May 2022

Species conservation in the post-2020 Global Biodiversity Framework

The post-2020 Global Biodiversity Framework must include clear species outcomes and actions to ensure we are nature-positive by 2030. The inclusion of commitments on species is critical because they are fundamental units of biodiversity, the building blocks of ecosystems, are well monitored and have substantial public resonance. We welcome the recognition of the importance of the species component of Goal A and Target 4 on species recovery actions, but we have some specific recommendations for their improvement. This fourth update of our species position (first produced in September 2019) covers the species elements of the Open-ended working group on the post-2020 Global Biodiversity Framework (the composite text) (Goal A, Target 4 and related indicators). It also includes a detailed Annex addressing a series of technical questions, raised in the Geneva OEWG3 and SBSTTA 24.

Critical Elements, Justifications and Implications for OEWG3 Composite text

For **Goal A** we need:

1) The **integration of measurable milestones, or outcomes, for 2030 and 2050 at the goal level**. It is critical that ambitious 2030 components on extinction, extinction risk, and abundance that show a route to halt and reverse biodiversity loss by 2030 are maintained at the Goal level as proposed in the composite text, and 2050 components are added to illustrate the level of ambition needed to restore biodiversity by 2050.
2) A renewed commitment to **halt human-driven extinctions of all known threatened species**. Evidence demonstrates this is achievable. Simply reducing the extinction rate is both insufficient and more challenging to measure.
3) A commitment to reduce **extinction risk by at least 20% by 2030**, in comparison with 2020 levels, **and to eliminate risk by 2050,** to bring us in line with the 2050 Vision of a world living in harmony with nature. Therefore, a refinement of the composite text to refer to a 20% reduction in extinction risk (as measured by the Red List Index), is needed. A reduction in risk for 20% of threatened taxa (as proposed in the composite text) is not equivalent to this (e.g., each of the 20% of threatened taxa could undergo a trivial reduction in risk, which would not put us on track to the 2050 Vision).
4) **A commitment to increase the population abundance of species by at least 20% by 2030 and maintained or enhanced by 2050 to healthy and resilient levels**, in comparison with 2020 levels**,** to ensure abundant and resilient populations of all species by 2050. Content is already proposed in the composite text in relation to 2030, and the addition of a reference to 2050 would ensure clarity.

*Goal A Text suggestion for species-related components**

The **human-induced** extinction of all **known threatened** species **is halted**, extinction risk is reduced **by** at least 20% by 2030***, and eliminated by 2050***. The **average** abundance of **wild native** species is increased by at least 20 per cent by 2030 **and maintained at or enhanced to healthy and resilient levels by 2050**, **and their genetic diversity and adaptive potential is safeguarded**.

***Bold** text indicates removal of brackets from the composite text, **bold underlined** indicates additional text elements we propose should be added.

BirdLife International is the world's largest nature conservation partnership, with 115 partners. Through our unique local-to-global approach, we deliver high impact and long-term conservation for the benefit of nature and people.

For more information, see www.birdlife.org/post2020 or contact:

- **Dr Stuart Butchart**, Chief Scientist, BirdLife International (stuart.butchart@birdlife.org)
- **Professor Richard Gregory,** Head of Monitoring Conservation Science, RSPB (Richard.gregory@rspb.org.uk)
- **Dr Amy McDougall,** Global Biodiversity Policy Coordinator, BirdLife International (amy.mcdougall@birdlife.org)

Goal A Monitoring Framework Indicators

- Retain the **Red List Index** as a headline indicator (A.0.3) to track overall extinction risk, supported by its positive assessment for relevance, global and national feasibility, and readiness and re-insert the **Living Planet Index** as a headline indicator measuring population abundance, as proposed by SBSTTA.[1,2]
- To track extinctions, add component indicators: **Trends in number of species becoming extinct or qualifying for uplisting to Critically Endangered** and **Number of extinctions prevented owing to conservation actions.**

For **Target 4** we need:

1) A **focus on wild native species only** - maintaining references to "wild native" and deleting "domesticated" "cultivated" and "all" as proposed in the composite text. The inclusion of domestic or cultivated species in the target would be a distraction from the urgent actions needed to conserve wild species.
2) **Focus on action for threatened species** - the conservation of which need species-specific recovery actions to recover. There is a strong proposal included in the composite text. Recovery of non-threatened species is enabled by actions under the other targets.
3) **Focus on species conservation** – the key focus should be on urgent active management actions for species' recovery. The proposed addition of 'sustainable' in the composite text is unnecessary and open to mis-interpretation.
4) **Clarity on the human-wildlife interactions component -** if this is to be included, both elements of interaction should be described, that is 'conflict' and 'co-existence' as not all interactions are conflictual or have negative consequences.

Target 4 Text Suggestion

Undertake urgent management actions **to enable** the recovery and conservation of **threatened** species and the genetic diversity **of wild native species populations**, including **through in situ and ex situ conservation**, **and effectively manage human-wildlife conflict and co-existence**.

Target 4 Indicators

- Add Headline indicator: **Proportion of species requiring intensive recovery actions to avoid extinction that are under active recovery management,** as proposed by SBSTTA[2].
- Reword component indicator 4.1.1 to: **Number of species for which recovery has been documented using 'Green Status of Species' assessments on the IUCN Red List.**
- Add component indicator: **Mean % of each Key Biodiversity Area identified for globally threatened species that is covered by protected areas or other effective area-based conservation measures (OECMs)**
- Add component indicator: **Proportion of Key Biodiversity Areas identified for globally threatened species in 'favourable condition'**
- Add component indicator: **Number of threatened species for which global or national action/recovery plans are i) up to date, and ii) being implemented**

To deliver the 2050 vision of 'living in harmony with nature' we must halt and start to reverse biodiversity loss by 2030. With the current rapid rate of decline, any chance of success relies on transformative action now.

Recent research examining the impact of targeted conservation on global population trends of vertebrate species has revealed that targeted action has delivered very substantial positive effects over recent decades.

- ***Over 70 bird species have qualified for down-listing to lower categories of threat on the IUCN Red List as a result of genuine improvements in their status*** following the implementation of conservation action. Examples include Guam Rail and California Condor, once Extinct in the Wild, but successfully reintroduced back into the wild, and Rodrigues Warbler, whose population has grown from <150 individuals in 1999 to nearly 4,000 individuals following habitat protection and reforestation.
- ***Some countries already show positive Red List Index trends following implementation of conservation actions***. National Red List Indices for birds in the Seychelles and Mauritius have both increased in value since 1988, indicating reductions in extinction and recovering populations of threatened species through conservation action.
- ***Similar examples exist for a range of other taxonomic groups as highlighted in our full position.***

To note, the delivery of the species elements should be supported by a dedicated species programme of work using the Global Species Action Plan (GSAP).

GOAL A ON CONSERVATION OF ECOSYSTEMS, SPECIES AND GENETIC DIVERSITY

Current Text

The wording of Goal A in the composite text produced in Geneva (CBD/WG2020/3/7[3]) is as follows (with green font indicating the strongest text, and red font indicating the problematic components that should be removed, as discussed in the justification below,). Grey text indicates the text without direct relevance for species.

Goal A.

The [[socio]-ecological [resilience]] integrity [, area] and connectivity of [all][both natural [and managed] terrestrial, freshwater, coastal and marine] ecosystems is [maintained or] enhanced [with no further loss of highly intact or threatened ecosystems], [preventing collapse of]] all ecosystems is maintained or enhanced, increasing[, ensuring] [increasing the area,] connectivity [and integrity of these ecosystems]] [and increasing] [by at least [5] per cent by 2030 [improve resilience in the most vulnerable ecosystems] and [15][20] per cent by 2050[1]] [the area and[, the ecological integrity] of a full range of natural ecosystems] [the protection of threatened or restoration of depleted ecosystems.]

The [human-induced] extinction of all [known threatened] species [is [minimized][halted] [[overall] extinction risk is reduced for at least 20% of threatened taxa by 2030] [having by 2030 halted or reversed the increase in the extinction rate]. The [average] abundance and distribution of depleted populations of [wild [and domesticated][all]] [native] species is increased by at least 20 per cent by 2030 [maintained at or enhanced] to healthy and resilient levels] [, and their genetic diversity [and adaptive potential] is safeguarded[, to [maintain][ensure] their adaptive potential]] [with[.]

[All genetically distinct populations and] [[[a] A]t least [90][95][X] per cent of] genetic diversity among and within [all] [known] [populations of] [wild and domesticated] species is [maintained][safeguarded, maintaining their adaptive potential].]

ALT.7

Biodiversity is conserved, maintaining and enhancing the [area,] connectivity [, restoration] and integrity of all [terrestrial, freshwater, coastal and marine] ecosystems [and reducing the risk of ecosystem collapse], halting [from now] [human induced] extinctions [and reducing extinction risk [[to zero by 2050]], supporting healthy and resilient populations of [native] species, maintaining genetic diversity of populations and their adaptive potential [numerical values to be added].

BirdLife recommended text

We propose the following text for Goal A's species components, based on a refinement of the composite text from the OEWG report (with bold, underlined font indicating additional wording). The figures here relate to the reference year of 2020.

Goal A

The ⸢human-induced⸣ extinction of all ⸢known threatened⸣ species ⸢is ~~[minimized]~~[halted⸣ ~~[[overall]~~ extinction risk is reduced ~~for~~ **by** at least 20% ~~of threatened taxa~~ by 2030⸣ **and eliminated by 2050**~~.~~ ~~[having by 2030 halted or reversed the increase in the extinction rate].~~ The ⸢average⸣ abundance ~~and distribution~~ of ~~depleted~~ populations of ⸢wild ~~[and domesticated][all]]~~ ⸢native⸣ species is increased by at least 20 per cent by 2030 **and** ⸢maintained at or enhanced⸣ to healthy and resilient levels⸣ **by 2050** ⸢, and their genetic diversity ⸢and adaptive potential⸣ is safeguarded~~[, to [maintain][ensure] their adaptive potential]] [with[.]~~

Clean text:

The human-induced extinction of all known threatened species is halted, extinction risk is reduced **by** at least 20% by 2030**, and eliminated by 2050**. The average abundance of wild native species is increased by at least 20 per cent by 2030 **and** maintained at or enhanced to healthy and resilient levels **by 2050**, and their genetic diversity and adaptive potential is safeguarded.

[1] CBD/SBSTTA/REC/24/2 RECOMMENDATION ADOPTED BY THE SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE Appendix 1
[2] CBD/SBSTTA/REC/24/2 RECOMMENDATION ADOPTED BY THE SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE in Appendix 2)
[3] CBD/WG2020/3/7 REPORT OF THE OPEN-ENDED WORKING GROUP ON THE POST-2020 GLOBAL BIODIVERSITY FRAMEWORK ON ITS THIRD MEETING (PART II)

Justification

1. Ensure the integration of measurable milestones, or outcomes, for 2030 and 2050 at the goal level.

It is critical that ambitious 2030 and 2050 components on extinction, extinction risk, and abundance are maintained at the Goal level as proposed in the composite text, in parallel with the addition of 2050 components to illustrate the level of ambition needed to halt and reverse biodiversity loss by 2050. Each Milestone can only be achieved through implementation of multiple Targets. Removing these entirely, or placing them at target level, would undermine the opportunity to ratchet delivery, risk slippage in actions required to meet the 2050 goals, and reduce accountability and transparency. It is vital to ensure SMART[4] goals, this means including quantifiable elements against which to measure progress and to direct action towards, where evidence supports this. This is the case for species (see Figure 1&2). Recent research[5] into progress under the Aichi targets found that the most effective targets and ones making most progress were those that had SMART elements.

2. Keep the reference to halting human-driven extinctions of known threatened species

If we are to "put nature on the path to recovery by 2030" and truly "live in harmony with nature by 2050" we must halt further human-driven extinctions of known threatened species, as extinctions are irreversible and have wide ranging impacts on ecosystem function. Hence the language of '**halted**' should be used, not 'minimised'. Given that conceivably some *natural* extinctions (e.g., driven by unexpected volcanic eruptions) could be unavoidable, the goal should specify **human-driven** extinctions. The goal should also focus on **known threatened** species because it would be very challenging to prevent extinctions of species that have not yet been assessed in terms of their extinction risk (or even described to science). We note that Parties already committed to this through Aichi Target 12, and recent evidence[6] demonstrates that preventing the extinction of threatened species is feasible (see Annex Q8).

3. Remove the reference to 'extinction rate'

Halting or reversing the increase in extinction rate' would require assessing the current extinction rate (i.e. over a recent baseline period yet to be defined) with sufficient precision that we could detect by 2030 if the rate has been stabilised or reduced. Given the challenges in quantifying recent global extinction rates precisely, this would be extremely difficult (see Annex Q7). Extinctions have considerable public resonance, and '**halting human-driven extinctions'** is more communicable and intuitive than 'reversing the increase in rate'. We therefore recommend removing the reference to extinction rate, to place the focus on the first clause of halting extinctions.

4. Clarify the ambition in reducing extinction risk

The 2030 extinction risk reference in the composite text should refer to a **20% reduction in risk** (as measured by the Red List Index), not a reduction in risk for 20% of 'threatened taxa', which could be achieved though trivial reductions in risk for each of the 20% of taxa, which would not place us on a trajectory to meet the 2050 Vision. 'Taxa' includes both species and subspecies, but may be less comprehensible to decision-makers, so we propose retaining the word "species". The current wording does not give a clear goal for the reduction in risk required by 2050. We propose adding wording that indicates that extinction risk must be **eliminated by 2050,** which is feasible if we meet a 20% reduction by 2030 (see Figure 1) and continue a trajectory of reducing extinction risk at at least this rate. Note that this refers to known threatened species, and human-induced extinction risk. Evidence suggests that eliminating such extinction risk (as measured using the IUCN Red List Index) by 2050 is feasible, with transformative change (see Annex Q11 and Q12).

5. Clarify the ambition to restore the average population abundance of wild native species

A reference to 'abundance' is of primary importance. The text to **increase the average abundance of populations of wild native species by at least 20%** (from 2020 levels) is strong and should be maintained – this level of increase is required to restore populations to baseline levels (i.e. those for 1970, the most appropriate baseline given the available data) by 2050 (Figure 2, see also Annex Q5 and Q6). The reference to "depleted" populations is unnecessary. The wording '**wild native**' adds specificity to the ambition of the goal and avoids incentivising actions to increase the

[4] SMART – Specific, Measurable, Ambitious, Realistic and Timebound

[5] Green et al. (2019) Relating characteristics of global biodiversity targets to reported progress. *Conservation Biology.* 33, 1360-1369. https://doi.org/10.1111/cobi.13322

[6] Bolam et al. (2020) How many bird and mammal extinctions has recent conservation action prevented? *Conservation Letters.* 14, e12762 https://conbio.onlinelibrary.wiley.com/doi/10.1111/conl.12762

abundance of introduced or invasive species. References to "domesticated" species or "all" species (which infers the inclusion of both wild and domesticated species) should be removed because we don't want to increase the numbers and distribution of domesticated species such as cows or sheep (or the populations of invasive alien species, as noted above).

To be more explicit, "**by 2050**" should be added after the commitment to ensure that average population abundance is maintained at, or enhanced to healthy and resilient levels. "Populations of" should be removed because it distracts from a focus on the overall abundance of each species, noting that some populations may increase while others decrease – it is the overall abundance trend that is important.

To note: The clause in Goal A at the end of the species paragraph on safeguarding genetic diversity is redundant given the following clause on maintaining 90% of genetic diversity.

Indicators for measuring progress to Goal A

For Headline Indicators: Population abundance and extinction risk are two distinct and complementary dimensions of the species component of biodiversity (see Annex Q3); it is critical that both are measured through headline indicators, the **Red List Index** and the **Living Planet Index**. The **Red List Index**, an existing, well-respected indicator of extinction risk, should be maintained as a headline indicator having received a positive assessment from SBSTTA as to its relevance, global and national feasibility, and readiness[7]**.** This should be complemented by the inclusion at headline level the **Living Planet Index**[8] (See Annex Q4) as proposed by SBSTTA[9]. Species population abundance is an Essential Biodiversity Variable[10] and its inclusion closes a significant and critical gap.

While an additional indicator on genetic diversity may be desirable (if challenging to measure robustly), this should not be at the expense of dropping an existing, well-established, and informative indicator of population abundance.

For the Component and Complementary indicators: We recommend promoting the complementary indicator A.42 **Wild bird Index**[11], as a population abundance metric, to Component level. We also recommend upgrading complementary indicator A.39 to component level and re-wording it as "Percentage of threatened species that have improved in status since 2020" to bring clarity.

Further, to effectively track progress on halting human-induced extinctions of known threatened species it is important to measure both i) trends in the number of species becoming extinct or being uplisted to Critically Endangered, and ii) the number of extinctions prevented owing to conservation action. We propose indicators of these as follows:

(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)
   a. 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 Endangered
   b. 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 International, feasible to update in 2030 at the end of the period for the target.

[7] CBD/SBSTTA/REC/24/2 RECOMMENDATION ADOPTED BY THE SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE Appendix 1
[8] The Living Planet Index is the best-known global indicator of population abundance, is based on a body of peer-reviewed research, and comprises data on nearly 28,000 populations of nearly 5,000 species spanning five decades. The index is built from high quality annual time-series of population sizes (or proxies) for species from terrestrial, freshwater, and marine habitats around the world. The data sources are listed for each data set and are checked and verified before use. Data comes primarily from scientific studies of species and habitats, or from national species monitoring programmes. See https://livingplanetindex.org/home/index.
[9] CBD/SBSTTA/REC/24/2 RECOMMENDATION ADOPTED BY THE SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE in Appendix 2)
[10] Pereira et al. (2013) Essential Biodiversity Variables. *Science.* 339, 277-278. https://www.science.org/doi/10.1126/science.1229931
[11] The Wild Bird Index is a population abundance metric based on standardised and systematic monitoring schemes that are designed to address potential biases and deliver representative metrics, and which complements the Living Planet index.

TARGET 4 ON SPECIES CONSERVATION ACTIONS

Current Text

The wording of Target 4 in the composite text (CBD/WG2020/3/7[12]) is as follows (with green font indicating the strongest text, and red font indicating the problematic components that should be removed, as discussed in the justification below):

> **Target 4.**
>
> [Ensure active][Undertake urgent] [and sustainable] management actions [on a scale sufficient] [to] [enable] [achieve] the recovery and conservation of [threatened] species[, and the population abundance of native species and maintain the genetic diversity of all species] [in particular threatened species], and the genetic diversity of [[native] wild and domesticated] [cultivated] [all] [native] [and domesticated] species [populations], [to maintain their adaptive potential] including through in situ [conservation, supported by] [and] ex situ conservation [and restoration of genetically depleted populations] [[reducing] [preventing] [the risk of] human induced extinctions of known threatened species by X per cent][reducing human induced species extinctions risk][, and effectively manage human-wildlife interactions [to avoid or reduce human-wildlife conflict][, by preventing activities that damage ecosystems and habitats and ensuring the customary rights of, and access and use by, indigenous peoples and local communities]. [to enhance human-wildlife co-existence.] [to the benefit of both humans and wildlife] [minimizing harm to native wildlife from human-wildlife interactions] .
>
> ALT.1
> [Extinctions of known threatened species prevented, the average population abundance of depleted species increased by X per cent and the risk of human-driven species extinctions reduced by X per cent, safeguarding genetic diversity.]

BirdLife recommended text

We propose the following text for Target 4, based on a refinement of the composite text from the OEWG report (with bold, underlined font indicating additional wording).

> **Target 4**
>
> ~~[Ensure active]~~[Undertake urgent~~]~~ ~~[and sustainable]~~ management actions ~~[on a scale sufficient]~~ ~~[~~to] [enable~~]~~ ~~[achieve]~~ the recovery and conservation of [threatened] species~~[, and the population abundance of native species and maintain the genetic diversity of all species][in particular threatened species],~~ and the genetic diversity of ~~[~~[native~~]~~ wild ~~and domesticated] [cultivated] [all]~~ ~~[~~native~~]~~ ~~[and domesticated]~~ species ~~[~~populations~~], [to maintain their adaptive potential]~~ including through in situ ~~[conservation, supported by]~~ [and] ex situ conservation ~~[and restoration of genetically depleted populations] [[reducing] [preventing] [the risk of] human induced extinctions of known threatened species by X per cent][reducing human induced species extinctions risk][~~, and effectively manage human-wildlife ~~interactions [to avoid or reduce human-wildlife~~ conflict]~~[, by preventing activities that damage ecosystems and habitats and ensuring the customary rights of, and access and use by, indigenous peoples and local communities]. [to enhance human-wildlife~~ co-existence.~~] [to the benefit of both humans and wildlife] [minimizing harm to native wildlife from human-wildlife interactions]~~
>
> *Clean text:*
>
> Undertake urgent management actions to enable the recovery and conservation of threatened species and the genetic diversity of wild native species populations, including through in situ and ex situ conservation, and effectively manage human-wildlife conflict **and** co-existence.

[12] CBD/WG2020/3/7 REPORT OF THE OPEN-ENDED WORKING GROUP ON THE POST-2020 GLOBAL BIODIVERSITY FRAMEWORK ON ITS THIRD MEETING (PART II)

Justification[13]

1. **Ensure measurable milestones, or outcomes, on extinctions, extinction risk and abundance are inserted at the goal level.**
   It is critical that ambitious components on extinction, extinction risk, and abundance for 2030 (as previously in the milestone A.2[14]) are maintained at the Goal level as these can only be achieved through implementation of multiple Targets. Placing them at target level, or removing these entirely, would undermine the opportunity to ratchet delivery, risk slippage in actions required to meet the 2050 goals, and reduce accountability and transparency. We therefore suggested the removal or duplication of text to this effect (i.e. on extinctions, extinction risk, and population abundance) in Target 4.

2. **Keep the focus on wild species**
   The addition of domesticated and cultivated species to this target is a worrying distraction from the urgent actions needed to conserve wild species. We recommend that conserving the genetic diversity of domesticated/cultivated species is covered under Target 10 on sustainable agriculture, and hence that the words "and domesticated", "cultivated" and "all" (which infers the inclusion of both wild and domesticated species) are deleted here.

3. **Keep the focus on threatened species**
   The purpose of this target is to promote the species-specific recovery actions needed to prevent extinctions, improve the conservation status and recover the abundance of threatened species for which mitigating threats (the focus of other targets) will be insufficient to achieve this. Recovery and conservation of non-threatened species will typically be achieved through reducing threats (targets 5-8), transitioning to more sustainable production systems (target 10), and conserving and restoring natural habitats (targets 1-2) and important sites for biodiversity (target 3). We therefore strongly recommend removing the brackets around the word "threatened".

4. **Focus on species conservation**
   Given that the key focus of this target is on urgent management actions for species' recovery, the words "and sustainable" should be deleted, as sustainable use is covered in other targets. Alternatively, 'sustainable' could be changed to "sustained" to ensure that the active management actions are given long-term support.

5. **On the inclusion of human-wildlife interactions**
   The issue of human-wildlife interactions (conflict and coexistence) is conceptually distinct from the issue of recovery actions for threatened species, although the consensus from Parties is for it to remain within Target 4. We suggest it is rephrased as 'effectively manage human-wildlife conflict and coexistence' to balance both types of interaction and satisfy concerns raised by Parties as reflected in the additional explanatory clauses proposed. Wording on this issue needs appropriate caveats to ensure that actions to effectively manage these interactions do not impact the viability of wild populations of native species. The aspects relating to ensuring the observance of customary rights and access of IPLCs in this respect are sufficiently addressed in the B.bis guidance. This outlines the cross-cutting principles that must be observed in the implementation of the framework, including the observance of IPLCs rights.

To note:

- It should be clearly understood that *in-situ* conservation is critical and should be the principal action in targeted species recovery, hence we support the language of "including through in-situ conservation and ex-situ conservation".
- As described, Target 4 should be action-oriented, the qualifier by which targets are defined in the theory of change. Hence, the placement of outcomes in Alt.1 which originated in the Goal A milestone A.2 on species extinction, extinction risk, and genetic diversity without the inclusion of an action element is inappropriate.

[13] For further details, see Bolam et al. (in review), available here: https://www.biorxiv.org/content/10.1101/2020.11.09.374314v1

[14] CBD/WG2020/3/3 FIRST DRAFT OF THE POST-2020 GLOBAL BIODIVERSITY FRAMEWORK

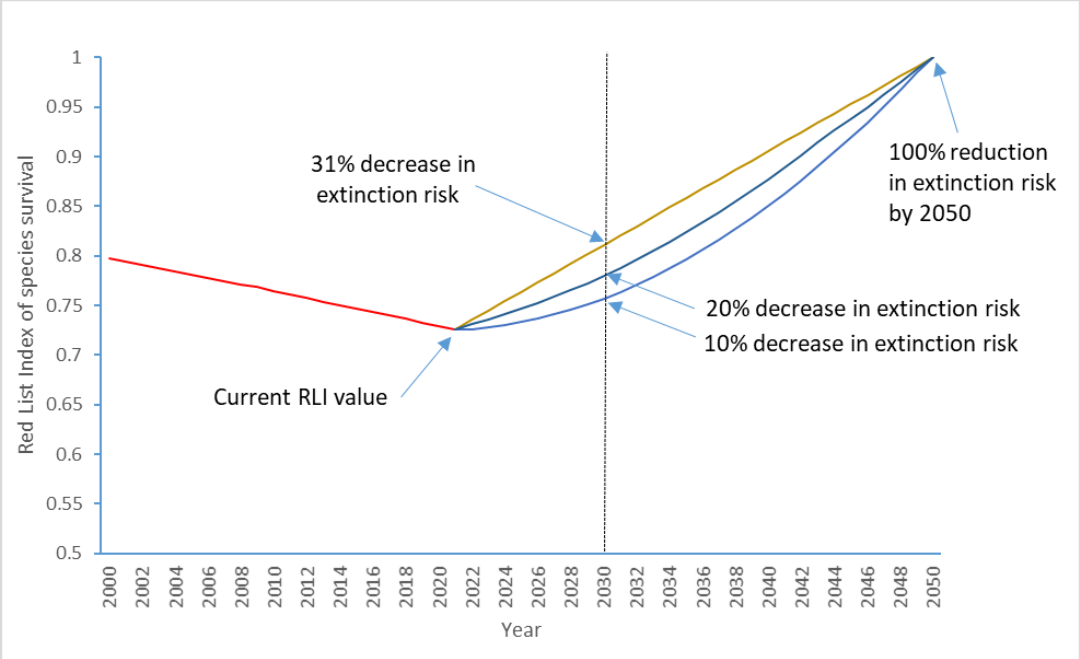
- See information in Annex Q11 on a *Global Species Action Plan* to provide guidance to Parties on the actions needed to achieve Target 4.

Indicators for measuring progress to Target 4

For Headline Indicators: Neither of the proposed Headline indicators (on human-wildlife conflict and plant genetic resources for food and agriculture) address the primary focus of the target (active management actions to ensure the recovery of species). We therefore propose the addition of (or replacement with) a **Headline indicator "Proportion of species requiring intensive recovery actions to avoid extinction that are under active recovery management"** as proposed at SBSTTA[15]. This would be feasible to develop from data in the IUCN Red List and other sources.

For the component indicators: we recommend rewording component indicator 4.1.1 to "Number of species for which recovery has been documented using 'Green Status of Species' assessments on the IUCN Red List". We also recommend adding three component indicators which would further help to measure the impact of species recovery actions: 1) "**Mean % of each Key Biodiversity Area identified for globally threatened species that is covered by protected areas or other effective area-based conservation measures (OECMs)**"[16]; 2) "**Proportion of Key Biodiversity Areas identified for globally threatened species in 'favourable condition'**"[17]; 3) "**Number of threatened species for which global or national action/recovery plans are i) up to date, and ii) being implemented**"[18].

Figure 1. Recent trends in the Red List Index (red line, showing recent declines of 4-5% per decade), and illustrative trajectories towards zero extinction risk by 2050, including linear trends (yellow line) and convex trend curves (dark



[15] CBD/SBSTTA/REC/24/2 RECOMMENDATION ADOPTED BY THE SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE in Appendix 2)

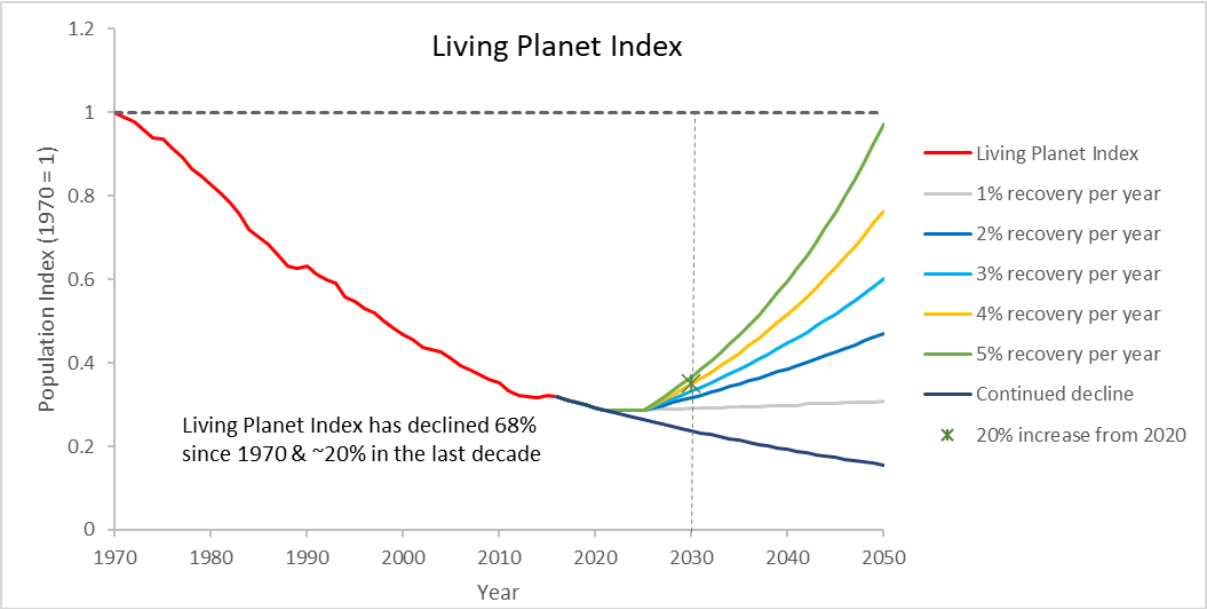
[16] This new indicator could be immediately developed by BirdLife International and the KBA Partnership using existing data in the World Database of KBAs. Key Biodiversity Areas are sites of significance for the global persistence of biodiversity. Over 16,000 KBAs have been identified to date, spanning 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.

[17] 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. 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.

[18] These may include individual species, multi-species or site-based plans. This new indicator would be feasible to develop from data in the IUCN Red list and other sources.

and light blue lines). Dotted line indicates 2030. 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.

Figure. 2 Projected modelled trends in the Living Planet Index 2016-2050. In this simple model the index declines at its current decadal rate from 2016-2021, then stabilises to 2025, before increasing at average population growth rates of between 1% and 5% per year, or at the current decadal rate of decline if current conditions persisted. The asterisk indicates an index increase of 20% from 2020 by 2030.



ANNEX

Questions and answers relating to species elements of the post-2020 Global Biodiversity Framework

Q1. What level of ambition is required to meet the 2050 vision?

It is clear that biodiversity is in crisis (see Q3), and with it, the ability for all people to thrive on this planet. In the face of this, the CBD has set an incredibly ambitious vision of "Living in Harmony with Nature" by 2050. This means we must halt and start to reverse biodiversity loss by 2030. With the current rapid rate of decline, any chance of success relies on transformative action now[19]**.** The findings of CBD/WG2020/3/INF/11 show that immediate and sustained action is essential to ensure recovery[20]. Considerable progress is needed this decade in order to ensure that we: 1) act before it's too late; and 2) give biodiversity the time that it needs to recover. That means we need to set ourselves accordingly ambitious near-term milestones along the way to 2050 which will serve to guide our adaptive actions and allow us to assess progress.

Q2. Do we need milestones for 2030?

Yes: the 2030 milestones are fundamental to enable the tracking of implementation and progress towards the 2050 vision. We cannot manage or improve what we cannot measure, so assessment of progress at 2030 is vital to the coherence of the Global Biodiversity Framework (GBF). Not having any 2030 milestones would undermine the opportunity to promote delivery and would risk slippage in the delivery of action required to meet the 2050 Vision. It would also remove accountability and transparency from the GBF, which are essential to ensuring we stay on track to meet the shared ambition. For species components of Goal A especially, it is vital that we have a 2030 waypoint to drive accelerated action this decade, adaptively review our progress, make any remedial changes if needed, and importantly to celebrate our successes. In OEWG-3 in Geneva, the decision was made to remove the 2030 milestones as a structural element while recognising the importance of retaining the content of the milestones of Goal A in particular, and suggested wording to incorporate it accordingly. It is vital that this content is retained in Goal A itself, as we suggest in our recommended text edit of the composite text.

Q3. Why focus on both species' extinction risk and species' population abundance in Goal A?

Species' population abundance and species' extinction risk are two complementary, foundational metrics that describe the status of species and reflect different aspects of the state of biodiversity. Species represent the most basic tangible unit of biodiversity that resonates and connects with people and their lives, so species can act as an excellent communication tool. The two metrics helpfully capture different dimensions of the species component of biodiversity: species' population abundance describes the numerical profusion of species populations, while extinction risk describes the probability of a species persisting into the future (typically considered at a global or national scale).

Species populations, and specifically species population abundance, is recognised as an Essential Biodiversity Variable (EBV)[21]. Both abundance and extinction risk are critically important to understand and use for tracking progress towards halting and then reversing biodiversity loss (i.e. bending the curve of loss). Both are also useful dimensions of biodiversity for communicating on the state of nature to a range of audiences. **Extinctions** resonate with the public, with global extinction being the ultimate irreversible loss of biodiversity and unique genetic material, while the concept of **abundance** conveys a sense of a plentiful, numerical profusion of nature and is easy to grasp and understand.

Decision-makers and others can easily understand that around 1 million animal and plant species are estimated to be threatened with global extinction (more than ever before in human history[22]), and that the abundance of vertebrate populations has on average dropped by more than two-thirds in just over 45 years[23]. Furthermore, while there may be particular interest in socio-economically, culturally or functionally important species, retaining a broad focus is important given our poor and incomplete understanding of the relative contributions of different species to ecosystem

[19] Leclère, D. *et al.* (2020) Bending the curve of terrestrial biodiversity needs an integrated strategy. *Nature* **585,** 551–556. https://doi.org/10.1038/s41586-020-2705-y

[20] CBD/WG2020/3/INF/11 https://www.cbd.int/doc/c/5735/c241/efeeac8d7685af2f38d75e4e/sbstta-24-inf-31-en.pdf

[21] Pereira H.M. et al (2013) Essential Biodiversity Variables. *Science* 339, 277-278. https://www.science.org/doi/10.1126/science.1229931

[22] IPBES (2019) Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany. https://doi.org/10.5281/zenodo.3831673

[23] WWF (2020) Living Planet Report 2020 - Bending the curve of biodiversity loss. Almond, R.E.A., Grooten M. and Petersen, T. (Eds). WWF, Gland, Switzerland. https://livingplanet.panda.org/en-gb/

function and hence ecosystem service delivery. Indeed, millions of species on Earth have yet to be described by science and we know nothing about them or their functional importance.

For species' population abundance, the priority should be to restore the populations of wild **native** species (not invasive alien species). The focus should be on species that have been depleted in numbers over recent decades, particularly those that are not yet threatened with extinction but declining (given that threatened species are covered in the preceding element of the Goal). We suggest this detail is specified in wording of the Goal itself by stating 'native species'.

Q4. Does the Living Planet Index measures changes in species' population abundance?

The answer is a resounding yes. Technically, this well-respected index measures the average trend in the relative abundance of vertebrate species from across the globe using specially designed methods (http://stats.livingplanetindex.org/ - see[24]). However, a paper published 2020[25] suggested that the Living Planet Index (LPI) might be especially sensitive to and driven by extreme declines, but subsequent authors have pointed to limitations in that analysis, arguing that we should not be downplaying biodiversity loss[26], and recognising the commendable role of the LPI in summarising the status of global wildlife populations.[4] Of course, the underlying data on species' population abundance is far from perfect or complete and many have argued for the need for improved monitoring of populations of diverse groups globally.[4]

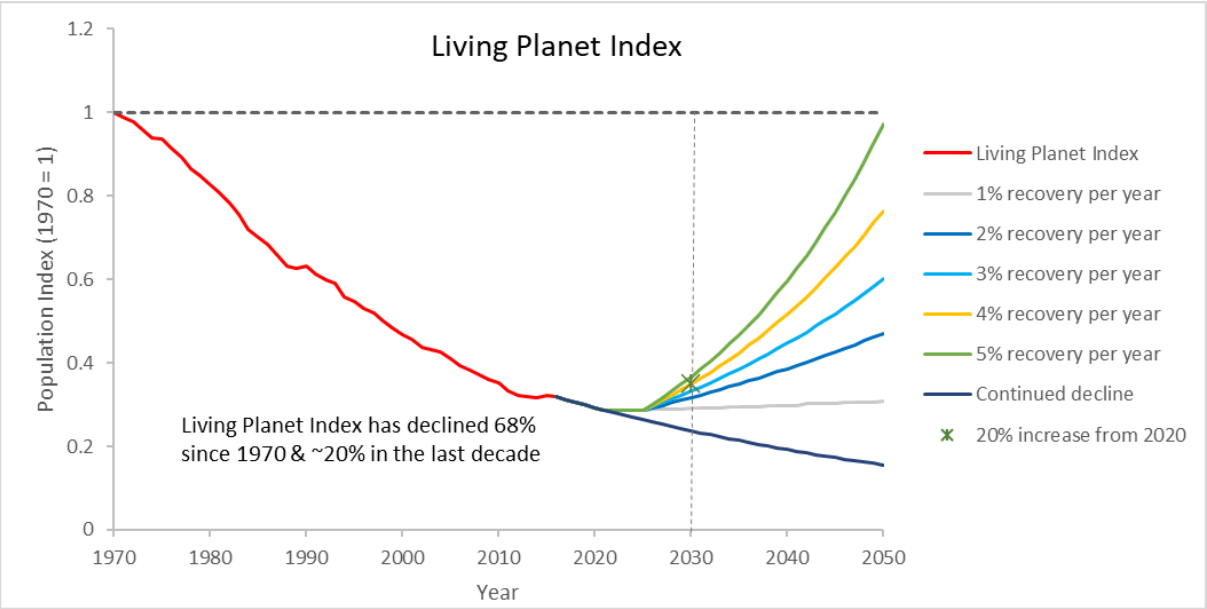
In summary, composite indices like the LPI (and the Red List Index) are still some of the best overall metrics we have for describing the global state of nature. The LPI being the best index of global species' population abundance.

Q5. How much must we increase abundance by 2030 in order to achieve the 2050 vision?

Goal A currently sets a 2050 outcome of "healthy and resilient populations of all species", which aligns with the 2050 vision of a world of "Living in harmony with nature". Practically, to achieve this aim, and to genuinely bend the curve of biodiversity loss, would involve the recovery of the average population abundance of species to 1970s levels, among other indicators of success. This is a vision of nature recovery first elaborated in an influential study by Georgina Mace et al. in 2018, coining the term of 'bending the curve of biodiversity loss'[27]. Given that most biodiversity lost since pre-human times has been lost in the last few decades, it is argued that 1970 is a reasonable and pragmatic reference point and baseline to use. Furthermore, this is a time when systematic and representative biodiversity monitoring began to be established in many nations and across the globe. To achieve that goal within the next 30 years requires a clear and transparent trajectory to halt and reverse the current population declines, not simply "at least maintaining" populations by 2030. A simple model using recent species population trends from the Living Planet Index (see Annex Fig. 1 below), indicates that we would need to **increase average population abundance of species by at least 20% by 2030 compared to 2020 levels to set it on a positive upward trajectory towards recovery and the vision of the GBF.** Hence we support the suggested wording of increasing average species population abundance "by at least 20 per cent by 2030".

[24] Puurtinen et al. (2022) The Living Planet Index does not measure abundance. *Nature* **601,** E14–E15. https://doi.org/10.1038/s41586-021-03708-8
[25] Leung *et al.* (2020) Clustered versus catastrophic global vertebrate declines. *Nature* **588,** 267–271. https://doi.org/10.1038/s41586-020-2920-6
[26] Loreau *et al.* (2022) Do not downplay biodiversity loss. *Nature* **601,** E27–E28. https://doi.org/10.1038/s41586-021-04179-7.
[27] Mace, G.M. *et al.* (2018) Aiming higher to bend the curve of biodiversity loss. *Nat Sustain* **1,** 448–451. https://doi.org/10.1038/s41893-018-0130-0

Annex Fig. 1 Projected modelled trends in the Living Planet Index 2016-2050. In this simple model the index declines at its current decadal rate from 2016-2021, then stabilises to 2025, before increasing at average population growth rates of between 1% and 5% per year, or at the current decadal rate of decline if current conditions persisted. The asterisk indicates an index increase of 20% from 2020 by 2030.



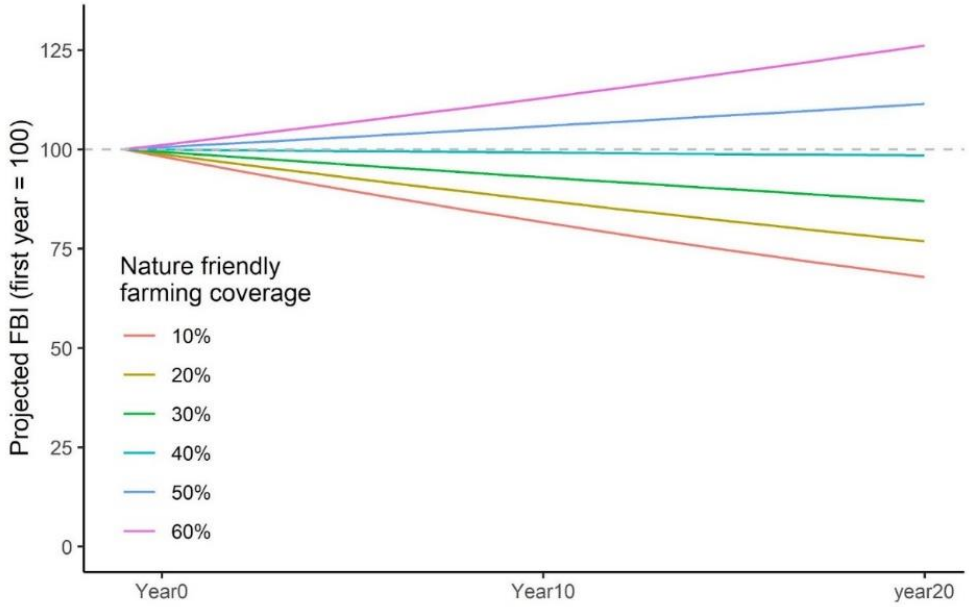
Q6. How realistic are these species recovery trajectories?

In the example in Annex Fig.1, modelling of the Living Planet Index shows how increasing the ambition in terms of the average rate of increase in species populations from an average of 1% per annum to 5% per annum, bends the curve of biodiversity recovery upwards. There is good evidence to show that these levels of population increase are biologically plausible and reasonable with concerted conservation action – many examples are documented in nature. Such levels of population increase are evidenced by the recorded recovery of individual species and groups of related species: 1-3% per annum is commonly seen while rates of 10% per annum are rarely observed in nature, but not inconceivable in local settings and over short time periods. ***See examples of recovery in the response to Q12 below.***

Furthermore, the detailed mechanistic modelling of Leclère et al. (2020)[28] demonstrates how we might realistically recover biodiversity globally (using the Living Planet Index among other metrics) under a scenario of integrated conservation actions. As a national example, in England, recent work by RSPB/CEH/Defra has modelled how farmland birds, and by extension farmland wildlife, might respond to the roll out of nature-friendly farming methods. In this case, Burns et al. (in prep) quantified individual bird species' responses to conservation actions in the field experimentally, and showed that if over 40% of farms in England adopted nature-friendly farming methods (covering just 10% of their land), farmland bird populations would recover over coming decades (see Annex Fig.2). More broadly this evidence-based example shows how targeted conservation actions can be translated into desired conservation outcomes. Examples of this kind of study are rare because rarely do we have robust information on species-specific responses to conservation actions for a group or community of species.

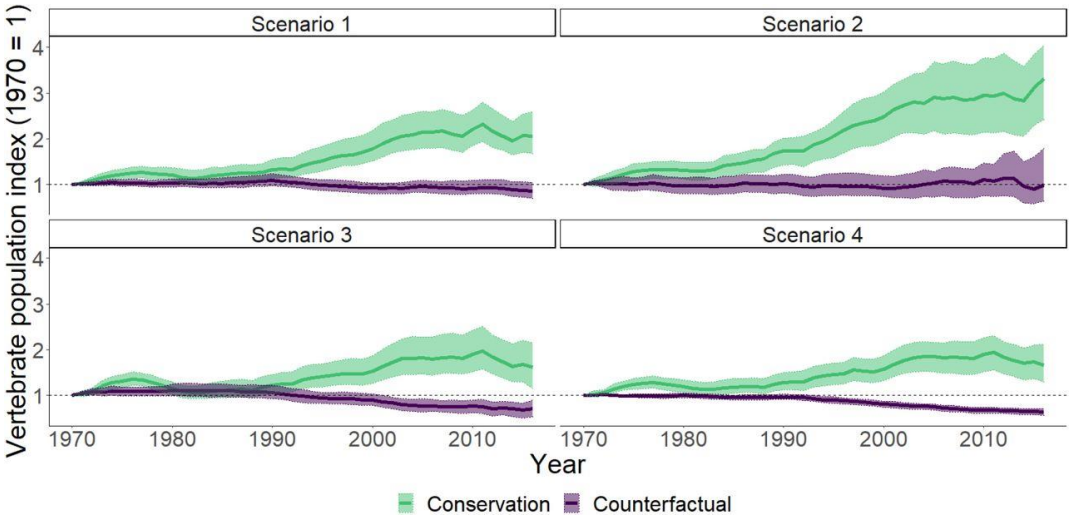
[28] Leclère, D. *et al.* (2020) Bending the curve of terrestrial biodiversity needs an integrated strategy. *Nature* **585,** 551–556. https://doi.org/10.1038/s41586-020-2705-y

Annex Fig. 2. The figure shows a projected multispecies Farmland Bird Index (FBI) in England under different future scenarios of nature-friendly farming provision in the landscape, showing the predicted change in the multispecies indicator over 20 years for a range of coverage levels. Coverage level remains constant throughout the scenario in this model.



In addition, recent emerging research examining the impact of targeted conservation on global population abundance trends of vertebrate species has revealed that targeted action has delivered very substantial positive effects on species populations over recent decades (see Annex Fig. 3)[29]. This new research demonstrates the power of conservation actions globally to recover species population abundance and bend the curve of biodiversity loss.

Annex Fig. 3. Global vertebrate population trends for species subject to conservation actions or responses (in green – upper lines) and not targeted by conservation responses (in purple - lower lines) representing counterfactual species trends taken from the Living Planet database. The figure illustrates four separate scenarios to define counterfactual trends from Jellesmark et al. (2021)



Q7. Should Goal A aim to *reduce the rate* of extinctions or to *halt* extinctions?

[29] Jellesmark et al. (2021 preprint) Assessing the global impact of targeted conservation actions on species abundance. https://www.biorxiv.org/content/10.1101/2022.01.14.476374v1

There is a suggestion in the composite text from the Geneva negotiations to include "having by 2030 halted or reversed the increase in the extinction rate". There are three strong arguments for replacing this with an aim to "**halt human-induced extinctions of known threatened species**" immediately.

- Firstly, global species extinctions are irreversible – if we are to "put nature on a path to recovery by 2030" we must halt further human-driven extinctions of known threatened species as we cannot afford to lose any more.
- Secondly, it is very difficult to measure extinction rates in a timely manner. Using 'rate' would require assessing the current extinction rate (i.e. over a recent baseline period yet to be defined) with sufficient precision to enable us to detect by 2030 if the rate has been stabilised or reduced. Confirming the death of the last individual of a species can often only be inferred some years later, particularly for less well-known species. Therefore, it may be very difficult by 2030 to know the precise extinction rate in the preceding decade. Similarly, reducing the rate or halting the increase in the rate requires a robust estimate of the current rate of extinctions. At present, only one confirmed or strongly suspected extinction is known to have occurred in the period 2010-2020 among birds and mammals, which are far better documented than other groups. It may be many more years before we have high certainty about the extinction rate at the point when the post-2020 GBF is adopted, let alone whether it has been reduced by 2030.
- Thirdly, from a communications perspective, global extinctions have considerable public resonance, and halting human-driven extinctions is much easier to understand and communicate than reversing the increase in extinction rate.

Q8. Is it feasible to halt extinctions by 2030?

Yes, if we specify *human-driven* extinctions of *known threatened species*. While extinction is a natural process, virtually all documented extinctions in recent centuries have been caused directly or indirectly by human activities, and all could arguably have been prevented. Conceivably, some *natural* extinctions (e.g. driven by unexpected volcanic eruptions or other events) could be unavoidable. The Goal should focus on *known threatened species* (of which 40,000 are documented on the IUCN Red List), because it would be very challenging to prevent extinctions of species (particularly of plants and invertebrates) that have not yet been assessed in terms of their extinction risk (or even described to science). Hence, the wording in the Goal should specify that **"the human-driven extinction of known threatened species is halted"**.

Although the aim of halting human-driven extinctions of known threatened species is ambitious, recent evidence[30] suggests that it is achievable, and that even the most highly threatened species could still be saved with concerted action and political will. For birds and mammals, 15 confirmed or strongly suspected bird and mammal extinctions were documented since 1993 (when the CBD came into force), while 28–48 extinctions were prevented. Since 2010, the equivalent numbers are 1 extinction and 11-25 extinctions prevented. While it is likely that additional extinctions for 2010-2020 will be retrospectively confirmed in the coming years, the ratio of these numbers indicates that with plausibly more effort, halting human-induced global extinctions of known threatened species by 2030 is feasible[31].

Q9. Is it necessary for Goal A to set ambition for both extinctions and extinction risk?

Yes. Global species extinctions are irreversible, and this has considerable resonance with the public. If we are to "put nature on a path to recovery by 2030", we must halt further human-driven extinctions of known threatened species. Goal A should therefore contain a commitment to halt *human-driven* extinctions of *known threatened species* from the point at which the post-2020 Framework is adopted. However, extinctions are simply the end point of a trajectory of decline. Putting nature on a path to recovery means slowing the rate at which species are moving towards extinction, and reversing this trajectory. Therefore, it is important to also include a commitment to reduce extinction risk by 2030, as a milestone towards the 2050 Vision.

Q10. How much must we reduce extinction risk by?

[30] Bolam et al. (2020) How many bird and mammal extinctions has recent conservation action prevented? *Conservation Letters.* 14, e12762 https://conbio.onlinelibrary.wiley.com/doi/10.1111/conl.12762

[31] An alternative proposal to reduce the overall extinction rate (including natural extinctions) to 20 per year for the next 100 years is also relatively simple and fairly ambitious but it would be more difficult to measure progress against this target through time.

The 2030 extinction risk reference in the OEWG3 composite text should be revised to ensure this refers to a 20% reduction in risk (as measured by the Red List Index), not a reduction in risk for 20% of threatened taxa, which is far less ambitious as it could be achieved through trivial reductions in extinction risk for each of the 20% of taxa. Also, the current wording does not give a clear goal for the reduction in risk required by 2050. We propose adding in that extinction risk is **eliminated by 2050,** because no level of risk would be compatible with the 2050 vision of living in harmony with nature. Achieving this is feasible if we meet a 20% reduction by 2030, and continue reducing risk at at least that rate until 2050. If the current number of threatened species was halved (as has been previously suggested), 20,042 species would still be threatened, or the current 40,084 threatened species would have only moved halfway towards Least Concern status. Such substantial levels of extinction risk are inconsistent with the 2050 Vision of a world living in harmony with nature. We therefore recommend revising this wording to **"**extinction risk is reduced **by** at least 20% by 2030**, and eliminated by 2050"** (see Q8 above regarding clarifications on 'human-induced' and 'known threatened species').

As shown in Figure 1., 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 2030[32]. 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, whereas a reduction of only 10% by 2030 would require much greater progress to be achieved during 2030-2050. Reducing extinction risk requires implementing actions to improve the status of threatened and/or Near Threatened species sufficiently to 'down-list' 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 down-listing approximately 50% of threatened and Near Threatened species each by one category of risk, or down-listing approximately 30% of threatened species to non-threatened status[33].

We therefore recommend keeping the suggested 20% figure, but revising the wording to **"the extinction risk is reduced by at least 20 per cent".**

Q11. Is a 20% reduction in extinction risk feasible, and what actions are required to reduce extinction risk and prevent human-induced extinctions?

While reducing extinction risk by 20% by 2030 and halting human-driven extinctions now are ambitious aims, they are feasible through transformative action. For example, at UNFCCC COP26, over 140 governments committed to halting deforestation. Given that a third of Near Threatened species are threatened by logging and half are threatened by agriculture (the two biggest drivers of deforestation), if governments take action to halt forest loss, this will halt or substantially reduce declines in a huge proportion of species. Similarly, action to effectively conserve 30% of land and seas through protected and conserved areas would substantially reduce extinction risk if such areas were targeted at Key Biodiversity Areas (KBAs)[34] and other important sites for biodiversity. KBAs are sites of significance for the global persistence of biodiversity. They are identified nationally through bottom-up multi-stakeholder processes. Over 16,000 KBAs have been identified to date, and over 60% are already completely or partially covered by protected areas or OECMs[35]. Effective conservation of the remainder, including in particular the subset of KBAs highlighted by the 'Alliance for Zero Extinction'[36] as holding the last remaining population of any highly threatened species, would make a huge contribution to reducing species' extinction risk. For example, Boyd et al. 2008[37] showed that for 82% of threatened vertebrates, site-scale action (such as conservation of KBAs) is the most urgent priority. As one further

[32] 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.
[33] Calculations assume that the number of species down-listed 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 down-listed to Least Concern. See also endnote 5.
[34] IUCN (2016) *A global standard for the identification of Key Biodiversity Areas, Version 1.0.* Gland, Switzerland. https://portals.iucn.org/library/node/46259
[35] https://www.keybiodiversityareas.org/
[36] https://zeroextinction.org/
[37] Boyd et al. (2008) Spatial scale and the conservation of threatened species. *Conservation letters,* 1, 37-43. https://conbio.onlinelibrary.wiley.com/doi/10.1111/j.1755-263X.2008.00002.x

example, eradication or control of invasive alien species can have spectacular benefits for threatened native species. At least 596 populations of 236 native terrestrial animal species on islands have benefitted from 251 eradications of invasive mammals on 181 islands[38]. Achievement of draft Target 6 in the post-2020 Framework would scale up these impacts, and make a further substantial contribution to reducing overall species extinction risk. A **Global Species Action Plan**[39] is currently being developed by IUCN to outline the actions needed under each target in the post-2020 Framework, in order to achieve the commitments on species conservation in Goal A.

Q12. What are some examples of high ambition being delivered in practice?

Recent research examining the impact of targeted conservation on global population trends of vertebrate species has revealed that targeted action has delivered very substantial positive effects over recent decades[40]. This new research demonstrates the power of conservation to recover global species populations. The examples below also serve to reveal how population recovery is feasible in practice:

- ***Raptors and waterbirds, North America****:* Rosenberg et al. (2019) show the recovery of raptors and waterbirds in North America since 1970, which they associate with both improved species and site protection[41].
- ***Bittern, UK****:* Following near extinction in the UK due to habitat loss and degradation, bitterns are now recovering well thanks to targeted reedbed habitat creation and improvement projects[42]. In 1997 there were just 11 males, and now there are nearly 200 males at almost 100 sites. It is a prime example of moving from diagnosis, through solution testing, to population recovery.[43]
- ***Cirl bunting, UK:*** From dramatic declines in the 1970s, leading to the cirl bunting becoming the UK's rarest farmland songbird by the 1980s, conservation action (including agri-environment agreements) has resulted in the population beginning to recover, standing at over 1000 pairs in 2016 (between 2009 and 2016 alone, the population increased by 25%)[44]. The agri-environment scheme action for cirl buntings is also delivering proven benefits for a range of taxa[45].
- ***Stone Curlew, UK:*** Agri environment schemes have led to the rise of stone curlew numbers (which had declined steadily from the 1930s to 1980s), with for example the population in Wessex, England rising from 50 pairs in 1994 to 136 breeding pairs in 2010. Research shows that this management for stone curlews has considerable value for other farmland biodiversity[46].
- ***Green turtle, US:*** Thanks to sustained conservation efforts including legislation and fishery management efforts, the Green Turtle population in places such as Florida is rebounding, with green turtle nests increasing 80-fold since 1989[47].
- ***European bison, Europe:*** Hunting, habitat destruction and fragmentation led to European Bison going extinct in the wild in the 1920s, however through reintroduction into Eastern Europe from captive populations along with a large-scale coordination effort across countries has led to the Bison's improving in status on the Red List from Vulnerable to Near Threatened, with over 6,200 now in the wild.
- ***Humpback whale, South Atlantic:*** Severe hunting pressure drove western South Atlantic humpback whales to the brink of extinction, but thanks to the banning of commercial whaling, research suggests a strong population recovery to 93% of its pre-exploitation size[48].
- ***Majorcan Midwife Toad, Majorca****:* This toad was down-listed from Critically Endangered to Vulnerable following successful conservation efforts to reintroduce it and establish new breeding populations.

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[38] Jones et al. (2016) Invasive mammal eradication on islands results in substantial conservation gains. *Proc. Nat. Acad. Sci USA.* 113: 4033-2038. https://doi.org/10.1073/pnas.1521179113

[39] IUCN Global Species Action Plan: https://www.iucn.org/theme/species/our-work/influencing-policy/global-species-action-plan

[40] Jellesmark et al. (2021 preprint) Assessing the global impact of targeted conservation actions on species abundance. https://www.biorxiv.org/content/10.1101/2022.01.14.476374v1

[41] Rosenberg, K.V. et al. (2019), Decline of the North American avifauna. *Science*, 366, 120-124. https://www.science.org/doi/10.1126/science.aaw1313

[42] White et al. () Brining Reedbeds to Life: creating and managing reedbeds for wildlife. RSPB, Sandy
RSPB, Bittern Conservation https://www.rspb.org.uk/our-work/conservation/conservation-and-sustainability/safeguarding-species/case-studies/bittern/

[43] Fisher et al. (2011) Impacts of species-led conservation on ecosystem services of wetlands: understanding co-benefits and trade-offs. *Biodiversity and Conservation.* 20, 2461–2481 https://doi.org/10.1007/s10531-011-9998-y

[44] Jeffs et al. (2018) The UK Cirl Bunting population exceeds one thousand pairs. *British Birds.* 111, 144-156

[45] MacDonald et al. (2012) Effects of agri-enviroment management for cirl buntings on other biodiversity. *Biodiversity and Conservation.* 21, 1477-1492. https://doi.org/10.1007/s10531-012-0258-6

[46] MacDonald et al. (2012) Effects of agri-environment management for stone curlews on other biodiversity. *Biological Conservation.* 148, 134-145. https://doi.org/10.1016/j.biocon.2012.01.040

[47] Florida Fish and Wildlife Conservation Commission, Indexing Nesting Beach Survey Totals (1989-2021) https://myfwc.com/research/wildlife/sea-turtles/nesting/beach-survey-totals/

[48] Zerbini et al. (2019) Assessing the recovery of an Antarctic predator from historical exploitation. *Royal Society* https://doi.org/10.1098/rsos.190368

- ***Over 70 bird species have qualified for down-listing to lower categories of threat on the IUCN Red List as a result of genuine improvements in their status*** following the implementation of conservation action. Examples include Guam Rail and California Condor, once Extinct in the Wild, but successfully reintroduced back into the wild, and Rodrigues Warbler, whose population has grown from <150 individuals in 1999 to nearly 4,000 individuals following habitat protection and reforestation.
- ***Some countries already show positive Red List Index trends following implementation of conservation actions***. For example, national Red List Indices for birds in the Seychelles and Mauritius have both increased in value since 1988, indicating reductions in extinction and progress towards recovering populations of threatened species through conservation action.

Q13. Question from the Co-Chairs[49]: Is the concept and/or wording of Goal A too complex and if so how could it be simplified?

Yes, the wording of Goal A is currently unnecessarily complicated, as well as lacking in ambition and not being SMART. To simplify the wording of the species-related elements, the extinction-related pieces should be refined to focus on halting human-induced extinctions of known threatened species and reducing extinction risk by a specific percentage (rather than including both risk and rate). The abundance related components should be refined to focus on increasing average species' population abundance (rather than confusingly and unhelpfully also incorporating distribution) and clarified to include a specific percentage increase in average species' population abundance by 2030. We agree with the suggestion that species' population abundance should be 20% higher in 2030 compared with 2020.

Q14. Question from the Co-Chairs: Should this and the other goals contain numeric elements or should they be purely aspirational?

It is vital that the Goals, Milestones and Targets of the Post-2020 Global Biodiversity Framework are SMART – Specific, Measurable, Ambitious, Realistic and Timebound. To ensure the first of these two points especially, the Goals and Targets must have quantifiable elements against which to measure progress and to direct action towards. Recent research[50] into progress under the Aichi targets found that the most effective targets and ones making most progress were those that had SMART elements.

Q15. Question from the Co-Chairs: Should Goal A be (re)split into 3 parts addressing each component of biodiversity?

We preferred the earlier approach which more clearly split out the three parts (making it less confusing and more straightforward to assign clear indicators). Nevertheless, it is vital that if it remains as a single Goal A, this is strengthened by more clearly setting out SMART targets for species and ecosystems, and adopting the improvements recommended above.

[49] CBD/WG2020/3/6 REFLECTIONS BY THE CO-CHAIRS FOLLOWING THE FIRST SESSION OF THE THIRD MEETING OF THE WORKING GROUP ON THE POST-2020 GLOBAL BIODIVERSITY FRAMEWORK

[50] Green et al. (2019) Relating characteristics of global biodiversity targets to reported progress. *Conservation Biology.* 33, 1360-1369. https://doi.org/10.1111/cobi.13322