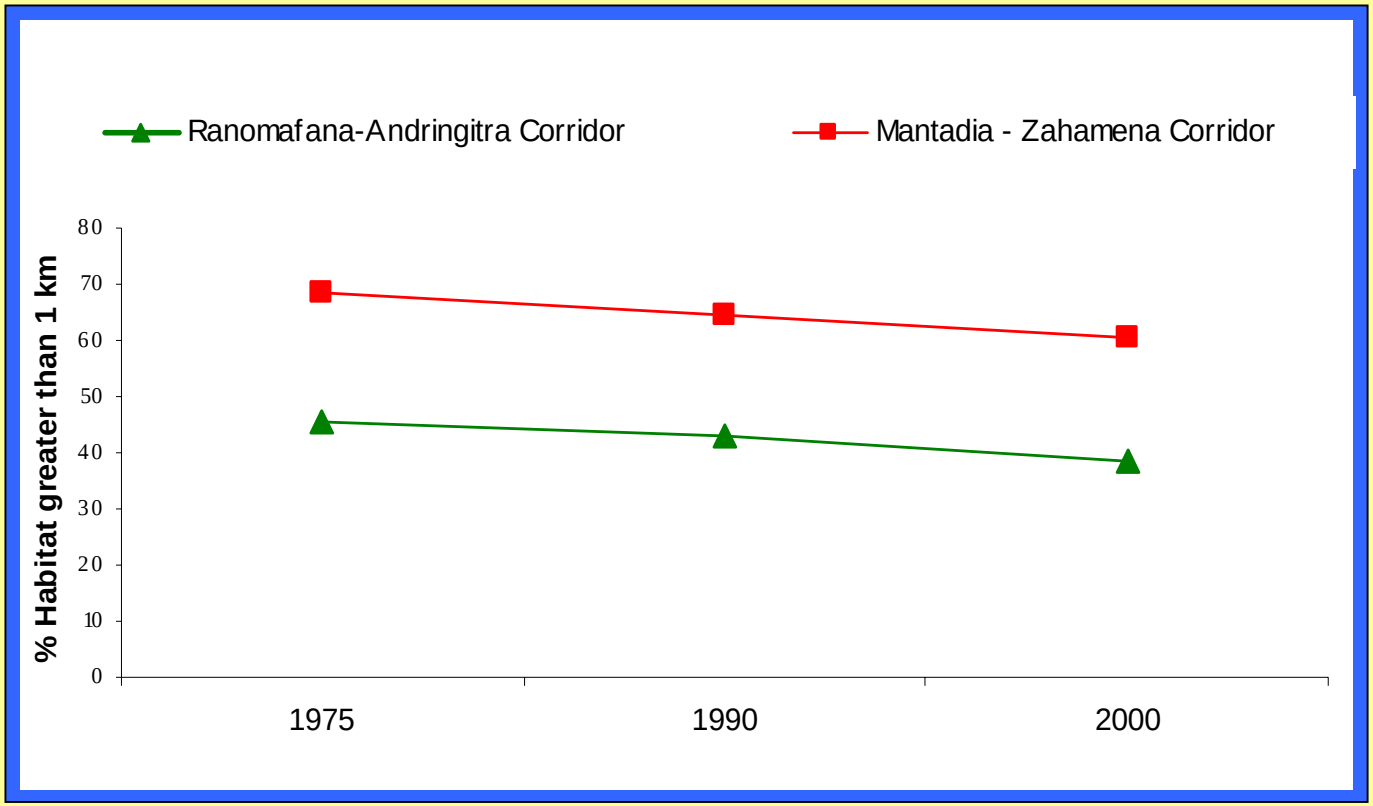


## Change in fragmentation in biodiversity conservation corridors: edge indicator




*a) proportion of habitat > 1 km from a non-habitat edge*

# Outcomes Monitoring: Status & Trends in Biodiversity

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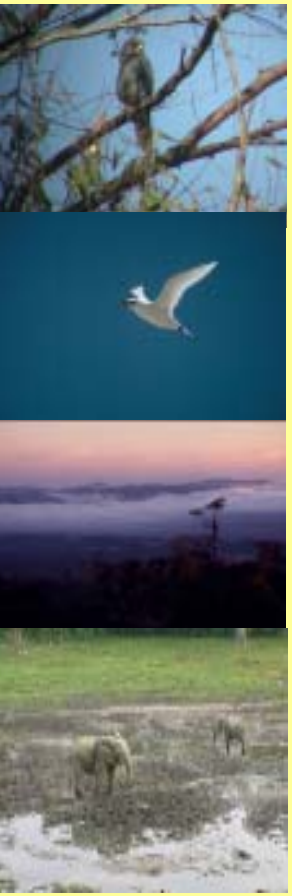
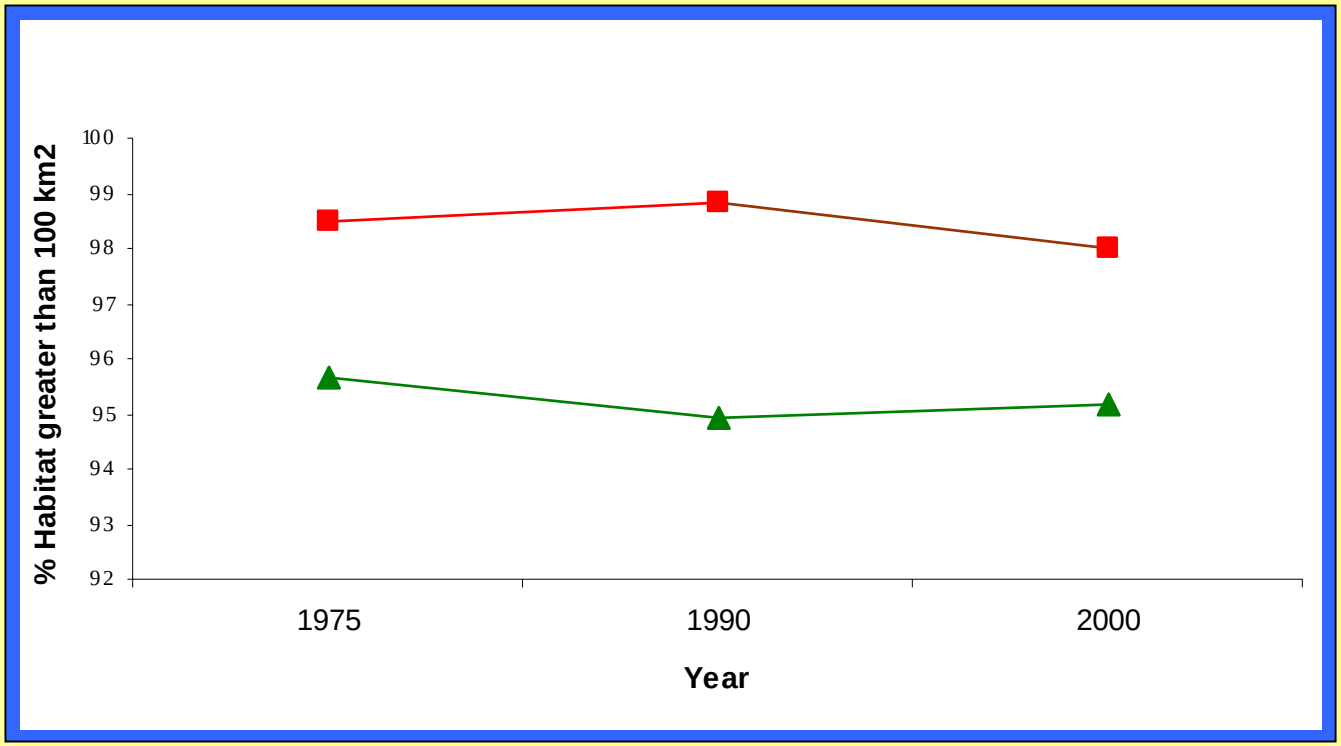


Change in fragmentation in biodiversity conservation corridors: isolation indicator




*b) proportion of habitat in patches >100 km2*

# Outcomes Monitoring: Status & Trends in Biodiversity

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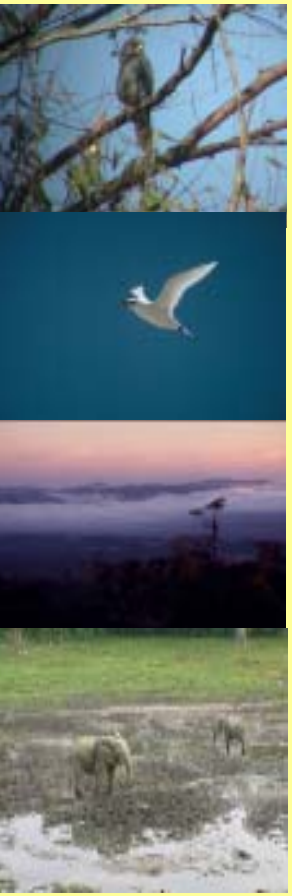

*Reporting:*

Can a subset of selected CBD indicators recommended for measuring the 2010 target be adopted to track & report progress at national and regional scales?

*Decision-making:*

How can biodiversity information be best utilized by government and investment decision makers to guide strategic conservation & sustainable development planning?

- What scale of conservation decision making (site, regional & national) and by whom?

# Outcomes Monitoring: Status & Trends in Biodiversity

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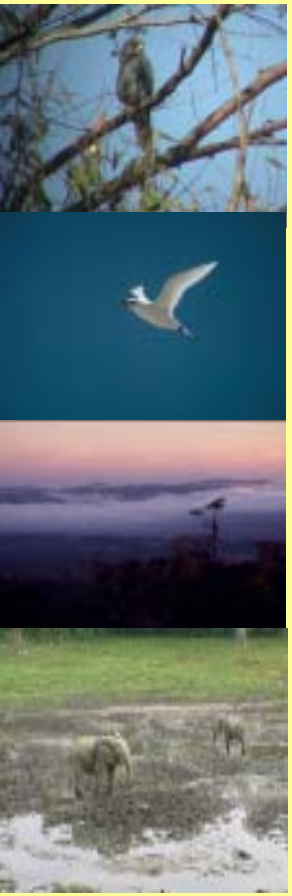

Establishing National/Regional Monitoring networks to ensure sustainability and consistency in data collection and reporting.

# Outcomes Monitoring: Status & Trends in Biodiversity

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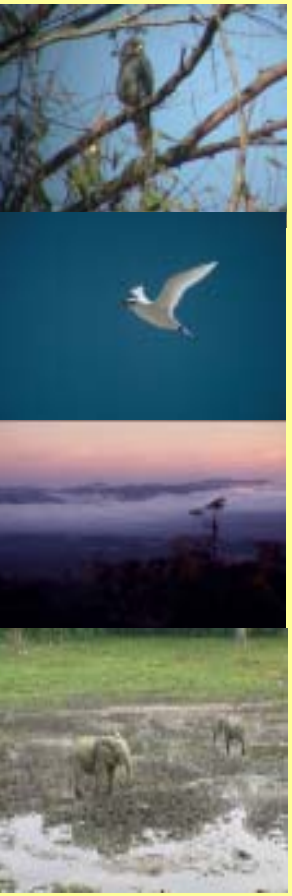
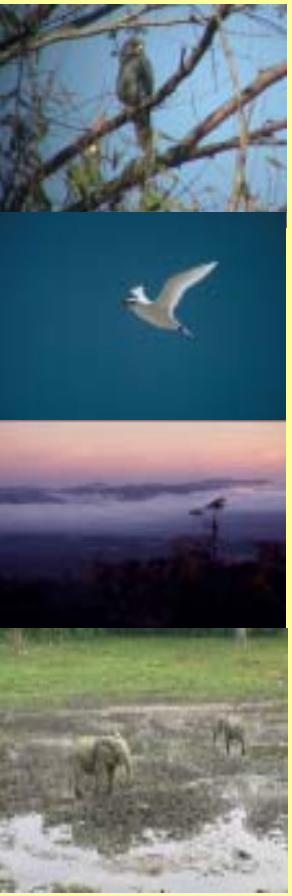
Monitoring systems held together by five components:



- Key stakeholders with defined technical roles & responsibilities
- Complementary indicators with standardized measurement protocols
- Centralized & compatible data housing and analysis infrastructures
- Collaborative dissemination efforts (workshops, publications)
- Fundraising strategy driven by multiple partners



# Dissemination efforts to leverage baseline monitoring data

Leveraging and diversifying biodiversity information for multiple actors at multiple scales

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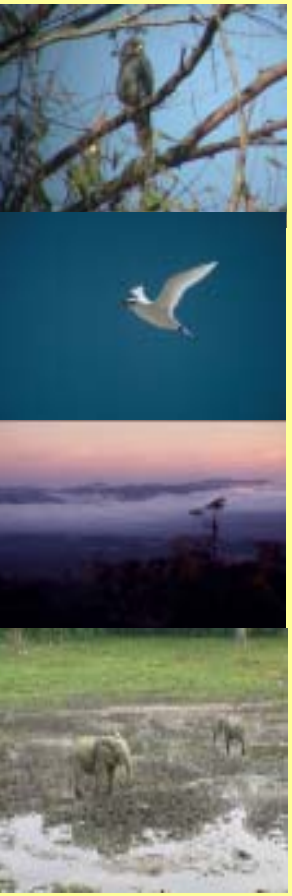

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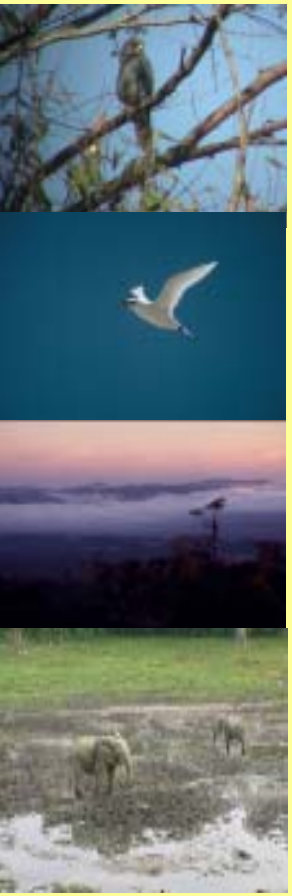
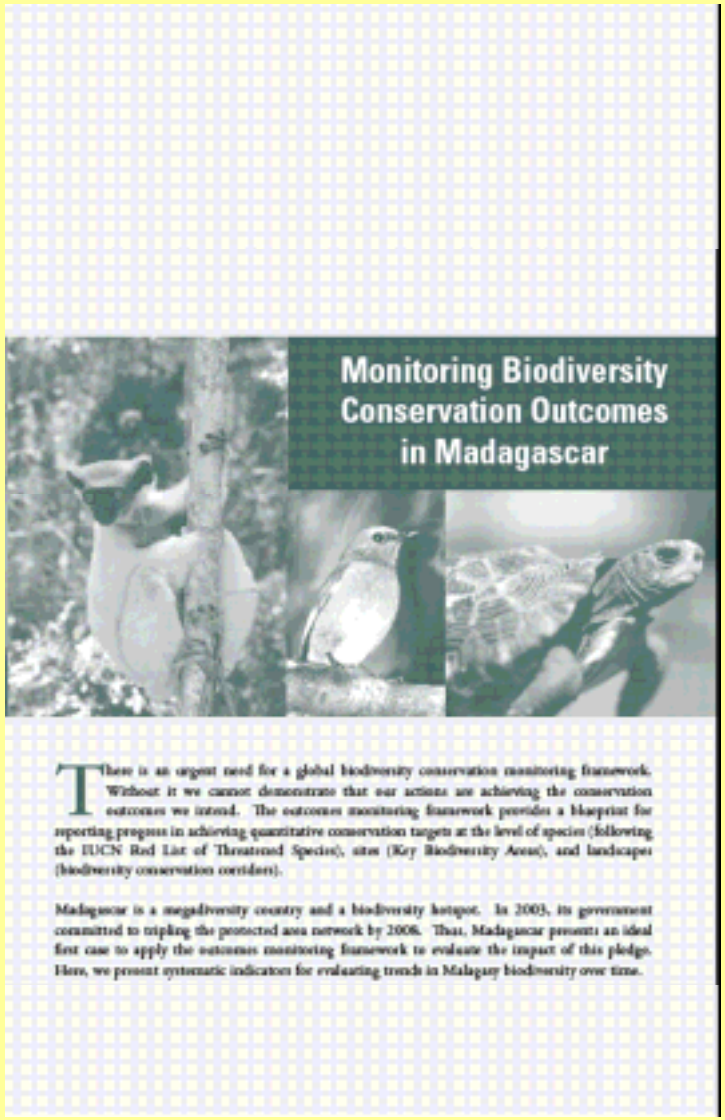




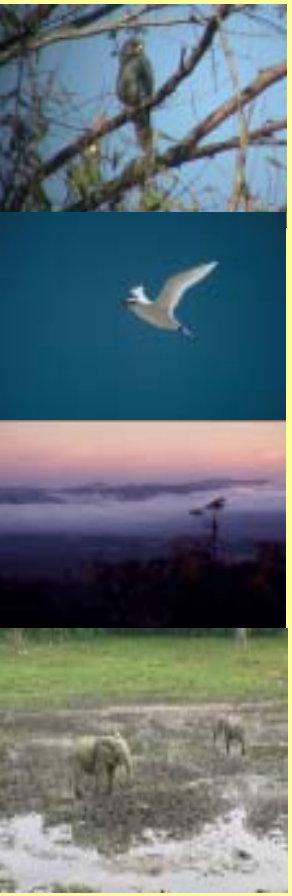
Monitoring Biodiversity Conservation Outcomes in Madagascar

There is an urgent need for a global biodiversity conservation monitoring framework. Without it we cannot demonstrate that our actions are achieving the conservation outcomes we intend. The outcomes monitoring framework provides a blueprint for reporting progress in achieving quantitative conservation targets at the level of species (following the IUCN Red List of Threatened Species), sites (Key Biodiversity Areas), and landscapes (biodiversity conservation corridors).

Madagascar is a megadiversity country and a biodiversity hotspot. In 2003, its government committed to tripling the protected area network by 2008. Thus, Madagascar presents an ideal first case to apply the outcomes monitoring framework to evaluate the impact of this pledge. Here, we present systematic indicators for evaluating trends in Malagasy biodiversity over time.

# Outcomes Monitoring: Status & Trends in Biodiversity

Guatemala, November 2006



## Change in Habitat Extent in Key Biodiversity Areas

Habitat loss is the key factor causing species to be threatened with extinction, so successful conservation prevents habitat conversion within KBAs. Fine-resolution, low-cost satellite data can be analyzed to track habitat change in KBAs between 1975, 1990, and 2000. Figure 3 shows trends in the proportion of habitat cover over this time for all KBAs and for three subsets: AZE sites, protected KBAs and unprotected KBAs. AZE sites had the highest rate of decline in the proportion of habitat cover during 1975 to 1990. During 1990 to 2000 the rate of decline slowed for **all** KBAs.

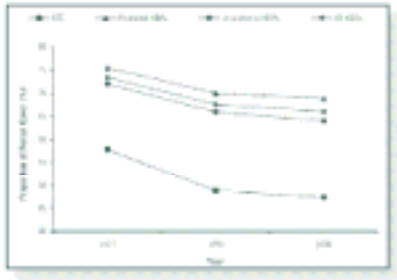


Figure 3. Change in habitat extent among all KBAs in three periods (1975, 1990, and 2000). Habitat cover is shown for all KBAs and for three subsets: AZE sites, protected KBAs, and unprotected KBAs.
*Data source: http://www.biodiversityscience.org/xp/CABS/research/regional_analysis

## Change in Fragmentation in Biodiversity Conservation Corridors

At landscape-scale conservation targets, corridors depend on connectivity to maintain the ecological processes that allow biodiversity to persist. This connectivity can be measured by indicators of fragmentation: the proportion of habitat located more than 1 km from non-habitat edge, and the proportion of habitat cast in isolated patches <100 km² (Figure 4). We analyzed two corridors in Madagascar: their fragmentation has continued from 1975–2000 at a moderate rate for the edge indicator and a slow rate for the isolation indicator. Again, these indicators have important policy implications: worsening trends highlight corridors where connectivity should be maintained or increased.

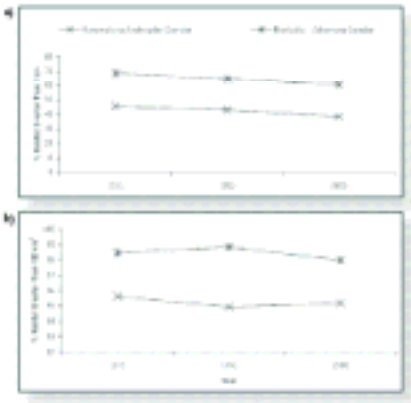


Figure 4. Change in fragmentation of natural habitat between 1975 and 2000 in a) proportion of habitat further than 1 km from a non-habitat edge, and b) proportion of habitat cast in isolated patches <100 km².
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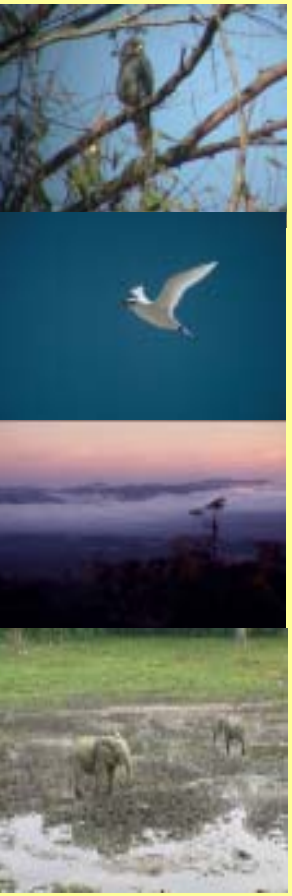

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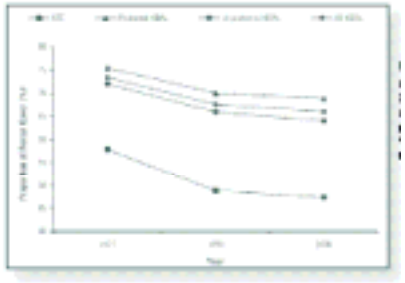

## Change in Fragmentation in Biodiversity Conservation C

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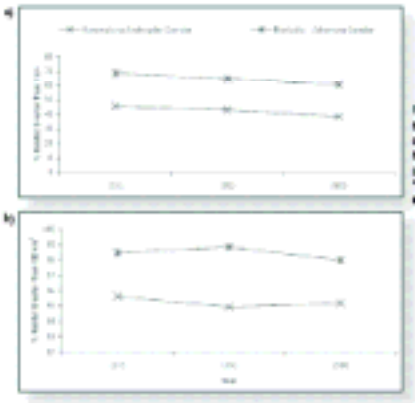


## The Red List Index (RLI)

The RLI measures the relative rate at which the number of species in each IUCN Red List category changes. It is calculated by tracking genuine change in species' extinction risk between Red List assessments. The overall threat status of a group determines its position on the vertical axis while the direction of the trend is determined by the genuine changes in threat status of individual species in the group. For birds and amphibians, the RLI reveals deterioration in the conservation status over the last two decades, while the conservation status of mammals remained constant (Figure 1). Thus, while the mammals did not experience significant status changes over the last decade, the Red List Index reveals that as a taxonomic group, they are facing a much higher degree of threat than either birds or amphibians. Over a period of two decades, the RLI is sensitive enough to capture genuine biodiversity changes at a regional or national scale. Declining RLIs should spur further investment in the conservation of species facing increased extinction risk—as has happened over the last three years in Madagascar.

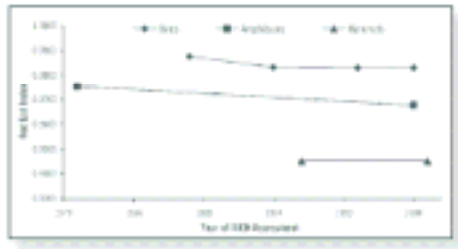


Figure 1. The Red List Index (RLI) for birds, mammals and amphibians of Madagascar. An RLI value of 1.0 means that all species in the taxonomic group are Least Concern, a value of 0.5 indicates that all species are Critically Endangered, and a value of 0 indicates that all species in a particular taxonomic group are Extinct. Data Source: http://www.nationalrli.org

## Change in Protection Status of Key Biodiversity Areas (KBAs)

KBAs are sites of global biodiversity conservation significance defined using standardized criteria and thresholds to guide conservation interventions such as the establishment of protected areas. Sites identified by the Alliance for Zero Extinction (AZE) are the highest priority subset of KBAs and contain the last remaining population of one or more Critically Endangered or Endangered species. This indicator tracks the change in percentage of KBAs with official protection status. In Madagascar, 50 of 164 KBAs (30.5%) including 11 of 15 AZE sites (73%), benefit from official safeguard status (Figure 2). Seven KBAs (including the Daraina/Loky-Manambaro and the Menabe AZE sites) were proclaimed as new protected areas in 2005 and 2006 to advance the Durban Vision, illustrating how KBAs can effectively inform the identification of new protected areas.

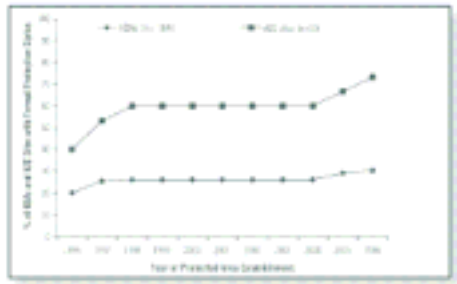
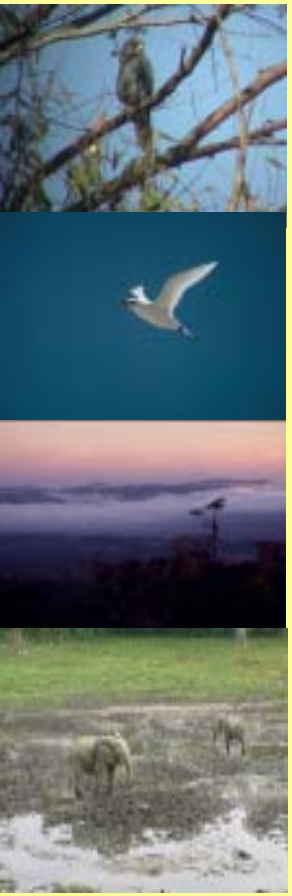
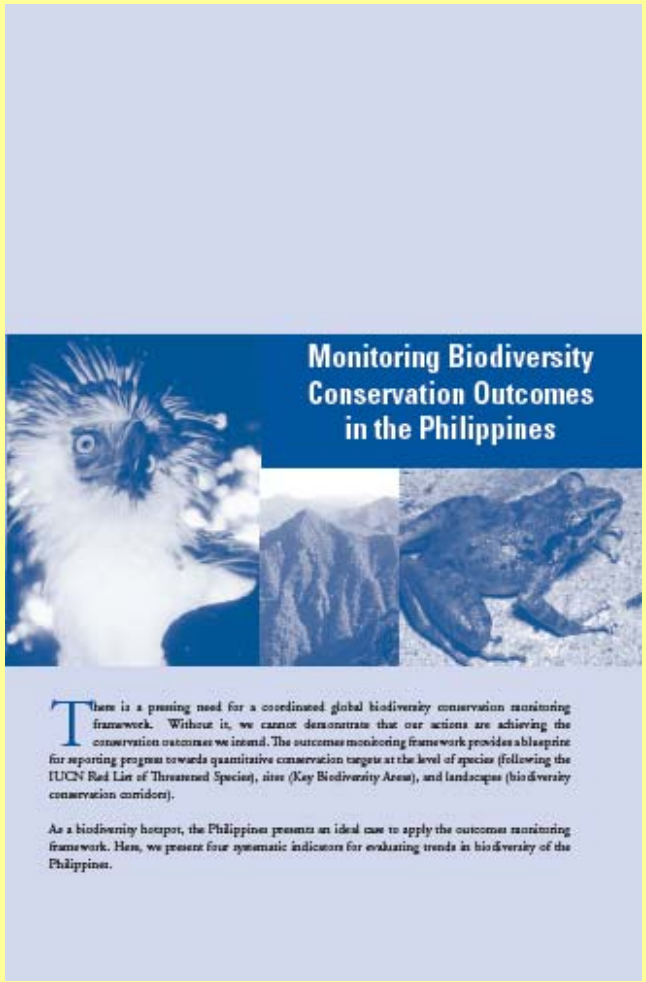


Figure 2. Trends in the total percentage of the defined key biodiversity areas (KBAs) and AZE sites under some form of legal protection for the time period 1996 – 2006. There are 164 KBAs currently identified across Madagascar, with 15 of these identified as high priority AZE sites. *Data source: http://www.conservation.org*

# Outcomes Monitoring: Status & Trends in Biodiversity

**Guatemala, November 2006**





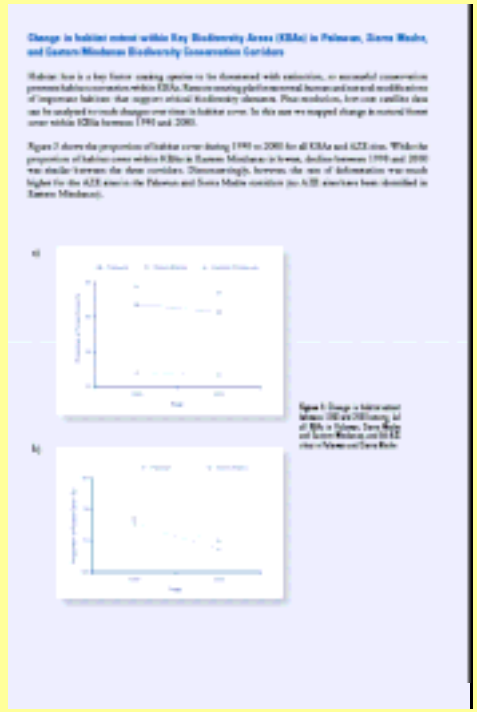
Monitoring Biodiversity Conservation Outcomes in the Philippines

There is a pressing need for a coordinated global biodiversity conservation monitoring framework. Without it, we cannot demonstrate that our actions are achieving the conservation outcomes we intend. The outcomes monitoring framework provides a blueprint for reporting progress towards quantitative conservation targets at the level of species (following the IUCN Red List of Threatened Species), sites (Key Biodiversity Areas), and landscapes (biodiversity conservation corridors).

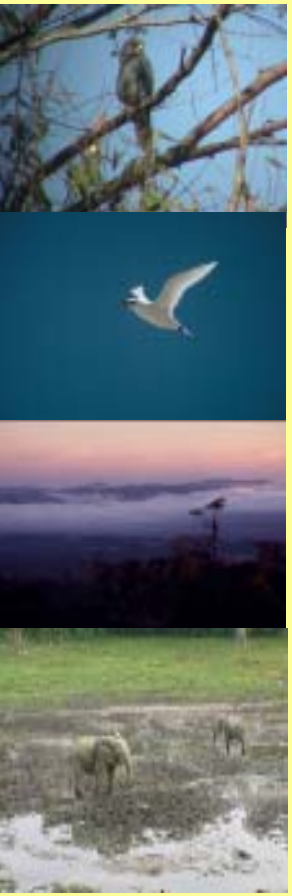
As a biodiversity hotspot, the Philippines presents an ideal case to apply the outcomes monitoring framework. Here, we present four systematic indicators for evaluating trends in biodiversity of the Philippines.

Change in Protection Status of Key Biodiversity Areas (KBAs)

In the Philippines, 45 of 128 KBAs (35.2%) benefit from official safeguard status



Change in habitat extent within Key Biodiversity Areas (KBAs) in Palawan, Sierra Madre, and Eastern Mindanao Biodiversity Conservation Corridors

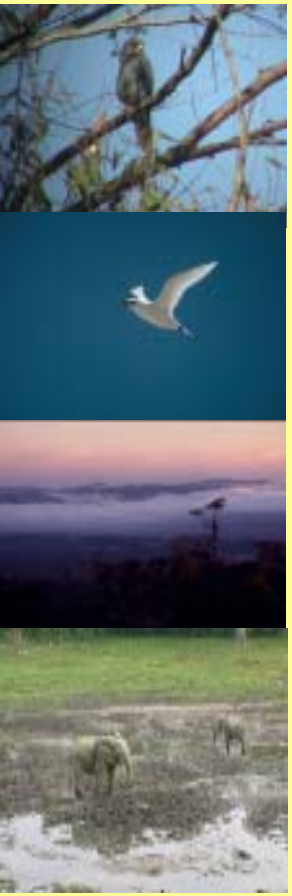


## Utility of Outcomes data

- Promote multi – stakeholder use of biodiversity conservation status data
- Inform & direct government and donor policy and investment decision making
- Strengthen future fundraising strategies
- Gain efficiencies in delivering biodiversity conservation status trends

# Outcomes Monitoring: Status & Trends in Biodiversity

**Guatemala, November 2006**



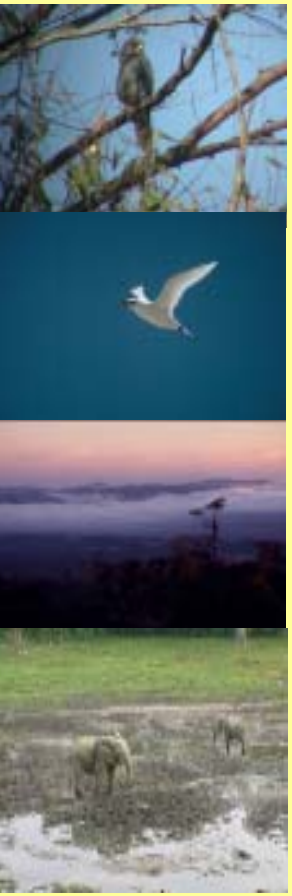
Defining and Monitoring Biodiversity Conservation Outcomes in Mesoamerica.

- Baseline of Globally threatened species and Key Biodiversity Areas being identified in Guatemala, Panama, Belize, Southern Mexico, Costa Rica & Nicaragua.

- Change in forest cover between 1990-2000 being conducted for Northern Mesoamerica.

- Regional Biodiversity Monitoring Workshop to be conducted in April/May.

# Contacts

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