Alliance for Zero Extinction

Conserving Sites for the World's Most Imperiled Species

The Extinction Wave

- Many periods of extinction in Earth's history.
- Present rate of extinction 100-1000X typical "background" rate.
- Rate could increase.
- Little dispute that this is caused by humans.

The AZE Approach

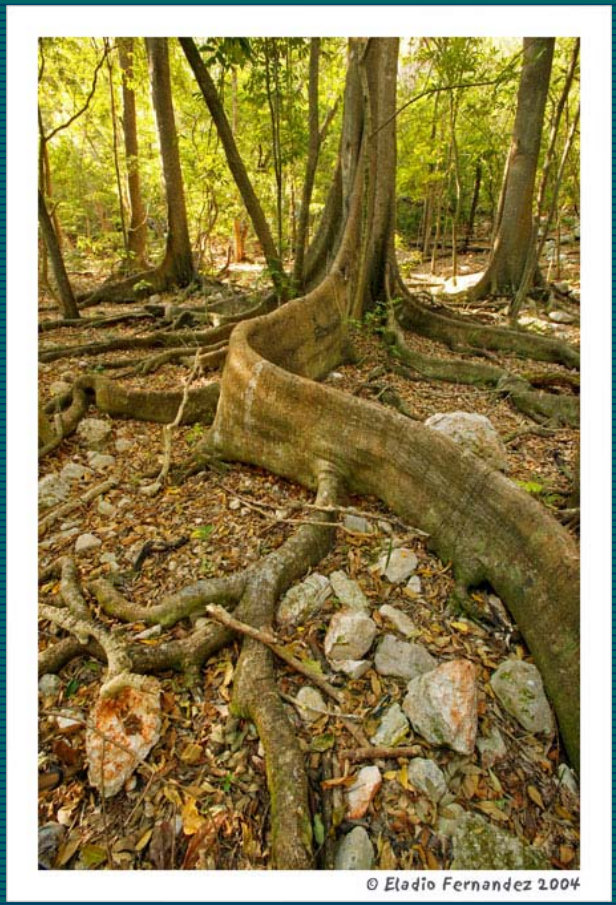
- Slowing rates of global biodiversity loss requires preventing species extinctions.
- Need to know:
  - Species in danger of extinction, and…
  - The sites where they occur.

Large-scale Prioritization

- Essential for overall biodiversity conservation.
  - WWF Global 200
  - CI Hotspots
  - Endemic Bird Areas
- Lead to large scale projects.
- Multi-country, -organization, -lateral agencies.

We Also Need a Site-based Approach.

- Many endangered species are restricted to small habitat fragments, have ranges outside protected areas, and are not protected by existing conservation initiatives.
- A site-based, species-specific approach is needed to prevent extinctions.



About AZE

- Global partnership initiative launched by international conservation groups.
- Open to any NGO whose primary mission is biodiversity conservation and that wants to work collaboratively.
- 56 members.

AZE Strategy

- Identify sites.
- Promote the initiative and its importance.
- Use collective power of the alliance to protect sites.
- Encourage others to incorporate AZE priority setting in the development of protected areas.

Site Selection

- PRESENCE OF ENDANGERED SPECIES:

  An AZE site must contain at least one Critically Endangered (CR) or Endangered (EN) species, based on most recent version of the IUCN Red List. So far, limited to globally assessed groups – birds, mammals, amphibians, selected reptiles, conifers.

Site Selection

- IRREPLACEABLITY:

  Site must contain at least 95%of the entire world population of a CR or EN species for at least one life history segment (e.g., breeding, wintering, or permanent resident).

Site Selection

- DISCRETENESS:

  Site must have a definable boundary; be a practical unit for which conservation can be applied; including considerations of contiguous habitat, management units; potential for gene flow between populations.

The AZE Database

- Site Name
- Country
- Location: Longitude/Latitude
- Size
- Altitude Range
- Protected Area Status
- Protected Area Name
- Protected Area administration
- Trigger species scientific and common names, family, order
- RedList status
- Other species notes
- Other site notes

AZE Analysis

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Pinpointing and preventing imminent extinctions

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Slowing rates of global biodiversity loss requires preventing species extinctions. Here we pinpoint centers of imminent extinction, where highly threatened species are confined to single sites. Within five globally assessed taxa (i.e., mammals, birds, selected reptiles, amphibians, and conifers), we find 794 such species, three times the number recorded as having gone extinct since 1500. These species occur in 595 sites, concentrated in tropical forests, on islands, and in mountainous areas. Their taxonomic and geographical distribution differs significantly from that of historical extinctions, indicating an expansion of the current extinction episode beyond sensitive species and places toward the planet's most biodiverse mainland regions. Only one-third of the sites are legally protected, and most are surrounded by intense human development. These sites represent clear opportunities for urgent conservation action to prevent species loss.

biodiversity | conservation | protected area | threatened species

Recent human-induced extinction rates are 100–1,000 times the geological background rate and are predicted to increase another 10-fold (1). In response, 188 countries have committed to slowing global biodiversity loss (2). Over the long term, achieving this ambitious goal requires broadscale, proactive conservation to protect entire ecosystems before their component species become threatened (3). Many species, however, are already so endangered by human activities that they will likely disappear without immediate site-specific action. Preventing these extinctions must be part of any global strategy to reduce biodiversity loss.

Among the species of primary conservation concern are those that are both highly threatened and restricted to single locations. The sites containing such species represent the extremes of two widely accepted principles for prioritizing conservation action: threat (i.e., the likelihood that the biodiversity in that site will be lost) and irreplaceability (i.e., the degree to which options for conservation are lost without the site) (4). With small populations, extreme vulnerability to habitat destruction, and limited options for conservation, these species face imminent extinction in the absence of appropriate conservation action. Furthermore, immediate requirements for their conservation are relatively straightforward, although a variety of conservation activities may eventually be needed, the obvious immediate goal is to conserve habitat in their single remaining sites.

To locate such species, we examine five major taxa for which global data are available (i.e., mammals, birds, selected reptiles, amphibians, and conifers) and identify sites that (*i*) contain at least one highly threatened species, (*ii*) represent essentially the sole area of occurrence for the species, and (*iii*), permit management as a discrete unit. (Hereafter, we refer to places that meet these criteria as "sites" and to species that trigger them as "trigger species.") Using the resulting data set, we examine the taxonomic and geographic distributions of trigger species and sites, and we compare them with the distributions of historical extinctions to examine shifts in extinction risk over time. We also determine protection status of current sites, assess levels of surrounding human activity, and estimate the costs required to adequately conserve them. These analyses are intended to complement and inform ongoing efforts to conserve global biodiversity (5–10) by identifying sites where urgent conservation action can help to prevent species extinctions.

Methods

We applied three criteria to identify sites. First, a site must contain at least one endangered or critically endangered species, as listed on the 2004 World Conservation Union (IUCN) Red List of Threatened Species (www.iucnredlist.org). A site cannot be designated on the basis of unlisted or unevaluated species, data deficient species, or vulnerable species. A site may be designated as the only suitable reintroduction site for a species assessed as extinct in the wild; only two sites were triggered by this criterion. We adopted the taxonomy followed by the IUCN Red List at the species level and did not identify sites for subspecies or subpopulations.

Second, a site must (*i*) be the sole area where an endangered or critically endangered species occurs, (*ii*) contain the overwhelmingly significant (more than ≈95% of the global population) known resident population of the species, or (*iii*) contain the overwhelmingly significant known population for one life-history segment (e.g., breeding or nonbreeding) of the species. Less than 10% of all sites were triggered by (*ii*), and only 15 sites (2 for migratory birds and 13 for breeding seabirds) were triggered by (*iii*).

Third, a site must have a definable boundary, within which habitats, biological communities, or management issues share more in common with each other than they do with those in adjacent areas (e.g., a single lake, mountaintop, or forest fragment). The boundary of the area was defined to correspond to the most practical conservation unit, including considerations of contiguous habitat, management units, and the potential for significant gene flow among populations. There was no explicit size criterion for sites, but median size of sites for which size

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Abbreviation: IUCN, World Conservation Union.

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ECOLOGY

AZE Global Site Statistics

- 595 sites “triggered” by 795 species.
- Globally, Mexico has the most sites (63), followed by Colombia (47) and Brazil (39).
- 54% of all sites in Neotropics.
- 60% of sites tropical and sub-tropical moist broadleaf forests.
- 39% of AZE species are on islands, 46% mountains, 15% continental lowlands.
- 51% of all trigger species are amphibians.

AZE Sites

AZE Site Statistics in SA

Country	Protected	Partial	Unprotected	Unknown	Total
Colombia	14	7	22	4	47
Brazil	9	7	19	4	39
Peru	8	4	17	2	31
Ecuador	6	3	8	2	19
Venezuela	8	4	3	3	18
Bolivia	3		4		7
Chile	2		5		7
Argentina	2		1	2	5
Total	52	25	79	17	173

Targets for AZE Action in SA

- Creation of new Protected Areas.
- Increasing levels of protection in inadequately protected, but legally recognized, protected areas.

More on AZE Target Actions

- Expansion of existing protected areas or creation of new areas to augment existing protected areas (e.g., Bosque de Protección Alto Mayo, PN Podocarpus, PN Munchique).