



IPBES GLOBAL/REGIONAL INDICATOR FACTSHEET

This factsheet is intended to provide the authors of IPBES assessments with the necessary information to include this indicator.

A separate follow-up will request indicator values with storylines, supplemented by graphs and maps as applicable. Indicator providers will be alerted when drafts of the regional and global assessments are available for review of indicator use.

Indicator Name	<i>Species Habitat Index</i>
IPBES Global Assessment Chapter	<p><i>Please correct or confirm pre-populated information below.</i></p> <p><i>Chapter 1: introduction and setting the stage.</i></p> <p><i>Chapter 2: status and trends; indirect and direct drivers of change</i></p> <p><i>Chapter 3: progress towards meeting major international objectives related to biodiversity and ecosystem services</i></p> <p><i>Chapter 4: plausible futures of nature, nature's benefits to people and their contributions to a good quality of life</i></p> <p><i>Chapter 5: scenarios and pathways towards a sustainable future</i></p> <p><i>Chapter 6: opportunities and challenges for decision makers</i></p>
Link to IPBES conceptual framework	<p><i>Please correct or confirm pre-populated information below.</i></p> <ol style="list-style-type: none"> <i>1. Institutions and governance and other indirect drivers</i> <i>2. Direct drivers (natural/anthropogenic) [species range losses can be drivers of ecosystem change]</i> <i>3. Nature (biodiversity and ecosystems, Mother Earth, systems of life, intrinsic values)</i> <i>4. Nature's benefits to people (ecosystem goods and services, nature's gifts)</i> <i>5. Good quality of life (human well-being, living in harmony with nature, living-well in balance and harmony with Mother Earth)</i> <i>6. Anthropogenic assets</i>
Drivers-Pressure-State-Impact-Response (DPSIR) framework	<p><i>Please correct or confirm pre-populated information below.</i></p> <p><i>Drivers / Pressure / State / Impact / Response</i></p> <p>Local species extinctions may represent pressures on ecosystem function and services</p>
Aichi Target	<p><i>Please correct or confirm pre-populated information below.</i></p> <p><i>Aichi Target 5, 12</i></p>
Indicator summary	<p><i>Please provide a short description of the indicator, including current status and scales used.</i></p> <p><i>Combining remote sensing and local species observations, the Species Habitat Change Index (SHI) assesses for thousands of species worldwide trends in suitable habitats within their range. Specifically, it quantifies the average loss (relative to a baseline year, currently 2001) in suitable habitat that species in a given region (e.g. country) are incurring, weighted by the region's stewardship for these species. The motivation for the SHI is to provide annually updated, scientifically rigorous, yet readily interpretable and global biodiversity change metrics that transparently builds on single species data but can be reported regionally and globally. The SHI addresses trends in the sizes of species potential distributions and populations for</i></p>



	<i>habitat-dependent species. It capitalizes on detailed remote sensing data, a global biodiversity informatics infrastructure and integrative models.</i>
Temporal resolution, extent available	<p><i>Please correct or confirm pre-populated information below on the finest temporal resolution available with start and end year data, if applicable.</i></p> <p>Annual / Less than annual / single temporal data point</p> <p>Years available: 2001 onward</p>
Temporal resolution, extent willing/able to provide	<p><i>Please indicate the range of temporal data your institute is willing/able to provide.</i></p> <p>Annual</p>
Spatial resolution, extent available	<p><i>Please correct or confirm pre-populated information below on the regional disaggregation available with the finest spatial resolution, if applicable.</i></p> <p>Global / IPBES region / IPBES sub-region / Country / Sub-country</p> <p><i>Finest resolution available: 110km grid cells.</i></p>
Spatial resolution, extent willing/able to provide	<p><i>Please indicate the finest spatial data your institute is willing/able to provide.</i></p> <p>Country, but finer summary maps possible</p>
Partners	<p><i>Please list the lead agency and any partner organisations</i></p> <p>Map of Life - https://mol.org</p> <p>Yale University - http://www.yale.edu</p> <p>GBIF - http://www.gbif.org</p> <p>Google Earth Engine - https://earthengine.google.com</p> <p>GEO BON - http://geobon.org</p>
Global caveats	<p><i>Please note any caveats in using the indicator at the global level, e.g. data gaps, assumptions that should be acknowledged.</i></p> <p><i>SHI is currently restricted to terrestrial taxa, particularly vertebrates, with additional invertebrate and plants groups being added. While providing highly representative coverage globally, not all species ranges are equally characterized with remotely sensed land-cover information, introducing uncertainties. Forest-dependent species are particularly well captured by the indicator.</i></p>
Data and methods	<p><i>Please provide a brief summary of the data used in the calculation of the indicator, and the methodology.</i></p> <p><i>The SHI builds on detailed, remote-sensing informed maps of suitable habitat for single species. Suitable habitat is modelled using literature- and expert-based data on habitat restrictions that is related to observed available habitat (following Jetz et al. PLoS Biology 2007, Rondinini et al. 2011). Habitat is assessed using published land-cover products from MODIS and Landsat satellites available annually at 30m and 1km resolution. These detailed maps of habitat suitable for a species are validated with field data on species locations from surveys and citizen science. Modifications in the area and fragmentation of individual species' remaining suitable habitat are quantified annually and changes in total range area estimated, together with uncertainty based on available validation data. The species-level metrics are then aggregated, stewardship-weighted, and reported over user-defined regions, such as countries.</i></p>



	<p>Jetz, W., D. S. Wilcove, and A. P. Dobson. 2007. Projected Impacts of Climate and Land-Use Change on the Global Diversity of Birds. <i>PLoS Biology</i> 5:1211-1219.</p> <p>Rondinini, C., et al. 2011. Global habitat suitability models of terrestrial mammals. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> 366:2633-2641.</p>
Sample size and uncertainty	<p><i>Please indicate the sample size for the indicator and metrics of uncertainty per spatial unit, if possible.</i></p> <p>Count of higher-level taxa and species included. As possible: average uncertainty as derived from validation data.</p>
Regional considerations	<p><i>Please note any region-specific comments here if aspects of the indicator vary by IPBES region. (IPBES Regions: Africa / Americas / Asia-Pacific / Europe and Central Asia)</i></p>
Reference	<p><i>Please list references for the indicator to be used in assessments.</i></p> <p>See mol.org for updates</p> <p>Jetz, W., J. M. McPherson, and R. P. Guralnick. 2012. Integrating biodiversity distribution knowledge: toward a global map of life. <i>Trends in Ecology and Evolution</i> 27:151-159.</p>
Links to further information	<p><i>Please provide additional resources, e.g., technical guides, case studies, journal papers, etc., if available.</i></p> <p>https://www.dropbox.com/sh/znu3pl17aak68uq/AAB6Sdxp0BN5KgUQYyM8YZVEa/GEOBON_BiodiversityHabitatIndex.pdf</p> <p>https://species.mol.org/pa</p> <p>https://species.mol.org/species/range/Urosphena_whiteheadi</p>
Contact point	<p><i>Please provide a contact point for the indicator at your institute, if possible.</i></p> <p>Name: Michelle Duong</p> <p>Email: michelle.duong@yale.edu</p>