BirdLife Information Paper – August 2019

A species-focused target for the post-2020 global biodiversity framework

SUMMARY

The 2011-2020 CBD Strategic Plan and the 2010 plan before it aimed to stop biodiversity loss as a core deliverable, but it continues to decline. Several taxa have gone extinct in the past 10 years and overall, species are continuing to move towards extinction rapidly. However, conservation efforts have also prevented some species from declining further, and in some cases have put them on the road to recovery.

Thus, BirdLife has proposed as a 2030 Mission to: ***Put nature on a path to recovery by 2030 for the benefit of people and the planet by halting biodiversity loss and reversing declines***.

Aichi Target 12 on species conservation had some issues that need to be addressed, including:

- Focusing primarily on extinctions which are difficult to measure, and not addressing the need to prevent further declines or maintain / restore non-threatened species abundance.
- The target highlights those threatened species 'most in decline', though these are not necessarily at greatest risk of extinction – often those that are have tiny populations or distributions.
- The target does not specify 'human-induced extinctions' - preventing extinctions from some natural events like volcanoes may not be feasible.

As a result, BirdLife proposes a new species-focused target with three elements:

Halt overall species' population declines by 2030, prevent human-driven extinctions of known threatened species, and improve the status of 30% of known threatened species by 2030

Proposed indicators for this target include (but are not limited to):

1. Trends in species' population abundance (globally; e.g. Living Planet Index, Wild Bird Index) (existing)
2a. Trends in species' extinction risk (i.e. Red List Index) (existing)
2b. Trends in number of species becoming extinct or qualifying as Critically Endangered (new)
2c Number of extinctions prevented owing to conservation actions (existing for some groups)
3. Trends in the proportion of threatened species that have improved in status relative to 2020 (new)

Further explanation and details on the background and proposed new target and indicators are provided in the rest of this paper.

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The Vision of the Strategic Plan on Biodiversity is *"Living in Harmony with Nature" where "By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people."*

Despite this vision, and the actions to implement it since 2010, biodiversity is continuing to decline. BirdLife has therefore proposed as a 2030 Mission: *Put nature on a path to recovery by 2030 for the benefit of people and the planet by halting biodiversity loss and reversing declines.* In other words, the decline in the state of nature is halted by 2030 and on a pathway to recovery so that nature is flourishing by 2050 for the benefit of wildlife and people. By 'the state of nature' we mean the status of wild animals, plants, fungi and other groups, considering their abundance, occupancy, distribution, extent, resilience to perturbation, and extinction risk. By 'flourishing' we mean that native species abundance and occupancy has increased on land, in freshwater and at sea to healthy levels, extinctions as a result of human activity have ceased, extinction risk has reduced, and the extent, quality, and connectivity of natural and semi-natural habitat has increased, so that ecosystems are effectively conserved and restored.

A new species-focused target should reflect this ambition to see nature recovering and flourishing by 2050, for example, by: halting species' population declines by 2030 and increasing them so that they are on a pathway to recovery by 2050; improving the status of a substantial proportion of threatened species by 2030, such that the proportion of species that are globally threatened is reduced substantially by 2050; and preventing further human-induced extinctions.

Aichi Target 12

The current Aichi Target 12 states: *By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.*

Progress towards Target 12

Several taxa have gone extinct since Target 12 was set, including Bramble Cay Melomys, Western Black Rhinoceros, Pinta Giant Tortoise and Alagoas Foliage-gleaner. Overall, species are continuing to move towards extinction rapidly, with cycads, amphibians and particularly corals declining most rapidly according to the Red List Index. However, conservation action has reduced the decline in the Red List Index [pre-2010 reductions in decline were equivalent to preventing 39 bird species (2.8% of threatened species) each moving one IUCN Red List category closer to extinction between 1988 and 2008, while for mammals the figures were equivalent to preventing 29 species (2.4% of threatened species) moving one category closer to extinction between 1996 and 2008 (Hoffmann et al. 2010)]. Conservation action has reduced the accumulation of extinction debt among birds by 40% since 1988 (Monroe et al in review). Without conservation, the overall decline in the status of ungulates would have been nearly eight times worse than observed without conservation efforts, with six species that now would be listed as extinct (Hoffmann et al. 2015). A recent model estimated that conservation investment during 1996-2008 reduced biodiversity loss (measured in terms of changes in extinction risk for mammals and birds) in 109 countries by 29% per country on average (Waldron et al. 2017). From 1970 to 2014, global populations of vertebrate species declined by 60% on average according to the Living Planet Index (WWF 2018). For 177 mammals with detailed data, all

have lost >30% of their range, and over 40% have lost >80% of their range (Ceballos et al. 2017). Hence, despite some conservation successes, progress to Target 12 has been poor (IPBES 2019).

While there are a number of explanations for this, including the fact that meeting many of the other Aichi Targets is necessary to achieve Target 12, there are also two key shortcomings and challenges with the existing target:

- Preventing extinctions is a laudable ultimate objective, but extinction itself is difficult to measure in a timely fashion, and it represents the extreme end of biodiversity loss. The emphasis on preventing extinctions and threatened species, and exclusion of a more positive aim to restore healthy, diverse and functional species populations is arguably problematic. While relatively few species have been documented to have become extinct, most threatened species are worsening in status, and the population abundance of species has continued to decline. The target doesn't address the need to prevent further declines and maintain or where needed restore the abundance of non-threatened species.
- Improving the status of threatened species is important, but the target highlights those 'most in decline'. However, these aren't necessarily the threatened species at greatest risk of extinction (some species that are not declining rapidly but that have tiny populations or distributions are at higher risk of going extinct and in need of more urgent action).

There are also some minor issues: the target does not specify 'human-induced extinctions' (preventing extinctions from some natural events, like volcanoes, may not be feasible); some species have inherently high extinction risk (e.g. isolated island endemics) and it may not be possible to change their status; and the terms 'improved' and 'sustained' are ambiguous and not currently defined.

Proposed elements of a new species-focused target

We propose that a new species-focused target should have three elements: *1) Halt overall[1] species' population declines by 2030, 2) prevent human-driven extinctions of known threatened species[2], and 3) improve the status[3] of 30% of known threatened species by 2030[4]*

If the next set of targets have a longer time-horizon, this could be reframed as:
Halt overall[1] species' population declines by 2030 such that they have recovered by 2050, prevent human-driven extinctions of known threatened species[2], and improve the status[3] of 30% of known threatened species by 2030 and 100% by 2050.

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[1] By 'overall', we mean average (mean). While this could be achieved if half of all species (e.g. generalists) are increasing while the other half (e.g. habitat specialists) are decreasing by an equivalent degree, which is obviously undesirable, it is unrealistic to halt ALL species population declines by 2030.

[2] 'Known threatened species' refers to those documented as threatened on the global IUCN Red List, but countries may wish to interpret these at a national scale and also consider national red lists (which may also broaden the taxonomic coverage beyond those groups that have been comprehensively assessed globally).

[3] 'Improve the status' means 'reduce the extinction risk' and refers not just to improvements that are sufficient to qualify species for a lower category of risk on the IUCN Red List, but also includes expanding distributions, increasing population trends, or halting declines.

[4] An alternative sequence is: *Prevent human-driven extinctions of known threatened species, improve the status of 30% of these species by 2030, and halt overall species' population declines by 2030*

Proposed indicators

To measure progress towards these target elements and milestones, we propose the following indicators that could be tracked at the global scale, numbered in relation to the three elements of the proposed target (species populations, extinctions and threatened species). Additional indicators may be useful at the national scale[5].

1. Trends in species' population abundance[6] (e.g., globally: 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/EBBCC/USGS], [Existing indicator; relevant to element 1; already adopted for Target 12]

2a. Trends in species' extinction risk (i.e. the Red List Index of species survival; IUCN and BirdLife International) [Existing indicator; relevant to elements 2 & 3; already adopted for Target 12 and SDG 15].

2b. 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). 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 (Rounsevell et al in review). 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. Note that species being re-categorised as Critically Endangered owing to improved knowledge, taxonomic revisions and other 'non-genuine' changes would be excluded. [New indicator; relevant to element 2; feasible to develop rapidly from IUCN Red List data; IUCN and BirdLife International]

2c Number of extinctions prevented owing to conservation actions. [Existing indicator available 1994-2004 for birds and being updated for 2010-2019 for birds and mammals; relevant to element 2; only feasible to calculate in 2030 at the end of the period for the target; IUCN and BirdLife International].

3. Trends in the proportion of threatened[7] species that have improved in status[8] relative to 2020. [New indicator; feasible to develop from IUCN Red List data as species are reassessed post-2020; IUCN]

Proposed milestones

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[5] 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).

[6] 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.

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

[8] 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.

To measure progress towards these target elements using the proposed indicators, we suggest the following milestones, numbered as for the indicators above.

1. Mean population abundance of species decreases by 1% during 2020-2025 and by 0% during 2025-2030.
2a. The Red List Index decreases by 1.5% during 2020-2025 and by 0.5% during 2025-2030.
2b. The number of species becoming Extinct, Extinct in the Wild or Critically Endangered owing to genuine deterioration reduces to 20 during 2020-2025 and 0 during 2025-2030.
3. The proportion of threatened species that have improved in status relative to 2020 exceeds 15% by 2025 and 30% by 2030.
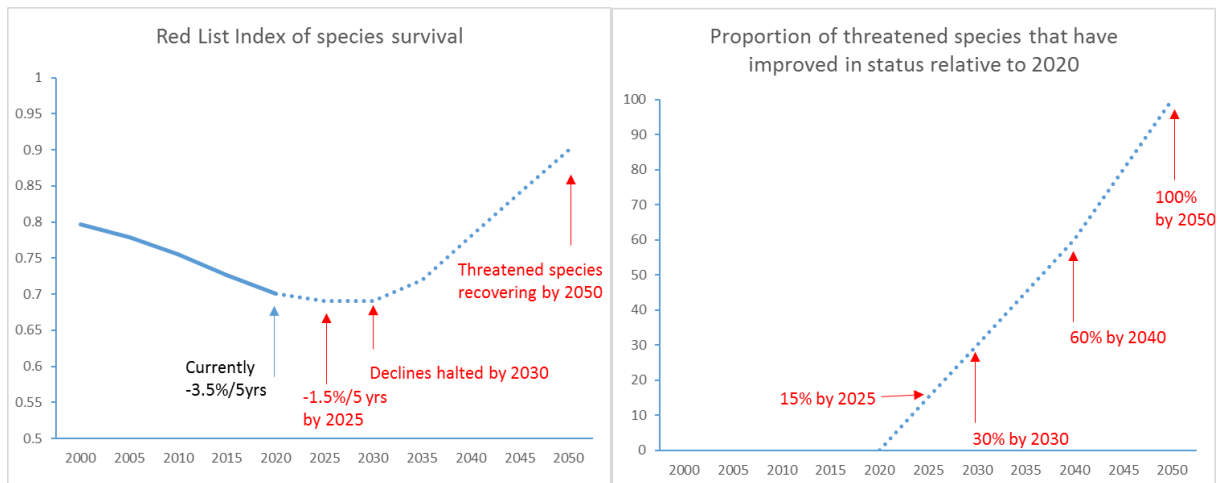
Relevant baselines for the proposed indicators and milestones:

The numeric values for the milestones above are proposed taking into account the current baseline values for these indicators, numbered below as for the indicators and milestone above.

1. The Living Planet Index was at ~0.46 in 2000, compared to ~0.4 in 2014.
2a. The RLI declined by 3.5% in 2000-2010 and by 3.3% in 2010-2019.
2b. 16 species have been driven extinct since 2000 (including 8 birds, 2 mammals, 2 reptiles, 2 gastropods, and 2 plants). Suitable post-2000 data on Red List category changes for comprehensively assessed groups are only available for birds, mammals [1996-2008, but treated as post-2000] corals and cycads. Among these groups, 84 species (36 birds, 34 mammals, 12 cycads, 2 corals) qualified for uplisting to Critically Endangered owing to genuine deterioration in status since 2000, while 21 species (15 birds, 5 mammals, 1 cycad, but no corals) were downlisted from Critically Endangered to lower categories of threat owing to genuine improvement resulting from conservation actions since 2000.
2c. It is likely that tens of threatened species would have gone extinct in the absence of conservation actions since 2010. Work is underway to quantify this value for birds and mammals (Bolam et al in prep). By comparison, it was estimated that 16 bird species would have gone extinct (or extinct in the wild) in the absence of conservation action in the period 1994-2004 (Butchart et al. 2006), while at least six ungulate species would have gone extinct (or extinct in the wild) in the absence of conservation action during 1996-2008 (Hoffmann et al. 2015).

3. 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).

| Indicators for proposed actions and responses: |

The target elements and indicators proposed above focus explicitly on the ambition to conserve species, focusing on outcomes and state indicators. However, it would also be helpful to indicate some of the key actions and responses necessary to meet these aims, as measured by a set of response indicators and milestones. These are listed separately to avoid mixing response metrics with those for the state of biodiversity as listed above. The metrics proposed here focus on the actions and responses for threatened species, and will need to be complemented by actions stimulated by other Targets, e.g. on: loss of natural habitats; sustainable agriculture, forestry and fisheries; invasive species; pollution etc.

Potential indicators for actions and policies to conserve threatened species include (but are not limited to[9]):

1. Mean % of each Key Biodiversity Area[10] identified for globally threatened species[11] that is covered by protected areas or Other Effective Area-based Conservation Measures (OECMs) [feasible to develop rapidly from data from the World Database of KBAs for terrestrial, freshwater and marine environments]
2. Proportion of Key Biodiversity Areas identified for globally threatened species[11] in 'favourable condition' (based on habitat extent/condition as a surrogate if population trends of threatened species at each site are not available)[12]. [Feasible to develop from data in the World Database of KBAs, but expanded monitoring efforts required; BirdLife International and the KBA Partnership].

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[9] Gaps identified but no specific indicators available in relation to international trade, unsustainable use, migratory species, other policy responses, although it is possible to disaggregate the RLI to address some of these: e.g. for migratory species, or to show trends driven largely by international trade or its management/control, or by use and its management/control.

[10] 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. 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 one country has submitted any data on OECMs to the WDPA/WCMC. As this dataset expands, it will be possible to incorporate this information into the indicator. It may be necessary to update the proposed milestones as such information becomes available. 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.
[11] Note that this is a subset of an indicator proposed for a new site conservation target covering all KBAs, not just those identified for threatened species.
[12] Currently, 35.6% of Key Biodiversity Areas identified for threatened species are in favourable condition (out of 1,212 with relevant data). A KBA monitoring protocol, and definitions and methods for determining favourable condition, is in development

3. Numbers of species assessed on the IUCN Red List and the number of comprehensively assessed groups that have been reassessed to determine trends[13] [Existing indicator for Target 19; IUCN]
4. Numbers of countries with nation-wide systematic species abundance/occupancy monitoring programmes established [Baseline data available from Moussy et al (in prep); feasible to update periodically].

Potential milestones for these indicators:

1. The average proportion of each KBA for threatened species covered by protected areas and OECMs exceeds 50% by 2025 (including 100% of sites holding the sole population of any highly threatened species), 70% by 2030 and reaches 100% by 2040 [10]
2. The proportion of Key Biodiversity Areas identified for threatened species in favourable condition exceeds 50% by 2025, 60% by 2030, 80% by 2040 and 100% by 2050[11]
3. IUCN Red List assessments of species' extinction risk have been carried out for 150,000 species by 2025, 200,000 species by 2030 (with all comprehensively assessed species groups have had their conservation status reassessed by 2030), and 275,000 by 2050 [13]
4. The number of countries with nationwide systematic species abundance/occupancy monitoring programmes established for at least one taxonomic group exceeds 100 by 2025, 150 by 2030 and 200 by 2040. [51 countries have such schemes currently, Moussy et al. in prep]

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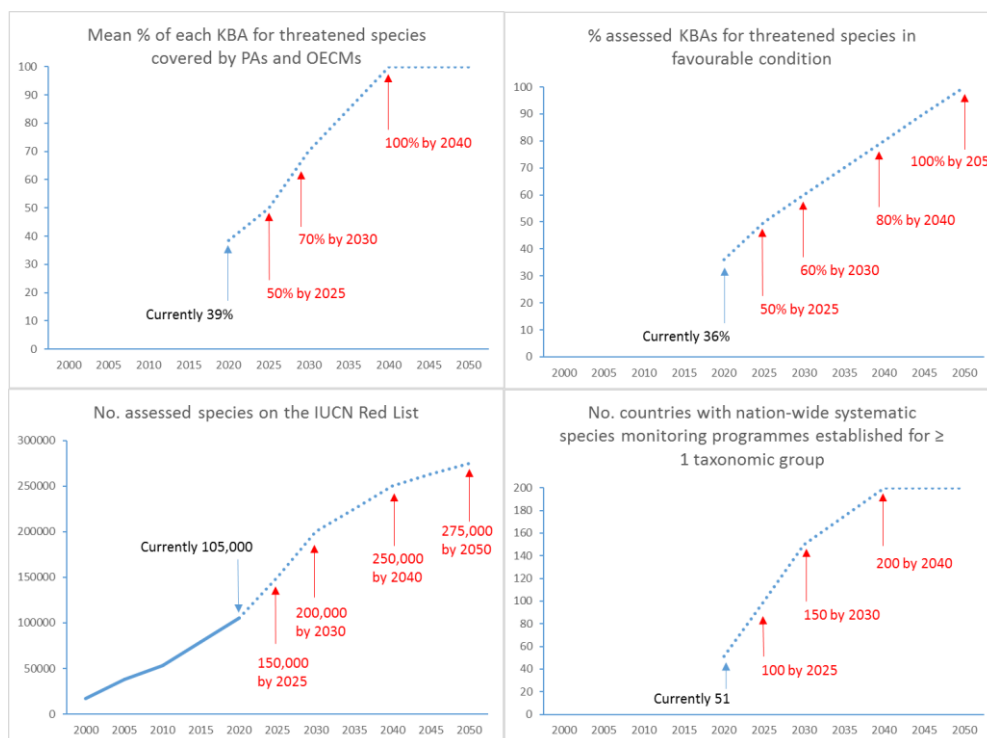
[13] The IUCN Red List is widely regarded as the most objective system for assessing the conservation status (i.e. extinction risk) of species. As of July 2019, over 105,000 species have been assessed for the Red List. To track trends in status over time, the Red List Index summarises extinction risk trends for groups in which all or nearly all species have been assessed (i.e. 'comprehensively assessed' groups). As of May 2019, these comprise mammals, birds, amphibians, warm water reef-building corals and cycads. Additional comprehensive groups for which repeat global assessments are currently underway or planned before 2030 include cartilaginous fishes, freshwater crabs and crayfish, bumblebees, mangroves, and seagrasses.

Relevant science[14]

Butchart et al. (2006) showed that 16 bird species would have gone extinct in the absence of conservation actions during 1994-2004. They also argued that at least 10 other species would very probably have gone extinct without conservation interventions prior to 1994 (probably an underestimate as considerably less information is available prior to 1994).

Butchart et al (2018) applied a new quantitative approach and proposed thresholds for classifying species as Extinct or Possibly Extinct, estimating that 187 birds have gone extinct since 1500. The most recent bird extinctions are: Spix's Macaw (2000, some survive in captivity), Glaucous Macaw (2001), Pernambuco Pygmy-owl (2001), Hawaiian Crow (2002, some survive in captivity), Poo-uli (2004), South Island Kokako (2007), Cryptic Treehunter (2007), and Alagoas Foliage-gleaner (2011).

Butchart et al (2004, 2007 2010) described the methods and application of the Red List Index, showing trends in survival probability (the inverse of extinction risk) for sets of species based on the number of species in each IUCN Red List category and the number moving between categories owing to genuine improvement or deterioration in status.

Butchart et al (2012) showed that species occurring in IBAs and AZEs with greater protected area coverage experienced smaller increases in extinction risk over recent decades: the increase was half as large for bird species with >50% of the IBAs at which they occur completely covered by protected areas, and a third lower for birds, mammals and amphibians restricted to protected AZEs (compared with unprotected or partially protected sites). 159.

Green et al. (2019) assessed the degree to which the Aichi targets were 'SMART', meaning Specific, Measurable, Ambitious, Realistic and Time-bound (adding Comprehensive and Scalable), and whether 'smarter' targets were related to reported progress. Indeed, smarter targets were associated to greater reported progress. Overall, target 12 was viewed by experts as relatively 'SMART' compared with other targets, but unrealistic.

Gregory et al. (2005) introduced and developed the first wild bird indicators for European birds and showed that common and widespread farmland bird populations were in decline 1980-2002.

Gregory & van Strien (2010) extended the work on European wild bird indicators showing that common and widespread farmland birds were in sharp decline, but forest bird populations were relatively stable, and that all common bird populations as a group were in shallow decline 1980-2007.

Gregory et al. (2019) used wild bird indicators to demonstrate contrasting trends for widespread forest and farmland bird populations in Europe 1980-2015. They again found relative stability in common European forest bird populations over this period, but a very severe and continuing decline in farmland bird populations.

Hoffmann et al (2015) estimated that at least 148 ungulate species would have deteriorated by one Red List category during 1996-2008 in the absence of conservation action, including 6 species that would have gone extinct or extinct in the wild.

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[14] Publications underlined involved BirdLife International

Hoffmann et al. (2018) present and compare trends in the biodiversity of vertebrates using the Global Living Planet Index, the North American and European Wild Bird Indices, and the Global Red List index and discuss the difference between these measures.

Wotton et al. (2017) published the first biodiversity indicators for African birds in the form of wild bird indices for common bird populations in two countries, Uganda and Botswana 2009-2015.

BirdLife International is the world's largest conservation partnership, with 115 national Partners, and the pre-eminent international authority on bird conservation. For more information, visit www.birdlife.org or contact:

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