



Avaaz's feedback on the document:

Indicators for the post-2020 global biodiversity framework (Information Document prepared for SBSTTA24 by UNEP-WCMC in collaboration with the Biodiversity Indicators Partnership)

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General Comments

| Page | Comment |
|------|--|
| | <p>Avaaz is grateful for the invitation to provide input in response to the CBD Secretariat's 25 June 2020 Notification 2020-024 regarding peer review of draft documents related to Agenda item 3 on the post-2020 global biodiversity framework and for the twenty-fourth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA 24).</p> |
| | <p>Avaaz has over 60 million members worldwide that have taken action on a wide variety of critical environmental campaigns ranging from fighting to protect bees from chemical harm, to protecting keystone species and their habitats, to fighting plastic pollution and deep sea mining in our oceans. We also campaign to stop unsustainable models, from tackling food waste to chemical-dependent farming. And we advocate to get our Planet powered by 100% clean energy to avoid climate disaster. Our membership has donated money, protected land, marched in the streets, called their legislators, and signed numerous petitions in the pursuit of preserving 50% of the planet.</p> |
| | <p>This submission providing input to the document "Indicators for the post-2020 global biodiversity framework - Information Document prepared for SBSTTA24 by UNEP-WCMC in collaboration with the Biodiversity Indicators Partnership" reflects the joint position of Avaaz and One Earth and provides suggestions in line with science-backed proposals, and is part of a campaign supported by millions of Avaaz members from all of the countries that are State signatories of this convention. Our general and specific comments can be seen from page 4.</p> |
| | <p>Disclaimer on Goals and Targets: As expressed in our response to the Draft Monitoring Framework for the Post-2020 Global Biodiversity Framework, Avaaz notes that review comments are not being sought on the updated formulations of the proposed 2050 goals, the 2030 targets, and its 2030 milestones, which are provided for context only and consideration of these will take place at the third meeting of the Open-Ended Working Group (OEWG-3). The comments provided by Avaaz in this document don't represent, nor do they prejudge, our positions on goals, targets and indicators that will be expressed at OEWG-3 and do not indicate any agreement on what is currently included in the draft monitoring framework. Our methodological reservations in that document apply here as well.</p> |
| | <p>Our specific input:</p> |
| 3-4 | <p>Section 2.2. We concur with the list of criteria proposed and suggest adding one clarification, given the rapid pace of technological advances, geospatial informatics and novel data products:</p> <ol style="list-style-type: none">"A wide variety of indicators should be embraced, allowing for multiple perspectives, even if some may seem potentially redundant to legacy indicators." Such a statement would signal to governments and scientists, especially from the Global South, to invest in and contribute towards the production of high-quality data products to inform the Convention.Avaaz fully supports the opinion from One Earth that a "condition of mutual exclusivity" sends the wrong signal to the world, in the sense that institutions in the Global North should continue to dominate the discourse, measurement, and verification of progress towards the goals. Meta-analyses of multiple overlapping models, generally peer-reviewed, have played a key role in advancing the science supporting the Framework Convention on Climate Change. The Convention on Biological Diversity should adopt a similar position. Rather than excluding innovation and scientific progress, such an approach could lead to better insights and benchmarks on the path towards achieving the common goals of the CBD. |

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- 10 **Section 4.4.** Gaps in current indicators: geospatial biodiversity composite. The list of indicators on area based targets is quite extensive, but there seems to be a lack of cohesion. This makes it difficult for officials at various levels of government, broader stakeholders, and the general public alike, to track progress under the Convention. We propose a supplemental indicator that compiles many of the commonly held indicators into a global index, allowing people to see for the first time the relative progress of all the signatory countries of the CBD. One Earth supported an effort to develop such an indicator, which is peer-reviewed and scheduled to be published in *Science Advances* this September, entitled “*A Global Safety Net to Reverse Biodiversity Loss and Stabilize the Earth’s Climate*” (Dinerstein et al. 2020). This analysis (GSN1) overlays widely held geospatial data sets to identify unprotected land areas of “particular importance for biodiversity” organized in three main land classes:
- (1) **Species rarity sites** (consisting of 6 layers: AZE single populations of species, Hill et al. range rarity in vertebrates, IUCN ranges of threatened vertebrates, Key Biodiversity Areas, Pimm et al. vertebrate species distributions, and Enquist et al. species rarity in plants);
 - (2) **High biodiversity areas** (consisting of 2 layers: biodiversity hotspots, and Hannah et al. high beta-diversity ecoregions); and
 - (3) **Large mammal landscapes** (consisting of Morrison et al. large mammal assemblages). Many of the layers overlap, so additional areas not included in preceding layers are compiled at 1 km resolution and intersected with the World Database on Protected Areas (WDPA) to determine the extent of the three composite layers not currently protected. Including PAs, the baseline adds up to *29.9% of the global land surface*. This index will be updated on an annual basis, in partnership between [One Earth](#) with [Google Earth Engine](#), with higher resolution data products and updates from the WDPA.
- 10 **Section 4.4.** Gaps in current indicators: potential habitat. In 2020 the world has reached 1.1°C in global average temperature rise, and ecosystems are already under extreme pressure. The post-2020 GBF needs to recognize this reality and expand the horizon of “potentially suitable habitat” that can be protected in anticipation of further warming, as both plant and animal species migrate to find climatological conditions suitable for their specific metabolic processes (e.g. macrorefugia). For this reason, GSN1 includes an analysis of two additional land classes:
- (4) **Intact wilderness** (consisting of 2 layers: ‘Last of the Wild’ by ecoregion, and Venter et al. remaining wilderness areas); and
 - (5) **Additional climate stabilization** (consisting of 2 layers: areas of natural or seminatural land with > 250 tC/ha median total carbon density, and areas with 50-249 tC/ha median total carbon density). These layers are compiled at 1 km resolution and intersected with the World Database on Protected Areas (WDPA) to determine the extent of the two composite layers not currently protected, which adds up to *20.5% of the global land surface*. This index will be updated on an annual basis, in partnership with Google Earth Engine, with higher resolution data from other institutional partners.
- 10 **Section 4.5.** Indicators under development: Beta-diversity index. Climate resilience for ecosystems, especially forest ecosystems, improves with increased complexity, or beta-diversity. One Earth has funded work at ASU led by Greg Asner to detect beta-diversity remotely, [directly supporting](#) land use planning at the national level. Some work has been funded to scope out a global platform on beta-diversity for tropical and subtropical forests, which would go far beyond the current products utilized in forest monitoring at a global scale. The technology uses a remote sensing technique called spectral lidar to map individual tree colonies, as well as understory growth, by species at 3m resolution. Current forest monitoring leans on 30m resolution imagery, making it difficult to determine the difference between a monoculture forest and a forest with a diverse array of species. As satellite imagery improves and AI routines become more sophisticated, this product would be of great benefit to the signatories of the CBD in the coming 5-10 years.
- 11 **Section 4.6.** Support for the gaps. As referenced above the post-2020 GBF must take into account the impacts of climate change upon ecosystems. Avaaz and One Earth identifies two major gaps that need cooperation and discussion:
- (a) **Emergence of macrorefugia:** signs that one or more species is migrating to new habitat, which should therefore receive a special status in long term conservation and spatial planning efforts; and
 - (b) The identification of **microrefugia:** small pockets of land missed by global scale analyses (including the GSN1), which are vitally important to the preservation of species as habitat shrinks due to human modification and/or climate change. We were surprised that neither of these concepts appear in any of the SBSTTA literature, as they are so crucial to the success of the CBD goals.
- Both fields of study are growing, taking advantage of new technologies. Avaaz and One Earth supports a groundbreaking effort housed at the Cascadia Partners Forum that incorporates climate modeling to predict the emergence of macrorefugia, which will be so crucial for the survival of many species in the coming decades. And new data products, including an upcoming 10m resolution global-scale land cover map, will help identify important microrefugia. Avaaz supports the suggestions from One Earth on the creation of a microrefugia index, to put special attention on these important pockets of habitat, and encourage their inclusion in national or state-level conservation, restoration, and connectivity plans.

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Table 1. Indicators for monitoring elements of the draft goals

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|--|--|---|---|--|---------------------------------|---|--|--|---|---------------------|---------------------|--|---|
| Components of the draft Goals | Goal Monitoring Elements | Indicator name | Responsible Institution for the indicator | Available today (X) or under active development (Y) | Date of availability for indicator in development (Year) | Year of last update (e.g. 2019) | Time series and frequency of updates (e.g. 1985-2019, annually) | Methodology available for national use (Y/N) | Global indicator can be disaggregated for national use (Y/N) | National data aggregated to form global indicator (Y/N) | Used in GBO-4 (Y/N) | SDG indicator (Y/N) | Indicator used to measure other MEAs or processes (e.g. Ramsar Convention, IPBES, CMS) | Comments |
| copy/paste text from CBD/SBSTTA-24/post-2020-monitoring.en.pdf | (copy/paste text from CBD/SBSTTA-24/post-2020-monitoring.en.pdf) | | | | | | | | | | | | | |
| GA1. Increased extent of natural ecosystems (terrestrial, freshwater and marine ecosystems) | Trends in area of forest ecosystems | Forest area as a percentage of total land area | FAO | X | | 2020 | 1990-2015 | Y | Y | N | N | Y (SDG 15.1.1) | | This indicator needs refinement as forest area is often conflated with plantations, and in areas where afforestation has occurred (tree planting within non-forest biomes), this could lead to a "false positive" indicator of improvement, when little biodiversity value has been added. |
| GA1. Increased extent of natural ecosystems (terrestrial, freshwater and marine ecosystems) | Trends in area of coral reefs | NEW: Coral reef extend and condition | ASU | Y | 2019 | 2020 | Annually | Y | Y | N | N | Y (SDG 14.2.1) | | Remote sensing can now play a major role in tracking the health of coral reefs. The Global Coral Atlas uses spectral lidar to map the diversity and health of corals. |
| GA1. Increased extent of natural ecosystems (terrestrial, freshwater and marine ecosystems) | Trends in area of forest ecosystems, dry & sub-humid lands, grasslands, and other terrestrial ecosystems | NEW: Human Modification | TNC | X | Done | 2019 | Periodically from 2020 | Y | Y | N | N | | N= | The Human modification index is an important advance in understanding the conversion of natural lands to human use based on 13 stressors. https://geospatial.tnc.org/datasets/5555c101d66d40668e07123dac1f82a9 |

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|---|--|--|---|---|------|------|---------------------|---|---|---|---|---------------------------|-------|--|
| GA1. Increased extent of natural ecosystems (terrestrial, freshwater and marine ecosystems) | Trends in area of coral reefs | Live coral cover | Global Coral Reef Monitoring Network; global ocean observing system | X | - | 2020 | 1970S annual | Y | Y | Y | Y | N | IPBES | |
| GA1. Increased extent of natural ecosystems (terrestrial, freshwater and marine ecosystems) | Trends in area of coral reefs | Coral Reef extent and condition | Global Coral Reef Monitoring Network | Y | 2021 | - | 1980s/1990s | Y | Y | - | - | N | - | Unclear where this indicator originates from, and whether it is the same as the ICRI 'Coral Reef Extent' Indicator. The addition of condition may add other aspects. |
| GA1. Increased extent of natural ecosystems (terrestrial, freshwater and marine ecosystems) | Trends in area of coral reefs | Global coral reef extent | UNEP-WCMC, World Fish Centre, WRI, TNC and partners | X | | 2018 | -- | - | - | Y | - | - | - | This one is a single year but is under active development. |
| GA2. Ecosystem integrity and connectivity (terrestrial, freshwater and marine ecosystems) | Trends in fragmentation and quality of other marine and coastal ecosystems | Average marine acidity (pH) measured at agreed suite of representative sampling stations | IOC-UNESCO | X | - | 2018 | 2010-2019, annually | Y | - | N | - | Y SDG indicator 14.3.1 | - | Included as indicator in the draft monitoring framework document of SCBD for element 'Trends in fragmentation and quality of coral reefs' |
| GA2. Ecosystem integrity and connectivity (terrestrial, freshwater and marine ecosystems) | Trends in fragmentation and quality of other marine and coastal ecosystems | Seagrass Cover and composition | IOC-UNESCO (GOOS, IODE/OBIS), UNEP-WCMC | X | - | 2020 | - | - | - | - | - | - | IPCCC | - |
| GA2. Ecosystem integrity and connectivity (terrestrial, freshwater and marine ecosystems) | Trends in area of kelp forests | Macroalgal Canopy Cover and Composition | IOC-UNESCO (GOOS, IODE/OBIS), Global Ocean Macroalgal Observing Network (GOMON) | Y | - | 2016 | - | Y | Y | N | N | N | IPCCC | - |

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|--|-------------------------------------|---|---------|---|-----|------|-------------------------|---|---|---|---|-------------------------------------|------------------|--|
| GA4. Increase the population and health of species | Trends in species abundance | Living Planet Index (LPI) | ZSL/WWF | X | - | 2020 | 1970, available every 2 | Y | Y | N | Y | N | CMS,Ramsar IPBES | The Living Planet Index suggested as a measure of progress towards the goal, is a geometric mean trend in abundance of species, aggregated over regions and taxa. |
| GB1 Natures regulating contributions including climate regulation, disaster prevention and other | Trends in regulation of climate | Number of certified forest areas under sustainable management with verified impacts on carbon sequestration/storage | FSC | X | N/A | 2020 | 2018 over 5 years | Y | Y | Y | N | N | - | The scope of indicators for this monitoring element is limited in terms of what could be included for wider ecosystems, particularly marine. It would require agreed definitions on nature based solutions (NbS). Would suggest the Global Mangrove Atlas could be useful for this too. |
| GA1. Increased extent of natural ecosystems (terrestrial, freshwater and marine ecosystems) | Trends in area of forest ecosystems | Forest area as a percentage of total land area | FAO | X | - | 2020 | 1990-2015 | Y | Y | N | N | Y SDG indicat or 15.1.1 | - | Forest cover is a 'crude' measure of forest integrity and ignores the empty forest syndrome seen across much of Africa and Asia |
| GA1. Increased extent of natural ecosystems (terrestrial, freshwater and marine ecosystems) | Trends in area of forest ecosystems | Forest area as a percentage of total land area | FAO | X | | 2020 | 1990-2015 | Y | Y | N | N | Y (SDG 15.1.1) | | This indicator needs refinement as forest area is often conflated with plantations, and in areas where afforestation has occurred (tree planting within non-forest biomes), this could lead to a "false positive" indicator of improvement, when little biodiversity value has been added. |

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|---|--|--|------------|---|------|------|---|---|---|---|---|----------------|--------------------|---|
| GA1. Increased extent of natural ecosystems (terrestrial, freshwater and marine ecosystems) | Trends in area of coral reefs | NEW: Coral reef extend and condition | ASU | Y | 2019 | 2020 | Annually | Y | Y | N | N | Y (SDG 14.2.1) | | Remote sensing can now play a major role in tracking the health of coral reefs. The Global Coral Atlas uses spectral lidar to map the diversity and health of corals. |
| GA1. Increased extent of natural ecosystems (terrestrial, freshwater and marine ecosystems) | Trends in area of forest ecosystems, dry & sub-humid lands, grasslands, and other terrestrial ecosystems | NEW: Human Modification | TNC | X | Done | 2019 | Periodically from 2020 | Y | Y | N | N | | N= | The Human modification index is an important advance in understanding the conversion of natural lands to human use based on 13 stressors. https://geospatial.tnc.org/datasets/5555c101d66d40668e07123dac1f82a9 |
| GA2. Ecosystem integrity and connectivity (terrestrial, freshwater and marine ecosystems) | Trends in fragmentation and quality of inland wetlands | Sustainable watershed & inland fisheries index | FAO & USGS | Y | 2022 | | Every two years (to align with the FAO SOFIA Reports) | Y | N | Y | N | N | IPBES, Ramsar, CMS | A new 'sustainable watershed & inland fisheries index' is being proposed for development. This will provide a measure of watershed health and, once developed, could be applied to measuring trends in fragmentation and quality of inland wetlands. There is a non-binding agreement to cooperate on developing this index between FAO, USGS and several other partner organizations (e.g. Conservation International), to have a first version ready by 2022. |

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|--|--|---|------|---|------|---|--------------|---|---|---|---|---|---|--|
| GA3. Prevent extinction and improve the conservation status of species | Trends in number of extinctions | Number of extinctions prevented by conservation action (IUCN Green Status of Species) | IUCN | Y | 2021 | - | 2021, yearly | Y | Y | N | N | N | N | Extinctions prevented is a key output of the IUCN Green Status of Species . Green Status measures species recovery and conservation impact, and has been undergoing rigorous scientific testing and development since 2012 and will be officially launched at WCC in January 2021. |
| GA3. Prevent extinction and improve the conservation status of species | Trends in conservation status of species | Green Status Index (species recovery status) | IUCN | Y | 2025 | - | 2025, yearly | Y | Y | N | N | N | N | Goal is that a structured sample of species assessments will be completed by 2025 to enable a Green Status index analogous to RLI. Green Status assessments require baseline estimation at 1950, so with the first publication of index will be able to see changes between 1950-present. |
| GA3. Prevent extinction and improve the conservation status of species | Trends in conservation status of species | Percentage of threatened species that are improving in status (as measured by IUCN RLTS) | IUCN | X | 2024 | - | 1993 | Y | N | N | N | N | N | This row is copied from the original document, red text added |
| GA3. Prevent extinction and improve the conservation status of species | Trends in conservation status of species | Percentage of threatened species that are improving in status (as measured by IUCN Green Status of Species) | IUCN | Y | 2021 | - | 2021, yearly | Y | Y | N | N | N | N | |
| GA4. Increase the number and health of species | Trends in species abundance | Green Status of Species | IUCN | Y | 2021 | - | 2021, yearly | Y | Y | N | N | N | N | |

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|--|---|---|--------------------------------------|---|------|------|---|---|---|---|---|--------------------------------|-----------------------------------|---|---|
| GA4. Increase the number and health of species | Trends in species abundance | IN DEVELOPMENT: Bioacoustics | Princeton U/TNC | Y | | | | | | | | | | | This isn't yet a global indicator but with support could become one of the best ways to detect the abundance of species in converted forests. See https://science.sciencemag.org/content/363/6422/28 |
| GA5. Maintain Genetic diversity | Trends in the diversity of wild species Comprehensiveness of conservation of socioeconomic ally as well as culturally valuable | Genetic scorecard for wild species | RBGE/SNH | X | - | 2020 | Every 5 years | Y | - | N | N | N | - | | |
| GA6. Protection of critical ecosystems | Trends in areas of particular importance for biodiversity conserved | Percentage Area of coral reefs included in [effectively managed] MPAs and OECMs | Global Coral Reef Monitoring Network | X | - | - | - | Y | Y | - | - | - | - | | |
| GA6. Protection of critical ecosystems | Trends in areas of particular importance for biodiversity conserved | NEW: GSN1 Protected Area coverage of Species Rarity Sites, High Biodiversity Areas, and Large Mammal Landscapes | One Earth & partners | X | Done | 2019 | Annually from 2020 | Y | Y | N | N | Y (SDG 15.5.1; 15.1.2; 15.9.1) | Y (land-based targets for UNFCCC) | As referenced above, this new annual product will provide an index of each country's progress toward protecting areas of particular importance for biodiversity (compiled from 9 global-scale data sets) at 1 km resolution. The 2021 version will be published at much higher resolution and will be accessible via an interactive web application (GSNapp.org). | |
| GB1. Nature's regulating contributions including climate regulation, disaster prevention and other | Trends in pollination and dispersal of seeds and other propagules | Green Status Index (pollinator, seed-dispersing species) | IUCN | Y | 2025 | - | 2025, yearly | Y | Y | N | N | N | N | | |
| GB1. Nature's regulating contributions including climate regulation, disaster prevention and other | Trends in regulation of freshwater quantity, quality, location and timing | Sustainable watershed & inland fisheries index | FAO & USGS | Y | 2022 | - | Every two years (to align with the FAO SOFIA Reports) | Y | N | Y | N | N | IPBES, Ramsar, CMS | . | |

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|--|---|---|----------------------|---|------|------|---|---|---|---|---|------------------------|-----------------------------------|---|
| GB1. Nature's regulating contributions including climate regulation, disaster prevention and other | Trends in regulation of climate | NEW: GSN1 Protected Area coverage of Intact Wilderness and Additional Climate Stabilization Areas | One Earth & partners | X | Done | 2019 | Annually from 2020 | Y | Y | N | N | Y (SDG 12.2.1; 15.1.2) | Y (land-based targets for UNFCCC) | As referenced above, this new annual product will provide an index of each country's progress toward protecting areas of particular importance for carbon storage (compiled from 3 global-scale data sets) at 1 km resolution. The 2021 version will be published at much higher resolution and will be accessible via an interactive web application (GSNapp.org). |
| GB2. Nature's material contributions including food, water and others | Add a Monitoring element on "Trends in status of ecosystems providing globally important services for water security and health". | Sustainable watershed & inland fisheries index | FAO & USGS | Y | 2022 | - | Every two years (to align with the FAO SOFIA Reports) | Y | N | Y | N | N | IPBES, Ramsar, CMS | |

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Table 2. Indicators for monitoring elements of draft targets

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|--|---|---|---|---|--|---------------------------------|---|--|--|---|---------------------|---------------------------|--|--|
| Components of the draft Targets (copy/paste text from CBD/SBSTTA-24/post-2020-monitoring.en.pdf) | Target Monitoring Elements (copy/paste text from CBD/SBSTTA-24/post-2020-monitoring.en.pdf) | Indicator name | Responsible Institution for the indicator | Available today (X) or under active development (Y) | Date of availability for indicator in development (Year) | Year of last update (e.g. 2019) | Time series and frequency of updates (e.g. 1985-2019, annually) | Methodology available for national use (Y/N) | Global indicator can be disaggregated for national use (Y/N) | National data aggregated to form global indicator (Y/N) | Used in GBO-4 (Y/N) | SDG indicator (Y/N) | Indicator used to measure other MEAs or processes (e.g. Ramsar Convention, IPBES, CMS) | Comments |
| T1.1. Increase in area of terrestrial, freshwater and marine ecosystems under spatial planning | Trends in area under spatial land-use plans | Percentage of spatial plans utilising information on key biodiversity areas | KBA Secretariat | X | - | 2020 | 2019-2020 updated Annually | N | Y | Y | N | N | N | |
| T1.2. Prevention of reduction and fragmentation of natural habitats due to land/sea use change | Trends in extent and rate of change of other terrestrial ecosystems | Mountain Green Cover Index | FAO | X | 2000, 2010, 2015, 2018 | 2020 | 2000-2018 | Y | Y | N | N | Y SDG indicator 15.4.2 | - | - |
| T1.3. Priority retention of intact / wilderness areas | Trends in extent of natural intact / wilderness | NEW: GSN1 Index of Species Rarity Sites, High Biodiversity Areas, Large Mammal Landscapes, Intact Wilderness, and Climate Stabilization Areas by ecoregion and country. | One Earth & partners | X | Done | 2019 | Annually from 2020 | Y | Y | N | N | Y (SDG 12.2.1; 15.1.2) | Y (land-based targets for UNFCCC) | As referenced above, this new annual product will provide an index of remaining areas of particular importance for biodiversity and carbon storage (compiled from 9 global-scale data sets) at 1 km resolution. The 2021 version will be published at much higher resolution and will be accessible via an interactive web application (GSNapp.org). |
| T1.5. Maintenance and restoration of connectivity of natural ecosystems | Trends in ecosystem connectivity (through migratory species abundance) | Living Planet Index (LPI) | ZSL/WWF | X | - | 2020 | 1970-2020, available every 2 years | Y | Y | N | Y | N | CMS, Ramsar, IPBES | |

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|---|---|---|---|---|------|------|--------------------|-------------|---|---|---|------------------------|---|---|
| T2.1 (Area of terrestrial, freshwater and marine ecosystem under protection and conservation) | Trends in extent of areas under other area-based conservation measures | Extent of IPLC lands that have some form of recognition, documentation and/or titling | Several institutions, see Comments section for list | Y | 2020 | | Annually | It could be | Y | | N | N | N | |
| T2.2. Areas of particular importance for biodiversity are protected and conserved as priority | Trends in proportion of areas of particular importance for biodiversity protected and conserved | Proportion of important sites for terrestrial, freshwater and marine biodiversity that are conserved by PAs or OECMs | UNEPWCMC, WCPA, WDKBA, EBSA database | Y | 2025 | - | Annually | N | Y | N | N | N | N | |
| T2.2. Areas of particular importance for biodiversity are protected and conserved as priority | Trends in proportion of areas of particular importance for biodiversity protected and conserved | Percentage of PAs/OECMs by area meeting their ecological objectives | UNEP-WCMC and IUCN through PAME/WDP/N BSAPS | Y | 2024 | N/A | - | - | - | - | - | N | N | |
| T2.2. Areas of particular importance for biodiversity are protected and conserved as priority | Trends in proportion of areas of particular importance for biodiversity protected and conserved | NEW: GSN1 Quantification by ecoregion type by country of Species Rarity Sites, High Biodiversity Areas, and Large Mammal Landscapes | One Earth & partners | X | Done | 2019 | Annually from 2020 | Y | Y | N | N | Y (SDG 12.2.1; 15.1.2) | | As referenced above, this new annual product will provide an index of each country's progress toward protecting areas of particular importance for biodiversity (compiled from 9 global-scale data sets) at 1 km resolution. The 2021 version will be published at much higher resolution and will be accessible via an interactive web application (GSNapp.org). |
| T2.4. Effective and equitable management of the system of protected areas | Trends in management effectiveness | Percentage of PAs/OECMs by area with documented ecological objectives (PA Effectively protected) | UNEP_WCM C and IUCN through PAME/ WDPA | Y | 2022 | - | - | - | - | - | - | N | N | Data from World Database on Protected Areas (WDPA), and V UNEP-WCMC's statistics from ProtectedPlanet.net have variable quality of Marine PA data; poor quality sea/land limits result in low accuracy stats for some areas and different results when compare with local data |

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|--|--|--|---------------|---|------|------|-------------------------|---|---|---|---|---|-----|--|
| T2.4. Effective and equitable management of the system of protected areas | Trends in management effectiveness | Percentage (%) of PA/CA and OECMs actively implementing effective measures to recognise and respect the knowledge and rights of indigenous and local communities | WDPA - NBSAPS | Y | N/A | N/A | - | - | - | - | - | N | N | - |
| T3.1. Active recovery and conservation management actions | Trends in species recovery and reintroduction programmes | Proportion of Conservation Dependent species (IUCN Green Status of Species Index) | IUCN | Y | 2025 | - | 2025, yearly | Y | Y | N | N | N | N | <p>Green Status measures species recovery and conservation impact, and has been undergoing rigorous scientific testing and development since 2012 and will be officially launched at WCC in January 2021.</p> <p>Goal is that a structured sample of species assessments will be completed by 2025 to enable a Green Status index analogous to RLI.</p> <p>Assessments require baseline estimation at 1950, so with the first publication of index will be able to see changes between 1950-present.</p> |
| T3.1. Active recovery and conservation management actions | Trends in species recovery and reintroduction programmes | Proportion of threatened species that are improving in recovery status. (IUCN Green Status of Species Index) | IUCN | Y | 2025 | - | 2025, yearly | Y | Y | N | N | N | N | "IUCN species status" is listed under this monitoring element, but we assume this refers to threat status (Red List), not recovery status (Green Status) |
| T4.1. Harvest is legal, sustainable and safe for human health and biodiversity | Trends in proportion of biological resources Harvested legally | Trends in implementation of measures designed to minimize impacts of fisheries and hunting on migratory species, their habitats and their migratory routes | CMS | Y | - | 2019 | available every 3 years | - | - | - | N | N | CMS | See Strategic Plan for Migratory Species (www.cms.int/en/document/strategic-plan-migratory-species-2015-2023-4) |

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|--|--|--|------------|---|------|---|---|---|---|---|---|---|--------------------|--|
| T4.1. Harvest is legal, sustainable and safe for human health and biodiversity | Trends in proportion of biological resources harvested within the established harvest limits | Sustainable watershed & inland fisheries index | FAO & USGS | Y | 2022 | - | Every two years (to align with the FAO SOFIA Reports) | Y | N | Y | N | N | IPBES, Ramsar, CMS | A new 'sustainable watershed & inland fisheries index' is being proposed for development. This will incorporate a nationally-applied method for assessing the adoption of ecosystem-based management approaches for inland fisheries (see T8.1). The method could be applied nationally, or by river catchments, depending on spatial origin of fisheries data. The method, once developed, could be applied to assessing trends in proportion of inland fisheries resources harvested within established harvest limits. There is a non-binding agreement to cooperate on developing this index between FAO, USGS and several other partner organizations (e.g. Conservation International), to have a first version ready by 2022. |
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| T4.1. Harvest is legal, sustainable and safe for human health and biodiversity | Trends in proportion of biological resources harvested through sustainable harvest practices | Sustainable watershed & inland fisheries index | FAO & USGS | Y | 2022 | - | Every two years (to align with the FAO SOFIA Reports) | Y | N | Y | N | N | IPBES, Ramsar, CMS | A new 'sustainable watershed & inland fisheries index' is being proposed for development (see T8.1). This will incorporate a nationally-applied method for assessing the adoption of ecosystem-based management approaches for inland fisheries. The method could be applied nationally, or by river catchments, depending on spatial origin of fisheries data. The method, once developed, could be applied to assessing trends in proportion of inland fisheries resources harvested through sustainable harvest practices. There is a non-binding agreement to cooperate on developing this index between FAO, USGS and several other partner organizations (e.g. Conservation International), to have a first version ready by 2022. |
| T6.4. Reduction of pollution from other sources | Trends in levels of pollution from sediments | Index of Coastal Eutrophication | UNEP / IOC-UNESCO | Y | 2021 | - | Every 5 years | - | - | - | - | Y SDG indicator 14.1.1a | - | |
| T6.5 reduction of level Persistent Bioaccumulative and Toxic (PBT) chemicals (incl. Persistent Organic Pollutants (POPs) and mercury (new component needed)) | Recommended addition: trends of Persistent bio accumulative and Toxic chemicals (incl. Persistent Organic Pollutants (POPs) Mercury) (new element needed) | Trends of POPs in water | UNEP Stockholm Convention Global Monitoring | Y | 1993 | 2014 | - | Y | Y | Y | - | - | - | UK POPs data available since 1990. First global report includes 2000-2008 data and second uses 2009-2015 data |

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| T8.1. Sustainable management of aquatic wild species of fauna and flora, including fisheries | Trends in population and extinction risk in bycatch species | Green Status of Species Index (recovery status) | IUCN | Y | 2025 | - | 2025, yearly | Y | Y | N | N | N | N | <p>Green Status measures species recovery and conservation impact, and has been undergoing rigorous scientific testing and development since 2012 and will be officially launched at WCC in January 2021.</p> <p>Goal is that a structured sample of species assessments will be completed by 2025 to enable a Green Status index analogous to RLI.</p> <p>Assessments require baseline estimation at 1950, so with first publication of index will be able to see changes between 1950-present.</p> |
| T8.1. Sustainable management of aquatic wild species of fauna and flora, including fisheries | Trends in aquatic plants | Green Status of Species Index (recovery status) | IUCN | Y | 2025 | - | 2025, yearly | Y | Y | N | N | N | N | As above |
| T8.1. Sustainable management of aquatic wild species of fauna and flora, including fisheries | Trends in Invertebrate stocks | Green Status of Species Index (recovery status) | IUCN | Y | 2025 | - | 2025, yearly | Y | Y | N | N | N | N | As above |

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| T8.1. Sustainable management of aquatic species of fauna and flora, including fisheries | Trends in fish stocks | Sustainable watershed & inland fisheries index | FAO & USGS | Y | 2022 | | Every two years (to align with the FAO SOFIA Reports) | Y | N | Y | N | N | IPBES, Ramsar, CMS | A new 'sustainable watershed & inland fisheries index' is recommended for the T8.1 monitoring element 'Trends in sustainable fisheries management'. The current indicator listed for that element, SDG Indicator 14.4.1, has only been applied to marine capture fisheries, and there are insufficient existing data to allow this indicator to be applied to inland waters fisheries. The recommended new 'sustainable watershed and inland fisheries index' will build upon a measure of watershed health and will incorporate a nationally-applied method for assessing the adoption of ecosystem-based management approaches for inland fisheries. The method could be applied nationally, or by river catchments, depending on spatial origin of fisheries data. The method, once developed, could be applied to assessing trends in inland fish stocks. There is a non-binding agreement to cooperate on developing this index between FAO, USGS and several other partner organizations (e.g. Conservation International), to have a first version ready by 2022. |
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|---|--|---|------------|---|------|---|---|---|---|---|---|---|--------------------|--|
| T8.1. Sustainable management of aquatic species of fauna and flora, including fisheries | Trends in sustainable fisheries management | Sustainable watershed & inland fisheries index | FAO & USGS | Y | 2022 | | Every two years (to align with the FAO SOFIA Reports) | Y | N | Y | N | N | IPBES, Ramsar, CMS | A new 'sustainable watershed & inland fisheries index' is recommended for the T8.1 monitoring element 'Trends in sustainable fisheries management'. The current indicator listed for that element, SDG Indicator 14.4.1, has only been applied to marine capture fisheries, and there are insufficient existing data to allow this indicator to be applied to inland waters fisheries. The recommended new 'sustainable watershed and inland fisheries index' will build upon a measure of watershed health and will incorporate a nationally-applied method for assessing the adoption of ecosystem-based management approaches for inland fisheries. The method could be applied nationally, or by river catchments, depending on spatial origin of fisheries data. The method, once developed, could be applied to assessing trends in inland fish stocks. There is a non-binding agreement to cooperate on developing this index between FAO, USGS and several other partner organizations (e.g. Conservation International), to have a first version ready by 2022. |
| T8.2. Sustainable management of terrestrial wild species of fauna and flora | Trends in terrestrial wild species of fauna used for food and medicine | Green Status of Species Index (species used for food and medicine, recovery status) | IUCN | Y | 2025 | - | 2025, yearly | Y | Y | N | N | N | N | As above |

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| T9.1. Sustainable management of agricultural biodiversity, including soil biodiversity, cultivated plants and farmed and domesticated animals and of wild relatives | Trends in pollinators | Green Status of Species Index (recovery status) | IUCN | Y | 2025 | - | 2025, yearly | Y | Y | N | N | N | N | <p>Green Status measures species recovery and conservation impact, and has been undergoing rigorous scientific testing and development since 2012 and will be officially launched at WCC in January 2021.</p> <p>Goal is that a structured sample of species assessments will be completed by 2025 to enable a Green Status index analogous to RLI.</p> <p>Assessments require baseline estimation at 1950, so with first publication of index will be able to see changes between 1950-present.</p> |
| T13.1. Biodiversity reflected in policies and planning at all levels | Trends in integration of biodiversity and ecosystem service values into planning processes | The proportion of national biodiversity policies and plans that incorporate national spatial assessments of KBAs and other areas of importance for biodiversity | KBA Secretariat | X | - | 2020 | 2019-2020 updated annually | N | Y | Y | N | N | N | This indicator would provide a measure of the use of national KBA assessments in government policies and plans and is being tracked by the KBA Partnership for each country |
| T18.3. Increase in financial resources from domestic sources | Trends in public domestic resource mobilization | Proportion of total research budget allocated to research in the field of marine technology | IOC-UNESCO | X | - | 2018 | 2009-2016 | Y | - | Y | - | Y SDG indicator 14.a.1 | - | Already included as indicator in the draft monitoring framework document of SCBD |
| T19.1. Availability of reliable and up-to-date biodiversity related information | Trends in the availability of biodiversity related information | Number of countries in which comprehensive national key biodiversity area assessments have been updated using the KBA Global Standard | KBA Secretariat | Y | - | 2020 | 2019-2020 updated Annually | N | Y | Y | N | N | N | This indicator would provide a measure of the use of biodiversity-related information by individual countries and will be tracked by the KBA Partnership for each country |

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|---|--|---|-----------------|---|---|------|----------------------------|---|---|---|---|---|-----|---|
| T19.1. Availability of reliable and up-to-date biodiversity related information | Trends in the availability of biodiversity related information | Percentage of taxonomic classes and ecosystem types for which comprehensive national key biodiversity area assessments have been made | KBA Secretariat | Y | - | 2020 | 2019-2020 updated Annually | N | Y | Y | N | N | N | This indicator would provide a measure of the representativeness of biodiversity information used by individual countries and will be tracked by the KBA Partnership for each country |
| T19.1. Availability of reliable and up-to-date biodiversity related information | Trends in the availability of biodiversity related information | Number of countries in which comprehensive national key biodiversity area assessments have been updated using the KBA Global Standard | KBA Secretariat | Y | - | 2020 | 2019-2020 updated annually | N | Y | Y | N | N | N | This indicator would provide a measure of the use of biodiversity-related information by individual countries and will be tracked by the KBA Partnership for each country |
| T19.1. Availability of reliable and up-to-date biodiversity related information | Trends in the availability of biodiversity related information | Percentage of taxonomic classes and ecosystem types for which comprehensive national key biodiversity area assessments have been made | KBA Secretariat | Y | - | 2020 | 2019-2020 updated annually | N | Y | Y | N | N | N | This indicator would provide a measure of the representativeness of biodiversity information used by individual countries and will be tracked by the KBA Partnership for each country |
| T19.2. Promotion of awareness of values of biodiversity | Trends in awareness of | Levels of engagement in World Migratory Bird Day and similar events | CMS | Y | - | 2019 | annually | - | - | - | N | N | CMS | See Strategic Plan for Migratory Species (www.cms.int/en/document/strategic-plan-migratory-species-2015-2023-4) |

CONTACT INFORMATION

Surname: Soria

Given Name: Oscar

Government (if applicable): N/A

Organization: Avaaz

Address: 27 Union Square W #500, New York, NY 10003, United States

City: New York

Country: United States

E-mail: biodiversity@avaaz.org

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