



life  
Lasting Initiative For Earth

# CONSERVATION

RESULTS INDICATORS



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## RESULTS INDICATORS

Which **STRATEGIC LINES**  
can one act on for biodiversity conservation?

How does one guarantee the **EFFECTIVENESS**  
**OF THE RESOURCES** invested in conservation?

How does one choose an **EFFECTIVE ACTION**  
for biodiversity conservation?

How does one measure and present the  
**EFFECTIVE RESULT** of a conservation action?

The answers to these questions are fundamental, because:

- 1.** They can make a real difference between an effective biodiversity conservation action and a supposedly important action whose effectiveness is minimal;
- 2.** They help the organization to assess which actions generate greater return on investment in conservation, focusing on actions whose results can be measured and presented to society and regulatory agencies and certifiers;
- 3.** The organization is assured that the actions carried out are contributing, in fact, to biodiversity conservation, decreasing uncertainties and the risk of the investment in conservation;
- 4.** The organization has prior knowledge of the biodiversity-related information that will be monitored.

## HOW DOES ONE EVALUATE THE EFFECTIVE RESULTS FOR CONSERVATION?

Given the need to guide organizations on the way of evaluating the effectiveness of biodiversity conservation actions, LIFE Institute has identified objective criteria that allow monitoring results in conservation. Classes of Conservation Result Indicators (CRI) have been refined in order to evaluate information from the genetic diversity of species to the integrity of ecosystem functions. In each class, minimal variables are suggested that are passive of measuring and can generate clear result indicators both in the medium and long terms.

The Conservation Result Indicators adopted by LIFE Institute were defined based on the ***Essential Biodiversity Variables (EBV)***, which were presented by Pereira et al. (2013)\*.

The Essential Biodiversity Variables were inspired by the Essential Climate Variables (ECV) guiding the implementation of the Global Climate Observing System (GCOS). The main goal of the Essential Biodiversity Variables is to establish a consensus on what should be monitored by the different biodiversity conservation programs throughout the world.

These variables were organized according to their importance and then divided into classes based on common features to allow analyses in terrestrial, freshwater, and marine ecosystems.

\* Article ***Essential Biodiversity Variables*** - Science Magazine - January 18<sup>th</sup>, 2013 (Vol. 339 no. 6117 p. 277-278)

The goal of making public these variables is to define minimal monitoring priorities that can capture changes in biodiversity. The essential biodiversity variables are fundamental data to study, report, and manage these changes.

In order to contribute with the building of an international database and guide the search for indicators that take into account the LIFE Guideline on conservation, LIFE Institute synthesizes, simplifies, and makes public these indicators as goals to evaluate results in conservation for the medium and long terms.

## LIFE GUIDELINE ON CONSERVATION

*“Maintenance of the Composition, Structure, and Function of Ecosystems”*

### MAINTENANCE OF THE STRUCTURE AND FUNCTION OF ECOSYSTEMS

INDICATOR CLASS	INDICATOR	EXPECTED RESULT FOR BIODIVERSITY
<b>Ecosystems Structures</b>	Landscape structure	The maintenance of, or decreased, fragmentation; increased functional connectivity (effective flow of individuals)
	Tropic structure	Occurrence of top predators (large carnivores)
	Habitat structure	The maintenance of, or increased native vegetation cover; maintenance of vertical stratification (structural complexity of the habitat); physical-chemical structure of the soil
<b>Ecosystems functions</b>	Decomposition and cycling of nutrients	Proven trend of maintenance or increase of the ability of the area in storing, fixing, or regulating a set of nutrients; maintenance/increase of abundance and diversity of functional groups (worms, coprophagous beetles)
	Capture of CO <sub>2</sub>	Maintenance or increase of biomass/fixation of CO <sub>2</sub>

## MAINTENANCE OF ECOSYSTEM COMPOSITION

*Priority: Taxons that need conservation actions, which are target of sustainable management and/or present relevance for ecosystem processes.*

INDICATOR CLASS	INDICATORS	EXPECTED RESULT FOR BIODIVERSITY
<b>Genetic Composition</b>	Allelic richness	Proven trend of maintenance/increase in allelic richness
	Gene diversity	Maintenance or increase in heterozygote frequency in the studied population(s)
	Frequency of gene differentiation	Maintenance or increase of genetic differentiation frequency in the studied population(s)
<b>Populations</b>	Amount, density, or biomass of individuals of one (or more) population(s) in one or more places	Increased population density (and number of individuals); recovery of declining populations; decreased risk of extinction of the studied population(s)
	Flow of individuals among populations of a meta-population	Maintenance or increased occupation of habitat patches in the studied landscape
	Age structure	Maintenance of the age structure/ classes of size of the population(s)
	Sex ratio	Maintenance of the natural sex ratio of the studied populations(s)
<b>Composition and structure of communities</b>	Species interactions	Frequency and diversity of dispersed seeds; or frequency and diversity of floral visitors; diversity of associations with mycorrhizae
	Species richness	Proven trend of maintenance or increase in species richness
	Functional diversity	Proven trend of maintenance or increase in functional diversity; increase in size and diversity of the seed bank in the soil

## EXAMPLE OF EVALUATION OF CONSERVATION RESULTS

An organization that owns a natural reserve area decides to invest in the following ***biodiversity conservation actions***:

- ✔ Supervision, guaranteeing protection against anthropic pressures;
- ✔ Making it operational, guaranteeing the proper management of the reserve as a protected area through the implementation of infrastructure and hiring and training human resources;
- ✔ Official recognition of the reserve as a Protected Area;
- ✔ Elaboration of a Management Plan for the reserve;
- ✔ The approval of the Management Plan by the environmental agency.

A way for the organization to evaluate the results of the actions carried on for the protection of the area, and make decisions on the maintenance or redirecting of the investments, is the evaluation of the results indicators.

Examples of result indicators that could be evaluated by the organization:

The identification of taxons that occur naturally in the reserve that need conservation actions;



The evaluation of these taxons through an inventory in order to obtain information about the populations;



The follow-up of indicators to monitor the evaluated populations such as: decreased risk of extinction, maintenance of age structure and the sex ratio.

# LIFE Certification

## Lasting Initiative For Earth

LIFE Certification is an effective tool, with third-party audit, that evaluates the inclusion of biodiversity in a transversal way to the organization's environmental management. LIFE Certification also assesses biodiversity conservation actions that are carried out voluntarily. It is an International Certification system that acknowledges businesses that employ pro-biodiversity strategies thus contributing to global solutions for the maintenance of natural capital.



Certification focused on Biodiversity and Ecosystem Services. Based on it, organizations are able to measure and disclose their results in regards to biodiversity performance. LIFE Certified organizations differentiate themselves from their competition, thus promoting their pro-diversity reputation.

Photos: Shutterstock



### LIFE INSTITUTE

*is responsible for the development and management of LIFE Certification*

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