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Item 5.4 of the provisional agenda*

**INDICATORS FOR ASSESSING PROGRESS TOWARDS THE 2010 TARGET:
CHANGE IN STATUS OF THREATENED SPECIES**

Note by the Executive Secretary

I. SUMMARY

1.   The IUCN Red List of Threatened Species classifies species according to their risk of extinction. The Red List Index (RLI), developed by the Red List Consortium (IUCN, BirdLife International, Conservation International and NatureServe), illustrates the relative rate at which species in a particular group change in overall threat status (i.e., projected extinction risk), based on population and range size and trends as quantified by Red List categories. RLIs can be calculated for any representative set of species that has been fully assessed at least twice. They are calculated from the number of species in each Red List category, and the number changing categories between assessments as a result of genuine improvement or deterioration in status.

2.   The RLI measures the changing relative aggregate extinction risk across entire taxonomic groups (e.g., birds, amphibians, etc.) including those in the non-threatened category of "Least Concern". It is thus not confined to threatened species but also documents trends in the status of non-threatened species.

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        *   UNEP/CBD/SBSTTA/10/1.

3.   The RLI for the world's birds declined by nearly 7% in the period 1988–2004, indicating a steady deterioration in their overall threat status over this period. 1/ RLIs can also be disaggregated to show trends for subsets of species e.g. for biogeographic realms (figure 1), or ecosystems and habitats (figure 2).   These show that declines have been particularly pronounced in the Indomalayan realm (figure 1) and in aquatic habitats, both marine and freshwater (figure 2). As Red List assessments (upon which RLIs are based) contain documentation of threats, it is possible to use this information to interpret trends in RLIs.   Declines in the Indomalayan realm can be linked to intense deforestation in the Indonesian lowlands through the 1990s, while declines in the marine ecosystem can be linked to recent expansion of commercial long-lining fisheries

Figure 1. Red List Indices for birds in different biogeographic realms (modified from Butchart et al. 2004).
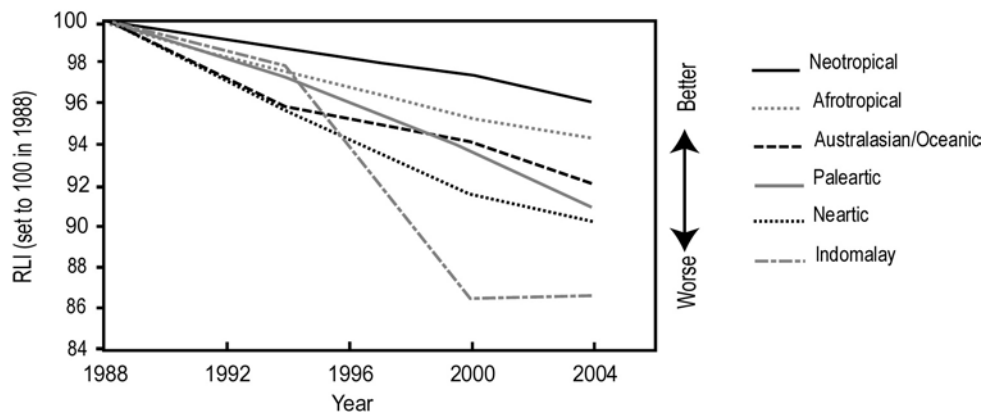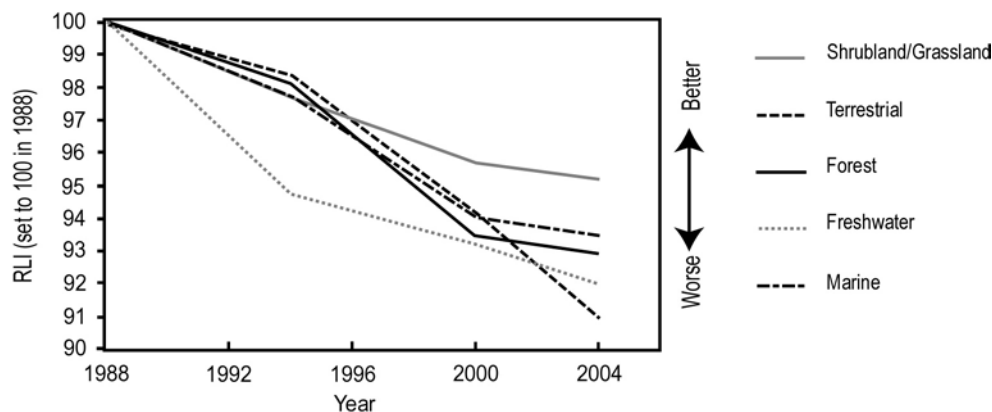

Figure 2. Red List Indices for birds in different ecosystems and habitats (modified from Butchart et al. 2004).

4.   A preliminary Red List Index for the world's amphibians for 1980–2004 shows a similar rate of decline. Disaggregated indices highlight severe deteriorations in the status of amphibians in the Neotropical and Australasian realms. 2/ 3/

    1/   Butchart, S. H. M., Stattersfield, A. J., Bennun, L. A., Shutes, S. M., Akçakaya, H. R., Baillie, J. E. M., Stuart, S. N., Hilton-Taylor, C. and Mace, G. M. (2004) Measuring global trends in the status of biodiversity: Red List Indices for birds. *PLoS Biol.* 2 (12): e383.

    2/   Butchart, S. H. M., Stattersfield, A. J., Bennun, L. A., Akçakaya, H. R., Baillie, J. E. M., Stuart, S. N., Hilton-Taylor, C. and Mace, G. M. (in press) Using Red List Indices to measure progress towards the 2010 target and beyond. *Phil. Trans. Roy. Soc.*

    3/   IUCN (2004) *2004 IUCN Red List of threatened species: a global species assessment.* Gland, Switzerland, and Cambridge, UK: IUCN.

5.   Indices are in development for other groups, including mammals, reptiles, freshwater fish, sharks, rays and chimeras, freshwater molluscs, cycads, conifers and legumes. 4/

6.   The RLI complements indicators based on trends in abundance and distribution of selected species. Although it shows coarser resolution than such population-based indicators, it shows much greater geographic representation, being based on information on nearly all species worldwide in a particular taxonomic group. Several recent publications have helped to describe the RLI for a wider audience. 5/ 6/ 7/ 8/ 9/

II.   RELATION OF INDICATOR TO FOCAL AREA

7.   RLIs complement indicators based on species population trends and habitat extent for quantifying global trends in the status of biodiversity. They provide a measure of the relative rate at which species in particular group are slipping towards extinction. Species extinction is a natural process that occurs without the intervention of humans. However, there is little doubt that humans have contributed, either directly or indirectly, of a large number of extinctions. The present, human-induced extinction rate is conservatively estimated to be 100 to 1,000 times greater than the historical "background" rate.

8.   As they illustrate trends in the relative projected extinction risk of taxonomic groups or sets of species in particular biogeographic regions, RLIs are measures not only of species loss but indirectly also of the driving processes, including habitat degradation, invasive species, pollution, climate change, consumption and unsustainable use.

III.   GENERAL DESCRIPTION

9.   The IUCN Red List is widely recognized as the most objective and authoritative listing of species that are globally at risk of extinction. 10/ Species are assigned to Red List categories through detailed assessment of information against a set of objective, standard, quantitative criteria. 11/ Over the last few years, the IUCN Red List has been developed into a global programme to monitor the extent and rate of biodiversity degradation. One of the goals of the programme is to provide a global index of the changing state of biodiversity. 12/

10.   A methodology for producing indices based on the IUCN Red List has recently been developed. 13/ The indices are robust, temporally sensitive, representative and comprehensive. They provide unique data on the rate of loss of biodiversity against which progress towards meeting the 2010 target of the Convention on Biological Diversity can be judged. They also allow finer-scale resolution of trends in particular biogeographic realms, ecosystems and habitats. These indices are based on the

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4/   Ibid.

5/   Brooks, T. & Kennedy, E. 2004. Biodiversity barometers. Nature 431 (28 October 2004): 1046-1047.

6/   Taking Stock of Biodiversity to Stem Its Rapid Decline. DOI: 10.1371/journal.pbio.0020413

7/   Red List Index will help measure rate of species loss. http://www.scidev.net 28 Oct 2004

8/   Red List keeps track of animal populations. World Business Council for Sustainable Development. www.wbcsd.ch 10 Nov 2004

9/   Testing conservation success. New Scientist 30 Oct 2004.

10/   Hambler, C. *Conservation*. Cambridge, U.K.: Cambridge University Press.

11/   IUCN (2001) IUCN Red List categories and criteria: version 3.1. Gland, Switzerland and Cambridge, UK: IUCN SSC.

12/   IUCN (2004) The IUCN Red List of threatened species. Available: http://www.iucn.org/themes/ssc/red-lists.htm

13/   Butchart, S. H. M., Stattersfield, A. J., Bennun, L. A., Shutes, S. M., Akçakaya, H. R., Baillie, J. E. M., Stuart, S. N., Hilton-Taylor, C. and Mace, G. M. (2004) Measuring global trends in the status of biodiversity: Red List Indices for birds. *PLoS Biol.* 2 (12): e383.

number of species in each Red List category, and the number changing categories between assessments as a result of genuine improvement or deterioration in status.

11.   The total number of extant threatened and near threatened birds listed on the IUCN Red List has changed relatively little over the four complete assessments of all the world's birds, increasing from 1,664 species in 1988 to 1,990 species in 2004. However, large numbers of species have moved between categories. Most of these category changes have been a consequence of improved knowledge or revised taxonomy. However, a significant proportion of species (equating to 2.4–7.3 per cent of threatened or Near Threatened species in each assessment) have moved between categories because of genuine improvement or deterioration in status.

12.   The Red List Index for birds illustrates the combined effect of these genuine status changes, to provide a simple metric of the changing overall status of the world's birds, in terms of their relative projected extinction risk as estimated using the categories of the IUCN Red List. This shows that there has been a steady and continuing deterioration in the threat status of the world's birds between 1988 and 2004, with an overall change in the index value of -6.9 per cent over this period (figure 3).

Figure 3. The Red List Index for all bird species (n = 250 genuine status changes/2,469 species in categories "extinct in the wild" to"near threatened" in at least one assessment).
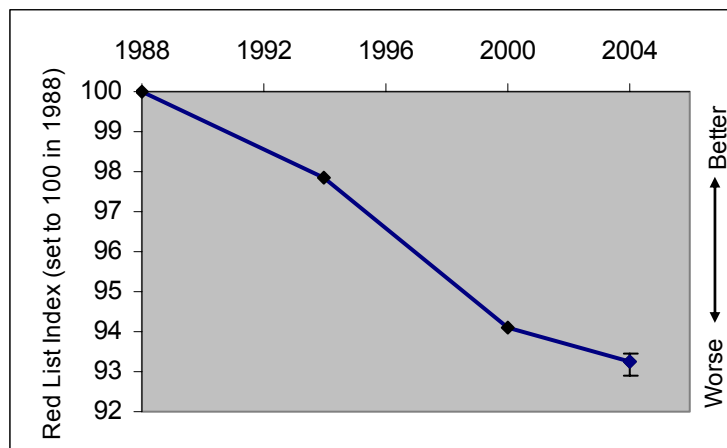
13.   No change would indicate that the average status of all bird species was the same as in 1988. If 10 per cent of species in the categories from near threatened to critically endangered had deteriorated in status sufficiently to be uplisted one category between 1988 and 2004, the index would have changed by -7.8 per cent.

14.   The Red List Index can be broken down by biogeographic realm, (figure 4), ecosystem and habitat type (figure 5), and for particular species groups. These show that the threat status of birds has deteriorated worldwide with a more-or-less similar rate and proportional extent of deterioration in the Nearctic, Neotropical, Palearctic, Afrotropical and Australasian/Oceanic realms. The Indomalayan realm shows a steeper rate of deterioration during the 1990s (Figure 2). Declines in the index for three major ecosystems (terrestrial, freshwater and marine) and two terrestrial habitat types (forest and grassland-shrubland) all show a broadly similar pattern (Figure 3).

Figure 4. Red List Indices for birds in different biogeographic realms. Sample sizes: Afrotropical = 41 genuine status changes/ 394 species in categories "extinct in the wild" to "near threatened" in at least one assessment; Indomalayan = 100/585, Nearctic = 9/92, Neotropical = 49/834, Australasian/Oceanic = 53/614, Palearctic = 34/238).
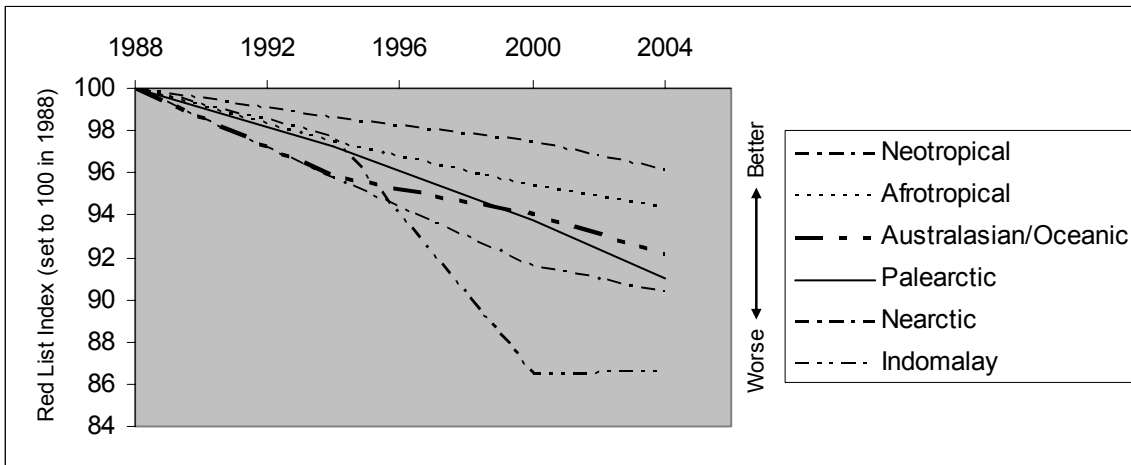
Figure 5. Red List Indices for birds in the marine, freshwater and terrestrial ecosystems, and for birds in forest and shrubland/grassland habitats. Sample sizes: Marine = 12 genuine status changes/ 133 species in categories "extinct in the wild" to "near threatened" in at least one assessment; Freshwater = 31/226, Terrestrial = 206/2329, forest = 169/1513, shrubland/grassland = 45/481).
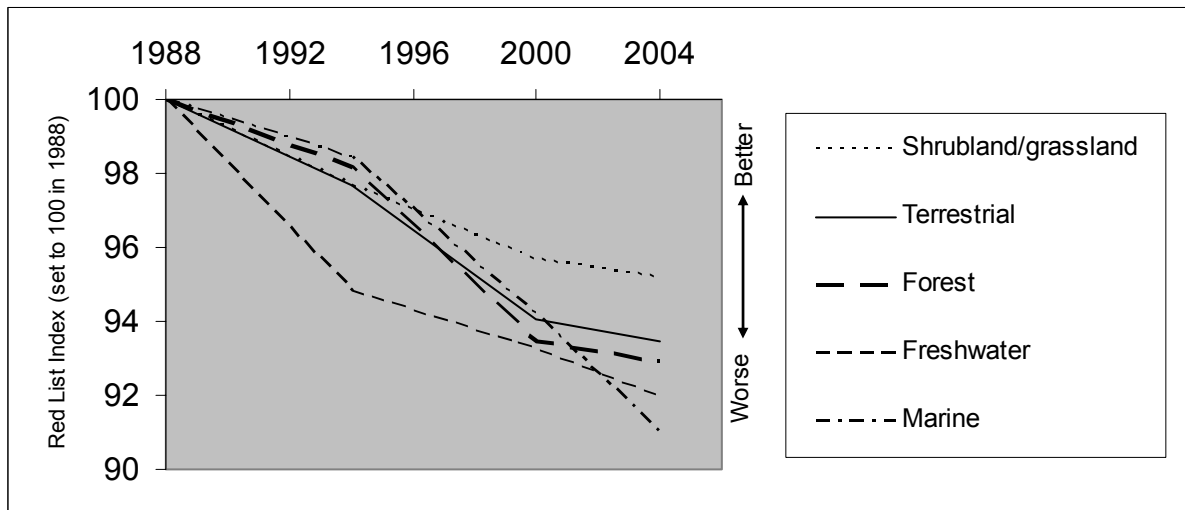
15.   A preliminary RLI for amphibians based on 2004 assessments and retrospective assessments for 1980 shows that declines have been particularly severe in the Neotropical and Australasian realms, and for Bufonidae, owing to the effects of the fungal disease chytridiomycosis. Severe declines have also occurred in the Palearctic realm owing to unsustainable exploitation, particularly in China.

IV.   POLICY RELEVANCE

16.   In accordance with Article 7 and Annex 1 of the Convention on Biological Diversity, Parties are requested to identify and monitor components of biological diversity important for conservation and sustainable use, including threatened species.

17.   The Global Strategy for Plant Conservation considers threatened species in targets 7 and 8:

(a)   *Target 7*: 60 per cent of the world's threatened species conserved *in situ;*

(b)   *Target 8*: 60 per cent of threatened plant species in accessible *ex situ* collections, preferably in the country of origin, and 10 per cent of them included in recovery and restoration programmes.

18.   Threatened species are also specifically considered in the programmes of work on forest biological diversity (decision VI/22), inland water biological diversity (decision VII/4), marine and coastal biological diversity (decision VII/5), mountain biological diversity (decision VII/27) and protected areas (VII/28).

19.   The framework to enhance the evaluation of achievements and progress in the implementation of the Strategic Plan of the Convention on Biological Diversity (decision VII/30) includes goals and sub-targets to facilitate coherence among the programmes of work, and to provide a flexible framework for national targets. The indicator is particularly relevant for goal 2 ("Promote the conservation of species diversity") and the two related sub-targets:

        (a)   *Target 2.1*: Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups;

        (b)   *Target 2.2*: Status of threatened species improved.

A.   *Relevance to the Millennium Development Goals, the World Summit on Sustainable Development, etc.*

20.   Although the indicator is relevant to assess progress towards goal 7 of the Millennium Development Goals ("Ensure environmental sustainability"), no species-specific indicator has been included among the Millennium indicators.

21.   In its paragraph 44 (f), the Plan of Implementation of the World Summit on Sustainable Develeopment seeks to "[p]romote concrete international support and partnership for the conservation and sustainable use of biodiversity, including in ecosystems, at World Heritage sites and for the protection of endangered species, in particular through the appropriate channelling of financial resources and technology to developing countries and countries with economies in transition".

B.   *Relevance to other international agreements and conventions*

22.   Red List Indices can be calculated for species groups that have specific conservation or policy significance. There are several international and regional conservation treaties targeting particular suites of species (the Ramsar Convention on Wetlands, the Convention on the Conservation of Migratory Species of Wild Animals (CMS), the Agreement on the Conservation of Albatrosses and Petrels (ACAP) and the Agreement on the Conservation of African-Eurasian Migratory Waterbirds under the CMS) for which disaggregated Red List Indices provide a metric measure against which to judge their success in improving the fortunes of the species involved (figure 6).

Figure 6. Red List indices for three species groups targeted by particular international conservation treaties: the Ramsar Convention on Wetlands, the CMS, and the ACAP under the CMS . Sample sizes: waterbirds = 36 genuine status changes/238 species in categories "extinct in the wild" to "near threatened" in at least one assessment; albatrosses and petrels = 6/28; migrants = 50/313).
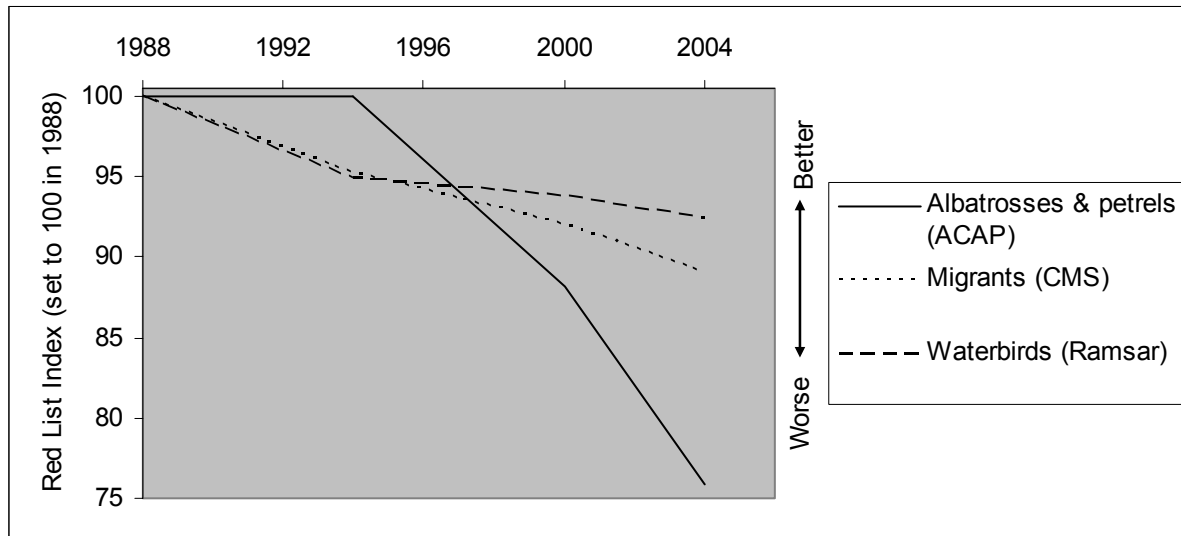
23.   As some of the threatened species, which are subject to international trade, are listed in the annexes of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Red List Indices are also relevant to CITES.

24.   Various regional assessments, which use the Red List process, are ongoing. For use at the regional level, regional Red List assessments will be taken into account. 14/

V.   TECHNICAL INFORMATION

A.   IUCN Red List assessments for birds

25.   BirdLife International has been responsible for providing the assessments of the world's 10,000 or so species for the IUCN Red List since 1963. Since 1988, BirdLife has assessed every species of bird on a regular basis, and birds are regarded as the most comprehensively documented class of organisms on the Red List. Data from which to calculate the indices are derived from four complete assessments of the status of the world's birds. 15/ 16/ 17/ 18/)

14/   See for example Gärdenfors, U., C. Hilton-Taylor, G.M. Mace, J.P. Rodríguez. 2001. The Application of IUCN Red List Criteria at Regional Levels. Conservation Biology 15 (5): 1206.

15/   Collar, N J and Andrew, P (1988) Birds to watch: the ICBP world checklist of threatened birds. Cambridge, UK: ICBP and IUCN.

16/   Collar, NJ, Crosby, MJ and Stattersfield, AJ (1994) Birds to watch 2: the world list of threatened birds. Cambridge, UK: BirdLife International.

17/   BirdLife International (2000) Threatened birds of the world. Cambridge, UK and Barcelona, Spain: BirdLife International and Lynx Edicions.

18/   BirdLife International (2004) Threatened birds of the world 2004. CD-ROM. Cambridge, UK: BirdLife International.

26.   The principal categories on the IUCN Red List are: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) and Least Concern (LC). 19/ Since all bird species have been assessed, none is listed as Not Evaluated (NE), and only 78 (0.8 per cent) are listed as Data Deficient (DD). 'Possibly Extinct' (PE) is a tag applied to those CR species that are, on the balance of evidence, 'likely to be extinct, but for which there is a small chance that they may still be extant'.

B.   Tracking genuine status changes between Red List assessments

27.   Published lists of numbers of species in different Red List categories cannot simply be used to calculate the index because many species move between categories owing simply to improved knowledge or taxonomic revisions. To identify those species, changing categories between assessments for relevant reasons, a 'Reason for change' code is assigned for each recategorization. These mutually exclusive codes are: (i) "Recent genuine status change"; (ii) "Genuine status change since first assessment"; (iii) "Knowledge"; (iv) "Criteria revision" (applied in cases when species changed category owing to revisions to the definitions of the IUCN Red List criteria, (v) "Taxonomy" (applied in cases when species changed category owing to taxonomic "lumping" or "splitting" or for newly described species). These last three codes were used for changes not relevant for calculating the indices.

C.   Calculating RLIs

28.   The number of species in each Red List category for each complete assessment and the number of species that changed categories as a result of genuine status changes are used to determine the index value in the following way. For species assessed in two consecutive assessments, the total numbers of species in each Red List category in the earlier assessment (excluding EX and PE, but including retrospective category adjustments owing to category revisions identified as "genuine status change since first assessment") are multiplied by a weight, and these are summed to give a total score for each assessment. The weights are set as: NT = 1, VU = 2, EN = 3, CR = 4, EW = 5. Over each time period between complete assessments the net number of genuine changes to the total in each category is calculated, multiplied by the weights above (with PE and EX = 5), and summed to give the % change in the total score, P. The index value of the previous assessment (set to 100 for the first assessment) is then scaled up or down by this %. 20/

29.   Error bars show the possible range of error associated with the latest (2004) RLI value owing to time-lags before genuine status changes. The number of such undetected category changes for 2000–2004 was estimated to be six using the 1994–2000 data (128 genuine changes for 1994–2000 were identified in 2000, and an additional 17 (13.3%) were identified in the subsequent four years, suggesting that an additional six category changes (13.3% of 45 genuine status changes identified in 2004) may be belatedly detected for 2000–2004). Six species from the 9,453 species that did not undergo category changes from 2000 to 2004 were randomly selected, with a maximum of two species per category. A total of 10,000 simulations were run for six species moving to categories of higher extinction risk. The maximum value for P (proportional genuine change) from these simulations gave the lower error bar for the 2004 RLI value. Similarly, 10,000 simulations were run of six species moving to categories of lower extinction risk, and the minimum value for P gave the value of the upper error bar.

30.   One of the purposes of the Red List Indices is to illustrate trends over time in the threat status of species in different biogeographic realms, ecosystems and families or species groups. Species are assigned (based on native distributions, excluding cases of vagrancy) to one or more biogeographic

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    19/   IUCN (2001) IUCN Red List categories and criteria: version 3.1. Gland, Switzerland and Cambridge, UK: IUCN SSC.

    20/   See Butchart, S. H. M., Stattersfield, A. J., Bennun, L. A., Akçakaya, H. R., Baillie, J. E. M., Stuart, S. N., Hilton-Taylor, C. and Mace, G. M. (in press) Using Red List Indices to measure progress towards the 2010 target and beyond. *Phil. Trans. Roy. Soc.* for further details.

realms (Palearctic, Afrotropical, Indomalayan, Nearctic, Neotropical and Australasian/Oceanic). Where a species was assigned to more than one realm, it is included in calculating the score for each of those realms. This is because a species could potentially undergo genuine changes in status in any or all realms in which it occurs. However, so that trends in indices for particular realms reflect changes in the threatening processes operating within each particular realm (rather than threats operating elsewhere in the range of the species), species are only included in the calculation of P for a particular realm if the genuine status change is driven by factors operating in that realm. The index was disaggregated for ecosystem (terrestrial, marine, and freshwater) and for two terrestrial habitat types in a similar way. Species were included in the calculation of T for all ecosystems and habitats for which they were scored, but only included in the calculation of P for a particular ecosystem or habitat if the genuine status change had been driven by threatening processes operating in that ecosystem or habitat. Species were only assigned to a habitat type if this was of critical or major importance (i.e. the species typically occurs in no other habitat, or just one other habitat at some point in its life-cycle).

D. *Interpreting RLIs*

31. How can biodiversity indicators be interpreted in relation to the target of reducing the rate of loss of biodiversity by 2010? The interpretation is different for measures of the state of biodiversity (for example, total area of remaining forest) and measures of the rate of change in this state (for example, annual percentage forest loss). For indices based on proportional change in a measure (plotted on a negative scale as with the RLI), if the measure is one of state, a significant diminution in downward trend would show that the target has been met. However, if the measure is one of rate of change of state, the target is not met until we see a positive trend, not just a decelerating decline. Some of the Red List criteria are based on absolute population size or range size, while others are based on rates of decline in these values or combinations of absolute size and rates of decline. These criteria are used to assign species to Red List categories that can be ranked according to relative projected extinction risk, and the RLI is calculated from changes between these categories. Hence RLI values relate to the rate at which species are slipping towards extinction at particular points in time. To show that the 2010 target has been met, the RLI must therefore show a positive trend. A downward trend, even if becoming less steep, shows that the slide of species towards extinction is accelerating, not slowing down. The negative trends in the RLI values for birds and amphibians thus show that in 2004 we are losing biodiversity at an increasing rate, at least as far as these groups are concerned.

32. It is important to note that owing to the partly arbitrary nature of the weights applied to each category to calculate the score, the percentage decline in the index value (e.g. 6.9% for birds between 1988 and 2004) is not directly comparable with percentage declines reported for population-based indices such as the Living Planet Index (Loh 2002), or the UK headline indicator for wild bird populations (Gregory *et al*. 2003).

E. *Strengths of and weaknesses of RLIs*

33. There are two key issues relating to the strengths and weaknesses of the Red List Indices compared to other potential biodiversity indicators: representativeness and resolution.

1. *Representativeness*

34. The most significant strength of the RLIs described here is that they are highly representative, being based on assessments of a high proportion of species in a taxonomic group across the world. The Red List process is an effective way to make meaningful inferences from data that are imprecise or incomplete. Thus, RLIs can incorporate information even from species that are rare, localised, or difficult to survey, including those most susceptible to extinction. Hence, the RLIs presented here incorporate trends for 99.2% of all bird species (excluding 78 Data Deficient species out of 9,788 extant species) and 77.3% of amphibian species (excluding 1,294 Data Deficient species out of 5,709 extant species). In contrast, most other global indicators based on population estimates are derived from sampled data biased

towards common, well-studied species in the developed world, particularly Europe and North America. For example, in a global index based on data from 936 amphibian populations from 37 countries around the world, 89% of populations (835) were from Europe or North America, and just 2.2% (21) were from Asia and 5.5% (51) from South/Central America. 21/

35.   Plotting the RLI for just those bird species for which high quality quantitative data are available gives a 2004 RLI value of 93.1 compared to 93.2, which is within the calculated range of error bars associated with the 2004 RLI value. This indicates that the subset of species with poorer quality data introduce no substantial bias into the calculated RLI value. 22/

36.   Although RLIs show high representativeness within taxonomic groups, relatively few groups, not representative of species diversity as a whole, have so far been completely assessed, and fewer still on a regular basis. Red List coverage is constantly improving, so this problem will diminish, but by 2010, RLIs based on complete assessments will likely be available only for a relatively small set of taxa. To overcome this problem, a sampled index based on a broad spectrum of taxa is also being developed.

2.   Resolution

37.   RLIs show a fairly coarse level of resolution of status changes as a consequence of the broad nature of Red List categories. The size, trend or distribution of populations may have to undergo quite substantial changes before crossing the criteria thresholds to qualify for a higher or lower Red List category, and hence before changing the RLI value. For example, a species's population may have to decline from almost 10,000 individuals to fewer than 2,500 individuals before the species is moved from Vulnerable to Endangered. This is inherent in using the Red List categories rather than more precise parameters such as estimates of population size. For this reason, RLIs are very complementary to population based indices: the former are derived from (potentially) cruder data that can be collected for nearly all species in a taxonomic group, the latter are based on much more detailed information that can only be collected for a small (and often biased) subset of species.

38.   In some cases, status changes can be incorporated in the index without delay, because the Red List criteria allow species to be assessed as threatened on the basis of justified projected declines (criterion A3). Thus changes in category can reflect new or emerging threats and small population or range changes in anticipation that these will exceed the appropriate criteria thresholds over specified time-frames.

39.   However, there may be time-lags between a species' population or range changing and this being reflected in the RLI value, because of delays before the change is detected or becomes known by assessors. This is potentially more problematic, but several factors act to mitigate it. The Red List programme has a large and expanding network of many thousands of scientists across the world providing detailed and up-to-date information for an increasing number of species. Furthermore, with improving channels of communication (in particular, the increasing use of the world wide web to solicit information, e.g. BirdLife's web-based Globally Threatened Bird discussion forums), it is to be expected that such delays will diminish and retrospective adjustments to the index values will decrease in future. The bird

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21/   Houlahan, JE, Findlay, CS, Schmidt, BR, Meyer, AH and Kuzmin, SL (2000) Quantitative evidence for global amphibian population declines. Nature 404: 752–755.

22/   Butchart, S. H. M., Stattersfield, A. J., Bennun, L. A., Akçakaya, H. R., Baillie, J. E. M., Stuart, S. N., Hilton-Taylor, C. and Mace, G. M. (in press) Using Red List Indices to measure progress towards the 2010 target and beyond. *Phil. Trans. Roy. Soc.*

data support this supposition. Whereas just 42% of 60 genuine status changes between 1988 and 1994 were detected in 1994, 88% of 145 changes during 1994–2000 were detected in 2000, and just 12% were detected in the subsequent four years. Using the data from the 1994–2000 period the likely number of genuine status changes for 2000–2004 that have not yet been detected can be estimated, and hence the possible degree of error associated with the 2004 RLI value can be estimated. The results show that it may be an under- or over-estimate by 0.21–0.37%: a small and acceptable margin of error.

F. Sustainability, accuracy and representativeness of the data

40.   To ensure consistency in the application of the Red List criteria between different taxonomic groups and over time, detailed guidelines have been produced 23/ and an informal users group meets regularly to agree on common standards and approaches in Red List assessments.

41.   In order to develop representative biodiversity indicators from the IUCN Red List, a major expansion of the taxonomic coverage is a very high priority. By 2010, birds and hopefully amphibians will have been reassessed once more, indices will have been developed for mammals (1996–2005 at least), and a number of other groups will have been completely assessed at least once, including reptiles (c.8,000 species, assessment initiated in 2004), freshwater fish (c,10,000 species, initiated in 2003), sharks, rays and chimeras (c.1,000 species, to be completed in 2005) and freshwater molluscs (c.5,000 species, initiated in 2004). Similar targets exist for various plant groups, although there is the much larger target of obtaining a preliminary assessment of all plant species by 2010, which is part of the Global Strategy for Plant Conservation (decision VI/9). SSC has also set in motion processes to identify priority taxonomic groups of plants, invertebrates and marine organisms to ensure a more representative coverage on the Red List. 24/

VI.   EXAMPLES OF USE OF INDICATOR AT NATIONAL/REGIONAL LEVEL

42.   One of the purposes of the Red List Indices is to illustrate trends over time in the threat status of species in different biogeographic realms or political regions. It is also possible to calculate indices at the national level. However, since many globally threatened species have ranges that span many countries, and nationally threatened species may be abundant elsewhere, such indices are either problematic to develop or difficult to interpret. However, a regional application of the RLI is planned for European birds based on the Species of European Concern (SPEC) categorization system. 25/

43.   Data on threatened species need to be available for use at the local, regional and global levels to increase information on threatened and non-threatened species. Detailed documentation and data on all the world's birds are available online through BirdLife International's website, 26/ and on all the world's amphibians through the Global Amphibian Assessment website. 27/ Detailed information for all species assessed for the IUCN Red List are also freely available online. 28/ The Global Biodiversity Information Facility (GBIF) 29/ and the Species Information Service (SIS) being developed by IUCN will also make data increasingly accessible.

23/   Red List Standards and Petitions Subcommittee (2003) Guidelines for using the IUCN Red List Categories and Criteria. Available: http://www.iucn.org/themes/ssc/red-lists.htm

24/   IUCN 2004 The IUCN Red List of threatened species. Available from http://redlist.org/info/programme.html

25/   BirdLife International (2004) *Birds in Europe: population estimates, trends and conservation status.* Cambridge, UK: BirdLife International.

26/   http://www.birdlife.org

27/   http://www.globalamphibians.org

28/   http://www.redlist.org

29/   http://www.gbif.net

VII. SUGGESTIONS FOR IMPROVEMENT OF THE INDICATOR

44.   At present, data are only available for birds and amphibians to produce Red List Indices. By 2010, Red List Indices will also be available for all the world's mammals (about 5,000 species), certain reptile groups, conifers, cycads and potentially a number of other groups. Additional indices, and an aggregation of Red List Index trends in multiple groups, will provide a more representative picture of the changing state of biodiversity. In recognition that this will take some time to implement, the IUCN Red List programme is also developing a Sampled Red List Index based on a stratified random sample of species from a broad range of major taxonomic groups (initially: mammals, birds, reptiles, amphibians, fish, insects, molluscs, crustaceans, plants, algae and fungi) and all biogeographic realms and ecosystems. This will provide an index that will be more representative of trends in the threat status of all biodiversity worldwide. By 2010 it is anticipated that there will be an effective programme delivering data for regular updates of the sampled Red List Index based on an increasingly comprehensive taxonomic sample.

45.   As with all indicators relevant to assessing progress towards the 2010 target, it will be important to present RLIs with clear interpretative messages, in order to allow non-specialists to understand what the trends show, and how to interpret them in relation to the 2010 target.

46.   Expanding our current knowledge on the status of species as well as the taxonomic coverage will increase the robustness of the indicator. Strong support and financial commitment are required to realize the ongoing and planned species assessments.