



Species Protection Index

The Species Protection Index (SPI) measures how much suitable habitat for single species is under protection and estimates the regional or global biodiversity representativeness of terrestrial protected areas.

Purpose of the index

To provide an annually updated, remote-sensing informed, spatially explicit, and global metric of how well terrestrial species are represented in terrestrial protected areas. The Species Protection Index capitalizes on detailed remote sensing data, a global biodiversity informatics infrastructure and integrative models. It is designed to measure and report progress in relation to CBD Aichi Target 11.

Coverage

The index uses environmental and species data addressing all terrestrial areas of the world at 1km spatial resolution. It can be aggregated at spatial levels ranging from 1km to small regions, countries, biomes, and the whole planet. The index uses land cover information available annually from Landsat and MODIS satellites since 2001 onwards. With continuation of these remote sensing products, this enables annual index updates, including reporting Aichi Target 11 achievements, for ten data points from 2011 to 2020.



CBD Aichi Target 11
Protected Areas

MOL MAP OF LIFE

Species Info | Map a Species | Species Lists by Location | About MOL | News | Help

Overview | Habitat Distribution | Habitat Change | Reserve Coverage | Info | Select a species | Pick random | Birds

Vejar's Fir
Abies vejarii

Learn more | Update

Habitat Associations ON OFF

Elevation ON OFF: 1900 - 3400 meters

Tree cover: ON OFF: 10 - 100%

Landcover ON OFF

- Woodlands
- Woody Savannas
- Shrublands
- Open / Closed
- Herbaceous
- Savannas / Grasslands
- Cultivated
- Cropland / Cropland Mosaics
- Barren / Urban
- Seren / Urban
- Water
- Wetlands / Water Bodies

Geographic distribution

Range size: 6,549 km² Suitable, 23,170 km² Total

Map improvement: 52% (35% - 55%), 12 Validation points

Records outside suitable range | **Records in suitable range** | **Suitable range** | **Strict Parks** | **All Parks**

Maximum protected area coverage within suitable habitat.

	Any size	Larger than 10 km ²
Strict Parks	1	1
All parks	10	7
All parks area	1,166 km ²	1,154 km ²
Target area	4,540.6 km ²	
Target realized	25.7%	

Minimum reserve size: [Slider]

Information supporting the SPI calculations for the Vejar's Fir in Mexico. The 1 km pixels modeled as suitable for a species in a given year (see SHI) are overlaid with the protected areas existing in a region at that time. This informs to which degree the areal conservation target for that species is achieved. This information is then aggregated for all species occurring in an reporting region or country. This dashboard and underlying data are available online for all species included in the indicator (see <http://species.mol.org/pa> for examples).



Methods

Indicators addressing Aichi Target 11 are typically constrained in their adequate geographic representation, the level of disaggregation they allow, their temporal resolution, and their scientific underpinning and transparency. The Species Protection Index is part of a new generation of indicators that utilize ongoing, spatially and temporally highly resolved remote sensing at near global-extent, together with biodiversity observations and adequate modeling frameworks, to help address these limitations.

The Species Protection Index builds on detailed, remote-sensing informed species distributions and their overlap with protected areas. These species maps are modeled using literature- and expert-based data on habitat restrictions and published land-cover products from MODIS and Landsat satellites available annually at 30m and 1km resolution and validated with field data on species locations from surveys and citizen science. Modifications in the area of individual species’ overall distribution and the proportion under

protection are quantified and updated annually based on changes in protected areas and available suitable habitat. The index represents the aggregate of species-level metrics over any specified spatial unit such as countries or biomes. It can be calculated for different minimum sizes or categories of protected areas and be separated by biological group. A version of the index can also account for countries’ stewardship of species (their portion of a species’ global range, according to the best-available estimate).

All underlying data and metrics are available through a dedicated dashboard in the Map of Life web interface that has been developed with Google Earth Engine as technology partner. Currently, the Species Protection Index is addressing all protected areas of the World Database on Protected Areas and is calculated for >30,000 species of terrestrial vertebrates and invertebrates, and plant species, and validated with > 350 million location records. This list is growing rapidly as more species and data are entering the database.

Essential Biodiversity Variable:



Species populations class
Species distribution

