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

Note by the Executive Secretary

I. SUMMARY

1. The Red List of the World Conservation Union (IUCN) is recognized as the most authoritative and objective system for classifying species at high risk of extinction. Red List Indices illustrate 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. The indices 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. Red List Indices show a fairly coarse level of resolution, but are uniquely representative, being based on information from all species in a taxonomic group worldwide. The Red List Index has been developed by the Red List Consortium (IUCN, BirdLife International, Conservation International and NatureServe). The Red List Index for the world's birds shows that their overall threat status has deteriorated steadily during 1988–2004. A preliminary Red List Index for amphibians for 1980–2004 shows a similar rate of decline. Indices are in development for other groups, including mammals, reptiles, freshwater fish, sharks, rays and chimeras, freshwater molluscs. ^{1/}
3. The Red List Index measures 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 the status of non threatened species.
4. A Sampled Red List Index is being developed, based on c.2,700 species from all major taxonomic groups, realms, ecosystems, and Red List categories. This will provide trends in extinction risk representative of all biodiversity.

^{1/} The IUCN Species Programme will release at the World Conservation Congress in Bangkok a Global Species Assessment as part of the 2004 Red List update. This assessment applies the Red List Index to three global species databases – birds, mammals, and amphibians.

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II. RELATION OF INDICATOR TO FOCAL AREA

5. Red List Indices 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 1000 times greater than the historical “background” rate.

6. The risk of extinction for taxonomic groups or biogeographic regions, which is assessed through the Red List Indices, is a measure not only of species loss but indirectly also of the mechanisms of species loss including habitat degradation, invasive species, pollution, climate change, consumption and unsustainable use.

III. GENERAL DESCRIPTION

7. The IUCN Red List is widely recognized as the most objective and authoritative listing of species that are globally at risk of extinction. ^{2/} Species are assigned to Red List categories through detailed assessment of information against a set of objective, standard, quantitative criteria. ^{3/} 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. ^{4/}

8. A methodology for producing indices based on the IUCN Red List has recently been developed. ^{5/} 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 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.

9. 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.

10. 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 -6.90 per cent over this period (figure 1).

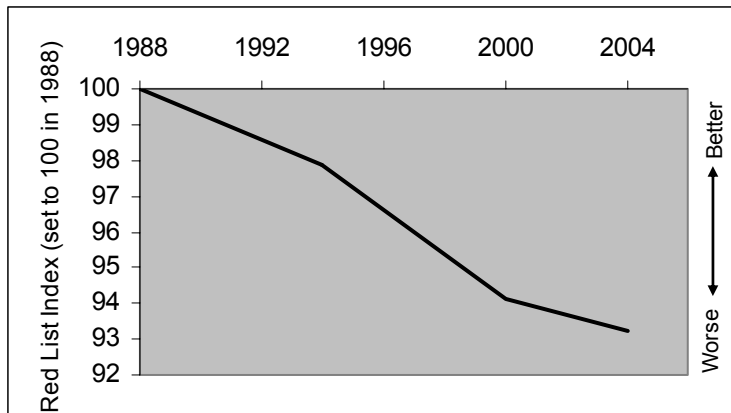
^{2/} Hambler, C. *Conservation*. Cambridge, U.K.: Cambridge University Press.

^{3/} IUCN (2001) IUCN Red List categories and criteria: version 3.1. Gland, Switzerland and Cambridge, UK: IUCN SSC.

^{4/} IUCN (2004) The IUCN Red List of threatened species. Available: <http://www.iucn.org/themes/ssc/red-lists.htm>

^{5/} Butchart, S. H. M., A. J. Stattersfield, L. A. Bennun, S. M. Shutes, H. R. Akçakaya, J. E. M. Baillie, S. N. Stuart, C. Hilton-Taylor & G. M. Mace. Measuring global trends in the status of biodiversity: Red List Indices for bird. Manuscript submitted for publication in PLoS Biology (<http://www.plosbiology.org>).

Figure 1. The Red List Index for all bird species ($n = 250$ genuine status changes/2,469 species in categories EW to NT in at least one assessment).



11. 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.

12. The Red List Index can be broken down by biogeographic realm, (figure 2), ecosystem and habitat type (figure 3), 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 2. Red List Indices for birds in different biogeographic realms. Sample sizes: Afrotropical = 41 genuine status changes/ 394 species in categories EW to NT in at least one assessment; Indomalayan = 100/585, Nearctic = 9/92, Neotropical = 49/834, Australasian/Oceanic = 53/614, Palearctic = 34/238).

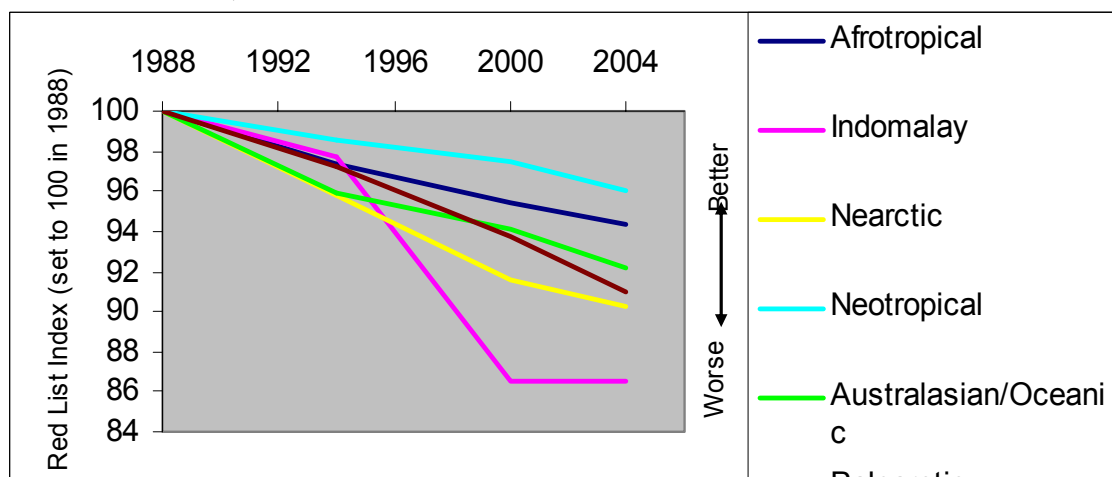
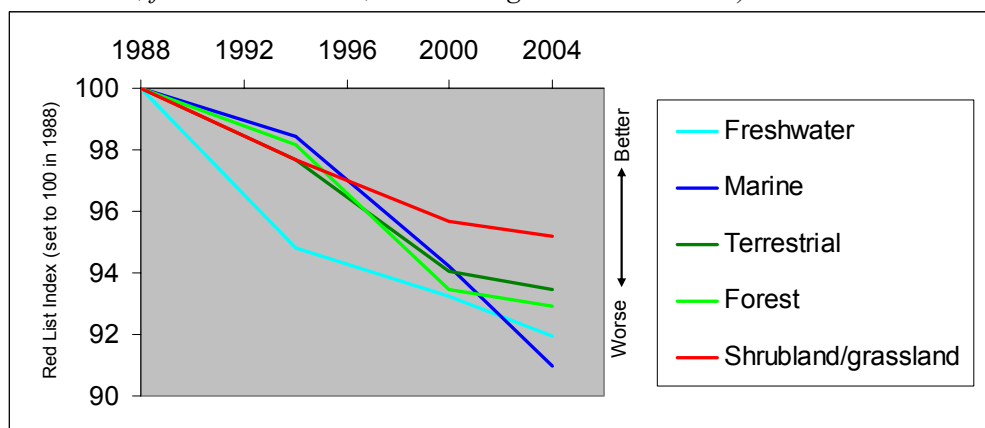


Figure 3. Red List Indices for birds in the marine, freshwater and terrestrial ecosystems, and for birds in forest and shrubland/grassland habitats. Sample sizes: Marine = 12 genuine status changes/ 133 species in categories EW to NT in at least one assessment; Freshwater = 31/226, Terrestrial = 206/2329, forest = 169/1513, shrubland/grassland = 45/481).



IV. POLICY RELEVANCE

13. 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.

14. 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.

15. 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).

16. 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 MDGs, WSSD etc.

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

18. In its para 44 (f), the Plan of Implementation of the World Summit on Sustainable Development (WSSD) seeks to "Promote 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

19. 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 Migratory Species (CMS), the Agreement on the Conservation of Albatrosses and Petrels 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.

20. 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.

21. 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. 6/

V. TECHNICAL INFORMATION

A. IUCN Red List assessments for birds

22. 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.

23. 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). 7/ 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). In addition, two terms used by BirdLife have not yet been adopted for more general application in the IUCN Red List. '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, and hence they should not be listed as Extinct until local or unconfirmed reports have been discounted, and adequate surveys have failed to find the species'. 8/ As there are taxonomic revisions between assessments, 'Not Recognized' (NR) is applied to taxa in those assessments when they were not treated as full species.

24. Data from which to calculate the indices were derived from four complete assessments of the status of the world's birds. 9/ 10/ 11/ 12/ Information was also taken from partial assessments submitted by BirdLife to the 2002 and 2003 IUCN Red Lists. 13/ 14/

6/ 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.

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

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

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

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

B. Tracking genuine status changes between Red List assessments

25. 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 was assigned for each recategorization. These mutually exclusive codes were: (1) "Recent genuine status change"; (2) "Genuine status change since first assessment"; (3) "Knowledge"; (4) "Criteria revision" (applied in cases when species changed category owing to revisions to the definitions of the IUCN Red List criteria, ^{15/} (5) "Taxonomy" (applied in cases when species changed category owing to taxonomic "lumping" or "splitting" or for newly described species). These last two codes were used for changes not relevant for calculating the indices.

I. Calculating index values

26. 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 were used to determine the index value in the following way:

(a) For species assessed in two consecutive assessments (i.e. excluding any listed as NR, NE or DD in either or both 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": see above) were multiplied by a weight, and these were summed to give a total score, T , for each assessment. The weights were set as: NT = 1, VU = 2, EN = 3, CR = 4, EW = 5 (see below);

(b) Over each time period between complete assessments (1988–1994, 1994–2000 and 2000–2004) the net number of genuine changes to the total in each category was calculated, multiplied by the weights above (with PE and EX = 5), and summed to give the % change in the total score, P ;

(c) The value of the index (I) was set to 100 in 1988. For subsequent assessments I was calculated by multiplying $-P$ for the previous time period by the previous index value.

27. Mathematically, the method can be described as follows, where T is total score; $N_c(t_i)$ is the number of species in category c at time t_i , where t_i is the year of the i th assessment (assessments are not necessarily made every year); W_c is the weight for category c ; P is proportional genuine change; I_t is the value of the index at time t_i ; $Cat(t_i, s)$ is the category of species s at time t_i ; W_c is the weight for category c ; $G_s = 1$ if change (from $t_{(i-1)}$ to t_i) in category of species s is genuine (otherwise $G_s = 0$).

$$T_{t_i} = \sum_c W_c \cdot N_{c(t_i)}$$

$$P_{t_i} = \sum_s [(W_{c(t_i,s)} - W_{c(t_{i-1},s)}) \cdot G_s] / T_{t_{i-1}}$$

$$I_{t_i} = I_{(t_{i-1})} \cdot (1 - P_{t_i})$$

^{11/} BirdLife International (2000) Threatened birds of the world. Cambridge, UK and Barcelona, Spain: BirdLife International and Lynx Edicions.

^{12/} BirdLife International (2004) Threatened birds of the world 2004. CD-ROM. Cambridge, UK: BirdLife International.

^{13/} IUCN (2002) 2002 IUCN Red List of threatened species. Available: www.redlist.org

^{14/} IUCN (2003) 2003 IUCN Red List of threatened species. Available: www.redlist.org

^{15/} IUCN (2001) IUCN Red List categories and criteria: version 3.1. Gland, Switzerland and Cambridge, UK: IUCN SSC.

where $I_{t,i-1} = 100$ for the first year of assessment.

28. The Red List categories are ordinal ranks, whereby each step from Least Concern to Extinct indicates that at least one measure of extinction risk has become worse. The “equal steps” weights listed above reflect the ordinal ranks of the categories. However, the steps between lower categories (e.g. NT to VU) translate to smaller increases in extinction risk than steps between higher categories (e.g. EN to CR). Therefore the aggregated Red List Index using weights based on the relative extinction risk associated with each category was also calculated. Several of the quantitative thresholds in the Red List criteria can be used to obtain approximate values for the risk of extinction (for species at the lower boundary of that category). The most obvious is Criterion E, which is based on quantitative analysis of extinction probability. The quantitative thresholds in Criterion E change for both extinction probability and timeframe for the three categories, and depend on generation length (e.g. the threshold for EN is a probability of extinction in the wild >20 per cent within 20 years or five generations). Taking a three generation timeframe, a generation length set arbitrarily at five years, and assuming a constant annual risk of extinction, the three generation probabilities are approximately 0.5, 0.13, and 0.016 for CR, EN, and VU, respectively. ^{16/} However, most extinctions do not occur as a result of random catastrophes, as implied by the assumption of the constant annual risk of extinction. Many are preceded by declines, resulting in sigmoid extinction risk curves (with probability of extinction as a function of time). For such cases, the three generation probabilities are approximately 0.5, 0.1, and 0.025 for CR, EN, and VU, respectively. Comparable extinction risks can also be calculated based on other Red List criteria (except A, for which there is no obvious method). Assuming that the number of mature individuals (in Criteria C1 and D), range or extent of occurrence (Criterion B1), and area of occupancy (Criterion B2) are inversely related to risk of extinction, and fixing the risk of extinction for CR at 0.5, it is possible to calculate the probabilities for categories EN and VU. Based on the geometric average of these estimates, the weights for CR, EN, and VU are determined as 0.5, 0.05, and 0.005. The weight for EX (and hence EW and PE) is by definition 1.0. The weight for NT is set at 0.0005, keeping the same proportion as among the weights for the three threatened categories.

2. *Disaggregating indices*

29. 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 were assigned (based on native distributions, excluding cases of vagrancy) to one or more biogeographic realms (Palearctic, Afrotropical, Indomalayan, Nearctic, Neotropical and Australasian/Oceanic). ^{17/} Where a species was assigned to more than one realm, it was included in calculating the score (T) 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 were only included in the calculation of P for a particular realm if the genuine status change had been 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).

30. To exemplify how the approach can be used for taxonomic subsets of species, Red List Indices were also calculated for several high-profile species groups with specific conservation interest-groups:

^{16/} H. R. Akçakaya unpublished data

^{17/} Following the boundaries mapped by Newton, I (2003) *The speciation and biogeography of birds*. London: Academic Press, except that Australasian was pooled with Oceanic, and Antarctic was excluded.

raptors (Falconiformes), gamebirds (Galliformes) and parrots (Psittaciformes), and for species groups relevant to particular international conservation treaties: waterbirds ^{18/} covered by the Ramsar convention, migrant species covered by the Convention on Migratory Species (CMS), and albatrosses (Diomedidae) and large petrels (*Macronectes* spp. and *Procellaria* spp.) covered by the Agreement on the Conservation of Albatrosses and Petrels (ACAP) under the CMS.

C. *Strengths of and weaknesses of Red List Indices*

31. 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*

32. The most significant strength of the Red List Indices described here is that they are based on comprehensive assessments of all species in a taxonomic group across the world. 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 per cent of populations (835) were from Europe or North America, and just 2.2 per cent (21) were from Asia and 5.5 per cent (51) from South/Central America. ^{19/} By contrast, the Red List Indices described here incorporate trends (as measured by IUCN Red List category changes) for all the world's 10,000 birds and 5,700 amphibians. Red List Indices for other completely assessed taxonomic groups are in development in order to expand the representativeness of the species covered. However, in recognition that this will take some time (and that some groups will probably never be completely assessed on a regular basis), a sampled index based on a broad spectrum of taxa is also being developed. The Red List system is an effective way to make meaningful inferences from data that are imprecise or incomplete. Thus Red List Indices can incorporate information from species that are rare, localized, or difficult to survey, including those most susceptible to extinction. This is in contrast to most indices based on species population trends.

2. *Resolution*

33. Red List Indices show a fairly coarse level of resolution of status changes because of the broad nature of Red List categories. Populations in the wild may have to undergo quite significant changes in size, trend or distribution before crossing the thresholds to qualify for a higher or lower Red List category, and hence before changing the Red List Index value. For example, a species's population may have to decline from 10,000 individuals to 2,499 individuals, or its range contract from 20,000 km² to 4,999 km² 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, Red List Indices are very complementary to population based indices: the former are derived from (potentially) cruder data that can be collected for all species in a taxonomic group, the latter are based on much more detailed information that can practically only be collected for a small (and potentially biased) subset of species. In some cases, status changes can be incorporated into the index without delay, because the Red List criteria allow for species to be assessed as threatened on the basis of 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.

34. However, there may also be time-lags between a species' population or range changing and this being reflected in the Red List index value because of delays before detection of the change, and/or

^{18/} As listed in Wetlands International (2003) Waterbird population estimates. Third edition. Wageningen, Netherlands: Wetlands International.

^{19/} Houlihan, JE, Findlay, CS, Schmidt, BR, Meyer, AH and Kuzmin, SL (2000) Quantitative evidence for global amphibian population declines. *Nature* 404: 752–755.

before this knowledge becomes available to assessors. This is potentially more problematic, but several factors act to mitigate it. The Red List Programme partners have a large and expanding network 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), such delays will diminish. *Sustainability, accuracy and representativeness of the data*

35. To ensure consistency in the application of the Red List criteria between different taxonomic groups and over time, detailed guidelines have been produced ^{20/} and an informal users group meets regularly to agree on common standards and approaches in Red List assessments.

36. 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. ^{21/}

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

37. 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.

38. 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. The Global Biodiversity Information Facility (GBIF) ^{22/} and the Species Information Service (SIS) of IUCN ^{23/} are making data on threatened species available online.

VII. SUGGESTIONS FOR IMPROVEMENT OF THE INDICATOR

39. 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 (c.5,000 species) 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

^{20/} 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>

^{21/} IUCN 2004 The IUCN Red List of threatened species. Available from <http://redlist.org/info/programme.html>

^{22/} <http://www.gbif.net>

^{23/} <http://www.iucn.org/themes/ssc/programs/sisindex.htm>

that this will take some time to implement, the IUCN Red List programme is also developing a Sampled Red List Index based on a sample of c.2,700 species from all major taxonomic groups (initially: mammals, birds, reptiles, amphibians, fish, insects, molluscs, crustaceans and plants), stratified by biogeographic realm, ecosystem, and Red List category. 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.

40. 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.
