

Species conservation in the post-2020 Global Biodiversity Framework

Goal A in the Draft monitoring framework for the post-2020 global biodiversity framework released in June 2020 aims to conserve ecosystems, species and genetic diversity. BirdLife calls for the species element and its associated milestone to be strengthened by including a commitment to prevent human-induced extinctions, and improving the current language on conserving threatened species and recovering species' populations. We also strongly support the addition of Target 3 on targeted action to recover threatened species.

SUMMARY

The interim formulation of the 2050 goals and milestones proposes Goal A, combining previously separate goals for ecosystems, species and genetics, as follows:

The area, connectivity and integrity of natural ecosystems increased by at least [X%] supporting healthy and resilient populations of all species while reducing the number of species that are threatened by [X%] and maintaining genetic diversity

*2030 Milestones: i) The area, connectivity and integrity of natural ecosystems increased by at least [5%]
ii) The number of species that are threatened is reduced by [X%] and the abundance of species has increased on average by [X%]*

We support the inclusion of commitments on species, given they are fundamental units of biodiversity, the building blocks of ecosystems and have substantial public resonance. We suggest that the proposed wording could be strengthened, as follows, preferably with the species component reinstated as a separate Goal:

*The area, connectivity and integrity of natural ecosystems is increased, supporting healthy and resilient populations of all species while **preventing human-induced extinctions** and maintaining genetic diversity*

*2030 Milestones: i) The area, connectivity and integrity of natural ecosystems increased by at least [5%]
ii) **Species extinctions are halted, the overall risk of species extinctions is reduced by 20% and the population abundance of species has increased on average by 20%***

We also welcome the addition (since the Zero Draft of the framework) of Target 3, with the following element (with minor modifications highlighted): "By 2030, ensure active management actions to enable **recovery and conservation of threatened** wild species of fauna and flora".

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JUSTIFICATION

The justification for these changes is given below¹:

Adding a commitment to prevent human-induced extinctions

We propose adding an element on species extinctions because they have substantial public resonance, and governments already committed to halting them through Aichi Target 12. A bold commitment to stop further species from being driven extinct by human actions would be symbolic, easily understood, and achievable.

We refer to *human-induced* extinctions because while extinction is a natural process, virtually all documented extinctions in recent centuries have been caused directly or indirectly by human activities. Conceivably, some natural extinctions (e.g. driven by unexpected volcanic eruptions or other events) could be unavoidable. For ease of communication, the words 'human-induced' could be omitted if instead they were specified in guidance associated with the new framework.

The Goal relates to extinctions of *known* threatened species: many species (particularly of plants and invertebrates) that have not yet been assessed in terms of their extinction risk (including many that have not yet been described to science) may be being driven extinct undetected. It would be very challenging to prevent such extinctions without improved knowledge.

Although preventing extinctions is ambitious, it is achievable: all recent extinctions arguably could have been prevented, and even the most threatened species could still be saved with concerted action and political will. Since 1993 (when the CBD came into force), 21–32 bird and 7–16 mammal species would have gone extinct without conservation action, while 9–18 bird and 2–7 mammal species would have gone extinct without conservation action since 2010 (when the Aichi Targets were agreed)². An alternative proposal to reduce the overall extinction rate (including natural extinctions) to 20 per year for the next 100 years³ is also relatively simple and fairly ambitious but it would be more difficult to measure progress against this target through time.

To keep the Goal reasonably succinct, we propose that this commitment to halt extinctions replaces the element on threatened species in the Goal, while both are covered in the Milestones. An alternative would be to include elements on both extinctions and threatened species in the wording of the Goal.

Refocusing the commitment on threatened species to avoid unintended outcomes

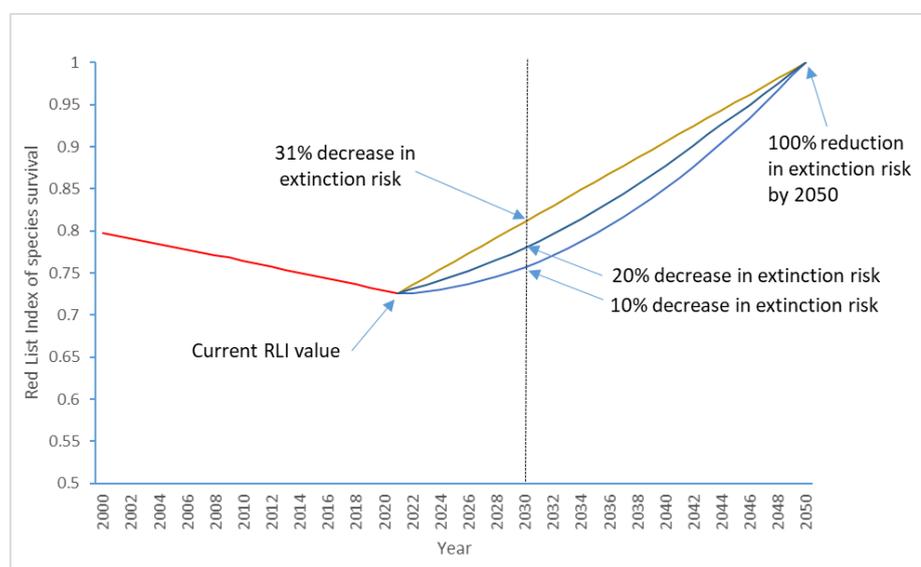
We propose revising the element on 'reducing the number of species threatened with extinction' so that it instead focuses on reducing the risk of extinctions. This is because: (i) perversely, the currently worded target could be met by allowing species to go extinct, (ii) it could also be met even if most currently threatened species substantially deteriorate in status, and (iii) the number (or %) of threatened species will mostly change owing to improved knowledge (of currently assessed species, and addition of newly assessed species) and revised taxonomy. By contrast, the risk of species extinctions can be measured using the Red List Index (an existing indicator for Aichi Target 12 and Sustainable Development Goal 15), which factors out such non-genuine change to show overall trends driven only by genuine improvement or deterioration in status of species.

Why aim for a 20% reduction in extinction risk by 2030?

The figure of 20% reduction in extinction risk is based on an aim to achieve 0% risk of human-driven extinction by 2050⁴, consistent with the CBD's 2050 Vision for a world 'living in harmony with nature'. For the most relevant global indicator of extinction risk — the Red List Index — a linear trend between its current value (0.73) and a value of 0 in 2050 suggests a reduction in extinction risk of 31% is required by 2030⁵. However, a convex curve is more plausible given that there are often policy and ecological time-lags before species' populations and distributions increase (and hence extinction risk decreases) following

implementation of actions to reduce threats and remove barriers to recovery. Furthermore, the Red List Index shows that extinction risk has been increasing by 4-5% per decade since 2000, so action is required first to halt this growth and then reduce extinction risk. Therefore, a target of reducing extinction risk by 20% appears to be an appropriate and plausible value to aim for while being compatible with a longer-term goal of zero extinction risk by 2050, as shown in Figure 1. Reducing extinction risk requires implementing actions to improve the status of threatened and/or Near Threatened species sufficiently to 'downlist' them to lower categories of threat on the IUCN Red List. Based on the taxonomic groups included in the Red List Index currently, a 20% reduction in extinction risk measured using the Red List Index equates to downlisting approximately 50% of threatened and Near Threatened species each by one category of risk, or downlisting approximately 30% of threatened species to non-threatened status⁶.

Figure 1. Recent trends in the Red List Index (red line, showing recent declines of 4-5% per decade), and potential trajectories towards zero extinction risk by 2050, including linear trends (yellow line), and convex trend curves (dark and light blue lines). Dotted line indicates the 2030 timeframe for Target 3 in the draft post-2020 Global Biodiversity Framework. A reduction in extinction risk of 20% by 2030 is plausible given recent trends and given time-lags in species recovery, while enabling 100% reduction by 2050 to be achievable.



What actions would be needed to achieve this?

A variety of actions would be needed to achieve such a significant reduction in extinction risk. One study⁷ showed that site-scale conservation was the highest priority in the short to medium term for 82% of threatened mammals, birds, amphibians and reptiles. Protecting and effectively conserving the Key Biodiversity Areas identified for threatened species, either through formal protected areas or other effective area-based conservation measures (OECMs), is the most important action required to reduce their extinction risk. Essential actions to reduce the main threats to species include reducing habitat loss and degradation driven by unsustainable agriculture, ending unsustainable exploitation (including logging and timber extraction from forests, over-fishing and hunting of animals), and controlling or eradicating invasive alien species. Finally, some species will require targeted actions to help them recover, including captive breeding/propagation and release, translocation, supplementary feeding, etc. A 'global species action plan' is being developed by IUCN to set out the actions required under each of the draft post-2020 targets. One study⁸ estimated that it would cost a minimum of U.S. \$0.875 billion annually to implement the actions required to downlist all threatened species by at least one Red List category.

Clarifying the commitment on abundance

The current wording on 'the abundance of species' could be interpreted as aiming to increase the number of species. We therefore propose revising this to specify 'the population abundance of species' so that it is clear that the aim is to increase the average numbers of individuals of species. The focus of this element is to restore the populations of native (not introduced) species that have been depleted over recent decades, particularly those that are not yet threatened (given that threatened species are covered in the preceding element of the Goal). We suggest that this is specified in the associated guidance rather than the Goal itself, to keep the latter succinct and simple, while recognising that average population abundance is a blunt but pragmatic measure on which to focus in this context.

While there may be particular interest in socio-economically, culturally or functionally important species, retaining a broad focus is important given our incomplete understanding of the relative contributions of different species to ecosystem function and hence ecosystem service delivery.

The value of 20% is based on an aspiration to return average species population abundance (which has declined by c.60% since 1970) to a baseline value of 1970 levels (with available data precluding any baseline earlier than 1970). Further analysis is underway to strengthen the justification for this value.

Distinguishing the Goal and Milestones

We propose that the percentages are removed from the wording of the Goal, and kept in the 2030 Milestones, in order to avoid repetition.

INDICATORS FOR MEASURING PROGRESS TO GOAL A

To measure progress towards these revised species milestones in Goal A, we propose the following indicators that could be tracked at the global or regional scale. Additional indicators may be useful at the national scale⁹, and for tracking the enabling conditions for this Goal¹⁰.

- Extinctions*: (a) Trends in number of species becoming extinct or qualifying for uplisting to Critically Endangered (i.e. species classified as Extinct, Extinct in the Wild, or Critically Endangered)¹¹. Critically Endangered species are included here because they can be regarded in some senses as 'functionally extinct', as they typically have such low population sizes that they no longer fulfil the ecological functions that they formerly delivered before human impacts threatened them so severely that they qualified as Critically Endangered². The advantage of including Critically Endangered in this metric is that it is much easier to detect the movement of species from lower threat categories to Critically Endangered than it is to detect species becoming extinct. This new indicator is feasible to develop rapidly from IUCN Red List data, and would be produced by IUCN and BirdLife International.
(b) Number of extinctions prevented owing to conservation actions. This is an existing indicator produced by IUCN and BirdLife International², feasible to update in 2030 at the end of the period for the target.
- Extinction risk*: (a) [Red List Index of species survival](#). This is an existing indicator¹²; produced by IUCN and BirdLife International. (b) Trends in the proportion of threatened¹³ species that have improved in status¹⁴ relative to 2020. This is a new indicator that is feasible to develop from IUCN Red List data as species are reassessed post-2020¹⁵.
- Abundance*: Trends in species' population abundance¹⁶ (e.g. [the Living Planet Index](#) [available for vertebrates since 1970; WWF], [Wild Bird Index](#) [available for Europe since 1980 and North America since 1968; BirdLife International/EBCC/USGS] [Existing indicator]).

Figure 2. Illustrative trajectory and proposed milestones for the proportion of threatened species that have improved in status, showing that improving the status of c.30% of threatened species by 2030 would be on track to meet 100% by 2050.

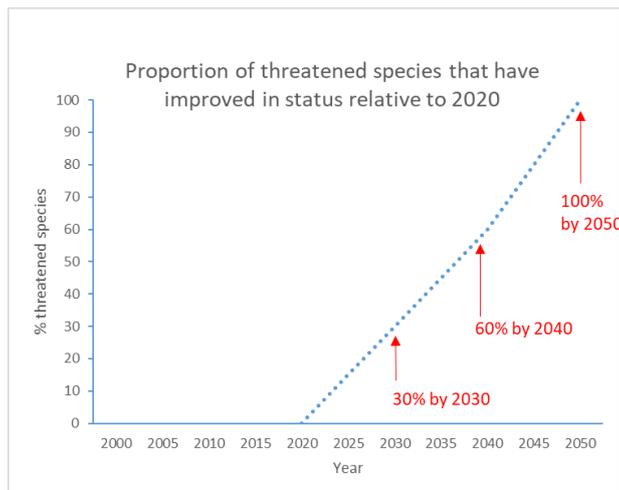
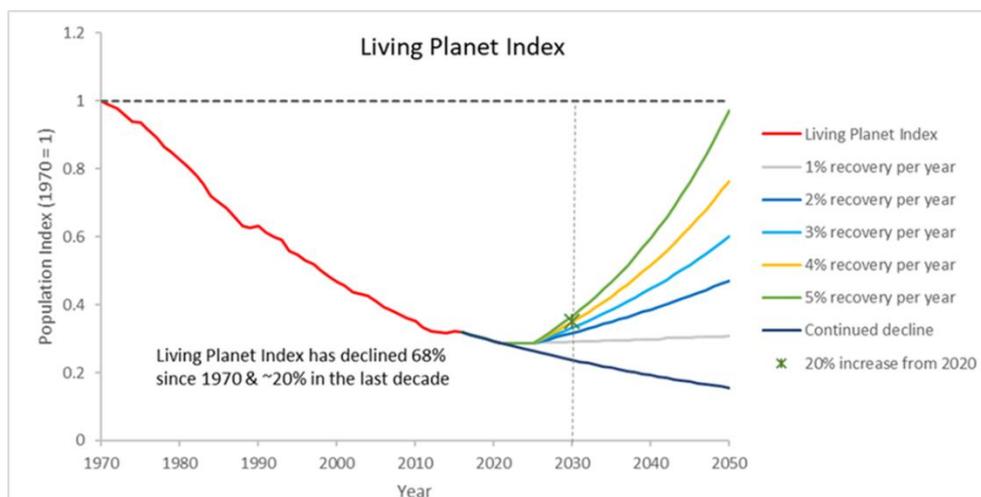


Figure 3. Recent trends in the Living Planet Index (red line, showing declines of 68% since 1970, and 20% in the last decade) and potential trajectories to 2050 (in each case continuing the current decadal rate of decline from 2016-2021, stabilising by 2025, and then either increasing at average population growth rates of 1-5% per year, or continuing the current decadal rate of decline). The asterisk indicates an index increase of 20% from 2020 by 2030. The dotted line indicates the 2030 timeframe for Target 3 in the draft post-2020 Global Biodiversity Framework. An increase of 20-25% by 2030 is needed in order to be on track to recover 1970 baseline levels by 2050¹⁷.



TARGET 3 ON RECOVERY ACTIONS FOR THREATENED SPECIES

To achieve the proposed elements on species in Goal A (preventing extinctions, conserving threatened species and recovering population abundance), it will be necessary to effectively mitigate threats, address underlying drivers, and effectively conserve Key Biodiversity Areas and other important locations for biodiversity through protected areas and OECMs. However, it will also be critical to implement targeted intensive recovery actions, both in situ and ex situ, where required, for species whose survival depends on it or whose recovery cannot otherwise be enabled or sustained¹⁸.

We therefore welcome the addition (since the Zero Draft of the framework) of Target 3: “By 2030, ensure active management actions to enable wild species of fauna and flora recovery and conservation, and reduce human-wildlife conflict by [X%]”. However, the second clause on human-wildlife conflict is unrelated to

promoting recovery actions and would be better removed from this target, and we suggest a very minor rewording as follows to aid clarity and clarify the focus on threatened species (those 'on the brink'):

*By 2030, ensure active management actions to enable **recovery and conservation of threatened** wild species of fauna and flora.*

INDICATORS FOR MEASURING PROGRESS TO TARGET 3

To measure progress towards Target 3, we propose the following indicators that could be tracked at the global scale. Additional indicators may be useful at the national scale.

1. Number of threatened species for which global or national action/recovery plans¹⁹ are (i) up to date, and (ii) being implemented. This new indicator would be feasible to develop from data in the IUCN Red List and other sources.
2. Proportion of species requiring intensive recovery actions to avoid extinction that are under active recovery management. This new indicator would be feasible to develop from data in the IUCN Red List and other sources.
3. Number of species for which recovery has been documented using 'green status of species' assessments²⁰ on the IUCN Red List. This new indicator is under development by IUCN.
4. Mean % of each Key Biodiversity Area²¹ identified for globally threatened species that is covered by protected areas or other effective area-based conservation measures (OECMs). This new indicator could be immediately developed by BirdLife International and the KBA Partnership using existing data in the World Database of KBAs.
5. Proportion of Key Biodiversity Areas identified for globally threatened species in 'favourable condition' (based on habitat extent/condition as a surrogate if population trends of threatened species at each site are not available)²². This new indicator would be feasible to develop by BirdLife International and the KBA Partnership using data in the World Database of KBAs, but expanded monitoring efforts are required.

¹ See also Williams et al (2021) [Conserv. Letters e12778](#), and the work of the IUCN Species Survival Commission's Post-2020 Biodiversity Targets Task Force (<https://www.iucn.org/commissions/ssc-groups/cross-cutting/post-2020-biodiversity-targets-task-force>), in which BirdLife is an active member; this paper builds on this joint work and develops certain elements further.

² Bolam et al. (2020) [Conserv. Letters. e12762](#).

³ Rounsevell et al. (2020) [Science 368: 1193-1195](#).

⁴ For species that are not naturally threatened owing to distributions/populations that are naturally highly restricted.

⁵ The % reduction in extinction risk is calculated as the % reduction in the inverse of the Red List Index value, with the latter calculated using weights of 5 for Extinct, 4 for Critically Endangered, 3 for Endangered, 2 for Vulnerable and 1 for Near Threatened, following Butchart et al (2007) [PLoS ONE 2: e140](#).

⁶ Calculations assume that the number of species downlisted to Near Threatened from each of the three threatened categories (Critically Endangered, Endangered and Vulnerable) is proportional to the number of species in that category, and the same proportion of Near Threatened species is downlisted to Least Concern. See also endnote 5.

⁷ Boyd et al (2008) [Conserv. Lett. 1: 37-43](#).

⁸ McCarthy et al (2012) [Science 338: 946-949](#).

⁹ Potential national indicators include those based on national red lists, reporting rate metrics, occupancy metrics, and the [Wildlife Picture Index](#) (available for 15 countries since 2007).

¹⁰ For example: Number of species assessed on the IUCN Red List and the number of comprehensively assessed groups that have been reassessed to determine trends, and Number of countries with nation-wide systematic species abundance/occupancy monitoring programmes established.

¹¹ Note that species being re-categorised as Critically Endangered owing to improved knowledge, taxonomic revisions and other 'non-genuine' changes would be excluded from this indicator. Since 2000, 16 species have been driven extinct (including 8 birds, 2 mammals, 2 reptiles, 2 gastropods, and 2 plants) while an additional 84 species (36 birds, 34 mammals, 12 cycads, 2 corals) qualified for uplisting to Critically Endangered owing to genuine deterioration in status. An appropriate milestone would be to reduce the number of species becoming Extinct, Extinct in the Wild or Critically Endangered owing to genuine deterioration to 20 during 2020-2025 and 0 during 2025-2030.

¹² <https://www.iucnredlist.org/search> and <https://unstats.un.org/sdgs/indicators/database/>

¹³ Including Extinct in the Wild species, in order to incentivise their reintroduction into the wild, even though such species are technically not included in the term 'threatened'

¹⁴ Note this includes species that have improved sufficiently to qualify for a lower category of risk on the IUCN Red List, plus species with expanding distributions, species with increasing population trends, and species that had declining trends in 2020 but stable trends currently.

¹⁵ Only 2.7% of threatened species in groups with relevant post-2000 information (birds, mammals, cycads, corals) improved in status sufficiently to qualify for lower categories of threat since 2000 (40/1497 bird species, 8/1079 mammals, 1/218 cycads, 0/845 corals) or had increasing population trends (an additional 42 species: 38 birds, 4 mammals, but no cycads or corals).

¹⁶ Preferably measured at continental scale (like the Wild Bird Index) rather than locally, as the latter is more akin to biotic integrity than overall species abundance. The LPI represents a mix of datasets from local to continental scales.

¹⁷ Note that the LPI is set to a value of 1 in the baseline year (1970), and hence shows trends in population abundance relative to those in 1970. By contrast, the Red List Index is a metric scaled between 0 and 1, where a value of 1 equates to all species being categorised as Least Concern (and therefore not at threat from human impacts).

¹⁸ Bolam et al (in review) Targeting recovery of threatened species post-2020.

¹⁹ These may include individual species, multi-species or site-based plans.

²⁰ Akçakaya et al. (2018) [Conserv. Biol. 32: 1128-1138](#).

²¹ Key Biodiversity Areas are sites of significance for the global persistence of biodiversity. Over 16,000 KBAs have been identified to date, spanning all countries and terrestrial, freshwater and marine environments. About two-thirds of these (10,352) have been identified as important because of the populations of globally threatened species that they support. Effectively conserving these sites is key to the conservation of these species. On average, 38.5% of each KBA identified for threatened species is covered by protected areas, with 12.9% (1,337) completely covered, 50.6% (5,243) partially covered and 36.4% (3,772) lacking any coverage by protected areas. Appropriate milestones may therefore be to reach 50% by 2025 (including 100% of sites holding the sole population of any highly threatened species), 70% by 2030 and 100% by 2050. The coverage of unprotected KBAs by OECMs is not known, but preliminary data for 10 countries indicates that 76% of such sites are at least partially covered by candidate OECMs. To date, only a tiny number of countries have submitted any data on OECMs to the World Database of OECMs -these areas are included in the calculation of the indicator. Alliance for Zero Extinction sites are KBAs holding the last remaining population of any highly threatened species; a total of 853 have been identified as of May 2019. Comprehensive data on other systematic site networks for threatened species are not yet available.

²² Currently, 35.6% of Key Biodiversity Areas identified for threatened species are in favourable condition (out of 1,212 with relevant data). Appropriate milestones may therefore be to aim for this proportion to exceed 50% by 2025, 60% by 2030, 80% by 2040 and 100% by 2050. A KBA monitoring protocol with definitions and methods for determining favourable condition is in development. Note that this indicator is a disaggregation of one proposed for Target 2 on site-based conservation, being restricted to those KBAs identified for threatened species.