



DOCUMENTATION STANDARDS AND CONSISTENCY CHECKS FOR IUCN RED LIST ASSESSMENTS AND SPECIES ACCOUNTS

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Introduction

Please note that this is a working document which is subject to modification and addition; all future versions will be given a new version number. If you are unsure whether you are working from the most recent version, please check the IUCN Red List website or contact the IUCN Red List Unit (RLU).

This document provides detailed instructions for documenting species accounts held in the IUCN Species Information Service (SIS) to support assessments for inclusion on *The IUCN Red List of Threatened Species*TM (hereafter referred to as the IUCN Red List). The information presented here builds on the required and recommended supporting information for IUCN Red List assessments, and follows the IUCN SSC Style Guidelines (with some minor deviations), and the format of SIS. **It is important to follow the instructions and standards set out in this document closely to maintain consistency and high standards within the IUCN Red List.**

In addition to instructions for supporting information, this document includes a list of the standard checks that need to be carried out BEFORE assessments are submitted for publication in the IUCN Red List (note that SIS will soon include an automated integrity checker which will perform many of the basic checks; once that functionality is made available these Guidelines will be updated to reflect the changes).

For assessments being submitted from a major assessment project (e.g., comprehensive assessments of major taxonomic groups, assessments of endemic species from regional projects) or assessments submitted by Red List Authorities, **it is the responsibility of Project Manager or relevant Red List Authority Coordinator to ensure that all assessments have been checked (for supporting information and consistency) before submitting them for publication on the IUCN Red List.**

The RLU will carry out further consistency checks on submitted assessments, focusing particularly on threatened and Near Threatened taxa, to check that the IUCN Red List Criteria have been applied appropriately and consistently across species. The RLU cannot carry out thorough supporting information checks for ALL submitted assessments; hence any indication that standards have not been adequately followed will result in assessments being returned for correction and resubmission later.

Please keep this document to hand for reference while entering information into species accounts in SIS. If there is something you need to know which is not covered here, please contact the IUCN Red List Unit (Craig Hilton-Taylor (craig.hilton-taylor@iucn.org) or Caroline Pollock (caroline.pollock@iucn.org)).

Guidance on using SIS

The intention of this document is to provide guidance on documenting assessments for the IUCN Red List. For guidance on how to use SIS, a self-teach tool has been developed (Microsoft PowerPoint show) which users can download and refer to as needed. The SIS self-teach tool can be downloaded from the IUCN Red List website (<http://www.iucnredlist.org/technical-documents/red-list-training/species-information-service>) or from the SIS home page (after logging in to SIS, scroll down through the *SIS Updates* panel in the bottom right hand corner). The SIS self-teach tool will be updated as new features and tools are brought into SIS. ***Please ensure you regularly check the SIS home page for the most recent update of this tool.***

If you do not have a user account for SIS, please contact the IUCN Red List Unit.

1. Required and Recommended Supporting Information for IUCN Red List Assessments

An IUCN Red List assessment includes the Red List Category and Criteria, and a range of supporting information (documentation). The purpose of providing supporting information with the assessment is:

1. To support and justify adequately each Red List assessment.
2. To allow basic analysis of the Red List status across species, including calculating the Red List Index.
3. To allow the Red List website (www.iucnredlist.org) to function properly (i.e., to allow users to search and find information on the website).

The inclusion of relevant information in an assessment increases the utility of that assessment for all three of the above purposes. Within the Species Information Service (SIS) there are many data fields available to record a whole suite of information. Some of these data fields are essential to support the Red List assessment, and some are there to capture additional information for analyses and communication purposes.

IUCN has developed three tiers to identify the appropriate level of supporting information to include in a Red List assessment:

1. Required Supporting Information

Supporting information required for **ALL** Red List assessments before they can be accepted for publication on the IUCN Red List. There are two subsets of information for required supporting information:

- Required supporting information under all conditions; see [Table 1](#).
- Required supporting information under specific conditions; see [Table 2](#).

2. Recommended Supporting information

Recommended supporting information is not essential for a Red List assessment to be accepted for publication on the IUCN Red List but is strongly encouraged for all assessments for taxa prioritized in the IUCN Red List Strategic Plan 2012-2020 and the IUCN Species Strategic Plan 2013-2016; see [Table 3](#). IUCN Global Species Programme and Red List Partner-led assessments always strive to achieve assessments according to the recommended level.

3. Discretionary (Optional) Supporting Information

Supporting information that is not essential for a Red List assessment to be accepted for publication on the IUCN Red List, but specific projects or Assessors may wish to record this for their own information or analysis purposes. Assessment project managers should clearly identify which of these additional fields they want to include in assessments and inform Assessors contributing to the project about this at the start of the project.

All fields in SIS that are not mentioned in Tables 1, 2 or 3 are considered to be discretionary (i.e. optional) fields.

Table 1: Required supporting information for all assessments submitted to the IUCN Red List (in all conditions). Any assessments that do not include all of the information listed in this table will be returned to Assessors.

Required Information	Purpose	Guidance Notes
1. Scientific name	<ul style="list-style-type: none"> To identify which taxon is being assessed To support Red List website functionality 	<p>If the taxon is already in SIS, this information requires no additional effort from the Assessors. If the taxon is not yet recorded in SIS, Assessors must provide this information to the Red List Unit.</p> <p>See sections 2.1 and 4.2.</p>
2. Higher taxonomy details (Kingdom, Phylum, Class, Order, Family)	<ul style="list-style-type: none"> To identify which taxon is being assessed To support Red List website functionality 	<p>If the taxon details are already in SIS, this requires no additional effort from the Assessors. If the taxon details are not yet recorded in SIS, Assessors must provide this information to the Red List Unit.</p> <p>See sections 2.1 and 4.1.</p>
3. Taxonomic authorities for all specific and infra-specific names used, following the appropriate nomenclatural rules	<ul style="list-style-type: none"> To identify which taxon is being assessed 	<p>If the taxon authority details are already entered in SIS, this information requires no additional effort from the Assessors. If the taxon authority details are not yet recorded in SIS, Assessors must provide this information to the Red List Unit.</p> <p>See sections 2.1 and 4.3.</p>
4. IUCN Red List Category and Criteria (including subcriteria) met at the highest category of threat.	<ul style="list-style-type: none"> To identify the current status of the taxon To support Red List website functionality To allow basic analyses 	<p>The Red List Category and Criteria represent the most fundamental elements of a Red List assessment.</p> <p>Use of the categories and criteria must be in accordance with the <i>IUCN Red List Categories and Criteria, Version 3.1</i> and the current version of the <i>Guidelines for Using the IUCN Red List Categories and Criteria</i>. Both documents are available to download from the IUCN Red List website (http://www.iucnredlist.org/technical-documents/red-list-documents).</p> <p>See section 2.5.1.</p>
5. A rationale for the Red List assessment.	<ul style="list-style-type: none"> To justify the Red List Category and Criteria selected. 	<p>Include any inferences or uncertainty that relate to the interpretation of the data and information in relation to the criteria and their thresholds.</p> <p>See sections 2.2.8 and 3.</p>

Required Information	Purpose	Guidance Notes
6. Data for parameters triggering the Red List Criteria met at the highest Category level.	<ul style="list-style-type: none"> To underpin and justify the Red List Category and Criteria used. 	<p>Enter these data either into the relevant coded/numerical fields or in the relevant narrative (text) fields in SIS.</p> <p>If data are entered into the data fields, this allows the Red List Criteria calculator to be used in SIS, which automatically checks for errors, omissions and inconsistencies, reducing the burden of manual checking by Assessors, RLA Coordinators and project coordinators.</p> <p>If data are included within the narrative (text) fields, the text must clearly indicate <i>all</i> of the relevant sub-criteria parameters and qualifiers (observed, estimated, inferred, projected or suspected) used.</p> <p>See sections 2.2 and 2.3.2.</p>
7. Countries of occurrence (for native and reintroduced taxa), including Presence and Origin coding.	<ul style="list-style-type: none"> To support Red List website functionality (especially country searches) To allow basic analyses 	<p>SIS automatically records Presence = Extant and Origin = Native by default as countries are selected.</p> <p>A tool will be developed to determine countries of occurrence from GIS maps and to auto-populate SIS with this information, but some manual checking and correcting will still be required.</p> <p>Countries of occurrence are not strictly required for vagrant and introduced ranges.</p> <p>Subcountries may also be recorded, but these are not strictly required (see Table 3).</p> <p>See section 2.4.7.</p>

Required Information	Purpose	Guidance Notes
8. Geo-referenced distribution data for all taxa with a known distribution	<ul style="list-style-type: none"> • To support Red List website functionality • To allow basic analyses • Spatial distribution data are essential for supporting assessments under criteria B and D2 (and arguably also for demonstrating that the thresholds for these criteria are not met) 	<p>Spatial distribution data are not required for taxa of unknown provenance (e.g. taxa assessed as Data Deficient because their range is not known).</p> <p>Spatial data may be geo-referenced polygons or point localities, and may be provided in any format, including as a paper map, text file of coordinates, pdf, graphics file or GIS shapefile.</p> <p>A GIS shapefile is preferred (but is not strictly required), given their value for conducting spatial analyses, visual displays on the Red List website, and future functionality on the Red List website that will allow spatial searches.</p> <p>Although additional distributional documentation is desirable for taxa qualifying under criterion B (e.g. 2x2 km grids showing occupancy), this is not Required.</p> <p>Note that any distributional data can be coded as sensitive to avoid this being distributed or displayed on the Red List website.</p> <p>See section 2.7.</p>
9. Direction of current population trend (stable, increasing, decreasing, unknown)	<ul style="list-style-type: none"> • To support Red List website functionality • To allow basic analyses 	See section 2.3.1 .
10. Coding for occurrence in freshwater (= inland waters), terrestrial, and marine ecosystems (i.e., “System” in SIS)	<ul style="list-style-type: none"> • To support Red List website functionality • To allow basic analyses 	See section 2.3.1 .
11. Suitable habitats utilized (coded to lowest level in Habitats Classification Scheme).	<ul style="list-style-type: none"> • To support the assessment • To support Red List website functionality • To allow basic analyses 	<p>To speed up entering such coding in SIS, habitat suitability is set to 'suitable' by default for any habitat selected.</p> <p>See section 2.4.1.</p>
12. Bibliography (cited in full; including unpublished data sources but not personal communications)	<ul style="list-style-type: none"> • To underpin the assessment and provide all sources of data and information used to support the Red List assessment 	<p>References are stored centrally in SIS and are managed and attached to assessments via the Reference functions.</p> <p>See sections 2.8 and 3.11 for guidance on formatting references for the bibliography.</p>

Required Information	Purpose	Guidance Notes
13. Names and contact details of the Assessor(s) and at least one Reviewer	<ul style="list-style-type: none"> • To demonstrate that the appropriate assessment and review process has been undertaken • To acknowledge those involved in the assessment. • To allow Assessors and Reviewers to be contacted easily in the case of the assessment content being questioned • To support Red List website functionality 	<p>Note that Contributor(s), Compiler(s), and Facilitator(s) may also be recorded but are not strictly required. However, recording them in the assessment does allow these people to be acknowledged on the Red List website.</p> <p>All contact details are stored within SIS; only names (e.g. surname and initials) are displayed on the Red List website.</p> <p>More than one Reviewer is encouraged for commercially significant species, or those species for which assessments may be contentious.</p> <p>See section 2.5.3.</p>

Table 2: Required supporting information for Red List assessments under specific conditions. The list of required supporting information (under specific conditions) is essential for all assessments that meet the conditions outlined below. Any assessments for taxa meeting these conditions that do not include all of the information listed below will be returned to Assessors.

Required Information (under specific conditions)	Specific Condition	Purpose	Guidance Notes
1. Name of subpopulation	For subpopulation level assessments	<ul style="list-style-type: none"> To identify what is being assessed below the species level. 	See section 2.1 .
2. Major Synonyms	For taxa with commonly used alternative names or that have been treated under different names in the past on the Red List	<ul style="list-style-type: none"> To support Red List website functionality To identify which taxon is being assessed 	Incorrect spellings of scientific names on the Red List are included as synonyms when the spellings are corrected. See sections 2.1 and 4.4 .
3. Plant growth forms	For plants	<ul style="list-style-type: none"> To support Red List website functionality To allow basic analyses 	See section 2.3.1 .
4. Information on the reason for change in Red List Category of the taxon	For all taxa being reassessed	<ul style="list-style-type: none"> To distinguish up- or down-listings resulting from genuine improvement or deterioration, from those resulting from revised taxonomy, improved knowledge, etc. 	This should be coded irrespective of whether a taxon qualifies in the same or for a different Red List Category. See section 2.5.6 .
5. Date last recorded (in the wild, if taxon survives in captivity) and details of surveys which have been conducted to search for the taxon	For Extinct and Extinct in the Wild taxa, and for Critically Endangered taxa tagged as Possibly Extinct or Possibly Extinct in the Wild.	<ul style="list-style-type: none"> To justify use of the categories Extinct or Extinct in the Wild, (to underpin assessments in which extinction is confirmed or thought highly likely) To allow basic analyses 	
6. Possibly Extinct or Possibly Extinct in the Wild tag	For Critically Endangered taxa that considered highly likely to be Extinct or Extinct in the Wild but for which confirmation is required	<ul style="list-style-type: none"> To underpin assessments in which extinction is thought highly likely but which requires confirmation To allow basic analyses To support Red List website functionality 	See section 11.2 in the current version of the <i>Guidelines for Using the IUCN Red List Categories and Criteria</i> for more information on this.

Required Information (under specific conditions)	Specific Condition	Purpose	Guidance Notes
7. Documentation of available data, sources of uncertainty and justification for why the criteria cannot be applied; including, where appropriate, one or both of the Data Deficient tags <i>Unknown provenance</i> and <i>Uncertain taxonomic status</i> explains lack of data	For Data Deficient taxa	<ul style="list-style-type: none"> To justify use of the Data Deficient Category 	
8. Coding as Severely Fragmented, or the number of locations	Taxa listed as threatened using criteria B 1a or B2a	<ul style="list-style-type: none"> To justify the Red List Category and Criteria used 	For definitions of severely fragmented and locations refer to the current version of the <i>Guidelines for Using the IUCN Red List Categories and Criteria</i> .
9. Generation length	For taxa listed as threatened under criteria A and C1	<ul style="list-style-type: none"> To justify the Red List Category and Criteria used 	For definition of generation length refer to the current version of the <i>Guidelines for Using the IUCN Red List Categories and Criteria</i> .
10. Time period over which 3-generation decline is measured around the present.	For taxa listed as threatened under criterion A4	<ul style="list-style-type: none"> To justify the Red List Category and Criteria used 	Record this as the start year for the 3-generation time period.
11. The data, assumptions, structural equations, and Population Viability Analysis model if used.	For taxa listed under Criterion E	<ul style="list-style-type: none"> To justify the Red List Category and Criteria used. 	
12. Coding and justification of the criteria that are nearly met or the reasons for the classification (e.g., dependence on ongoing conservation measures)	For taxa listed as Near Threatened	<ul style="list-style-type: none"> To justify the Red List Category and Criteria used 	Include this information in the rationale for the assessment. A system for coding up criteria met or nearly met will be developed for SIS in future.

Required Information (under specific conditions)	Specific Condition	Purpose	Guidance Notes
13. Taxonomic notes	<ul style="list-style-type: none"> • For taxa previously treated as a different taxonomic concept (e.g., “split” or “lumped”) on the Red List. • For taxa for which there is widespread taxonomic ambiguity or uncertainty in the literature. • For species that may represent a species complex • For taxa assessed as Data Deficient because of Taxonomic uncertainty. 	<ul style="list-style-type: none"> • To clarify which taxon concept is being assessed. • To allow comparison of taxa previously assessed on the Red List. • To justify use of the Data Deficient Category. 	See sections 2.2.1 and 3 .
14. Major threats to the taxon (coded to lowest level in Threats Classification Scheme)	For taxa listed as Extinct, Extinct in the Wild, Critically Endangered, Endangered, Vulnerable, and Near Threatened	<ul style="list-style-type: none"> • To justify the Red List Category and Criteria used • To support Red List website functionality • To allow basic analyses 	<p>Only major threats to the species are required.</p> <p>Coding of timing and stresses is not strictly required for the Red List assessment, but is recommended.</p> <p>Coding of scope and severity are discretionary (i.e., optional).</p> <p>If Assessors decide to also record minor threats, then <i>Scope and Severity must be recorded for all threat records for the taxon</i> (to allow major and minor threats to be clearly identified).</p> <p>Major threats are not required for Least Concern or Data Deficient taxa, but may be recorded if relevant (but with appropriate Timing, Scope and Severity codes).</p> <p>See section 2.4.2.</p>

Required Information (under specific conditions)	Specific Condition	Purpose	Guidance Notes
15. Narrative text about the geographic range, population, habitat and ecology, and threats	For taxa listed as Extinct, Extinct in the Wild, Critically Endangered, Endangered, Vulnerable, Near Threatened, and Data Deficient	<ul style="list-style-type: none"> To justify the Red List Category and Criteria used 	<p>Required for supporting the assessment with contextual and explanatory information covering, among other things, the relevant data sources, uncertainties, subtleties and interpretations of data made by Assessors.</p> <p>Although general text would also be helpful for Least Concern taxa, this is not required.</p> <p>See sections 2.2 and 3.</p>
16. Additional supporting information as detailed in section 2.6 of the <i>Documentation Standards and Consistency Checks for IUCN Red List Assessments and Species Accounts</i>	If the RAMAS® Red List software is used for the assessment	<ul style="list-style-type: none"> To justify the Red List Category and Criteria used 	See section 2.6 .

Table 3: Recommended Supporting Information. While the list of recommended supporting information is desirable, and strongly encouraged for all assessments for taxa prioritized in the IUCN Red List Strategic Plan 2012-2020 and IUCN Species Strategic Plan 2013-2016, it is not essential for other assessments being submitted to the IUCN Red List. Assessments that do not include any of the information listed below are still acceptable for submission to the IUCN Red List.

Recommended Supporting Information	Specific Condition	Purpose	Guidance Notes
1. GIS distribution map using IUCN's <i>Standard Polygon</i> and/or <i>Point Attributes</i>		<ul style="list-style-type: none"> Facilitates spatial analyses Allows visualisation on the Red List website (and possible spatial queries) 	Although provision of spatial distribution data is required in any form (see #8 in Table 1), a GIS map is recommended if possible. See section 2.7 .
2. Qualifiers (estimated, suspected, etc.) for direction of current population trend		<ul style="list-style-type: none"> Useful for documenting uncertainty over the population trend code selected 	
3. Occurrence in specified sub-country units for large countries and islands far from mainland countries		<ul style="list-style-type: none"> Useful for searching by sub-country units on the Red List website 	If a GIS map has been prepared, a list can be pre-populated by GIS overlay. See section 2.4.7 .
4. Occurrence in terrestrial and freshwater biogeographic realms	For terrestrial and freshwater taxa	<ul style="list-style-type: none"> Useful for searching on the Red List website, and for analyses 	A GIS tool will be developed to facilitate automatic coding of this from distribution maps. Note that currently there is no widely accepted equivalent system for the marine realm. See section 2.3.1 .
5. Elevation or depth limits		<ul style="list-style-type: none"> Useful for supporting Assessments, describing the distribution, and particularly for considering impacts of climate change 	See section 2.3.1 .
6. Coding of Stresses and Timing for Threats		<ul style="list-style-type: none"> Useful for demonstrating the means by which threats impact taxa, and for distinguishing past, present and future threats 	These are added to each threat after the relevant threats have been selected. Timing, Scope and Severity are drop-down lists where only one option can be selected, whereas for Stresses multiple options can be selected. See sections 2.4.2 and 2.4.3 .
7. Narrative text about the important conservation measures in place and needed.	For taxa listed as Extinct in the Wild, Critically Endangered, Vulnerable, Near Threatened, and where appropriate, Data Deficient	<ul style="list-style-type: none"> Useful to support and provide explanation and context for coding of conservation actions 	See section 2.2.7 .

Recommended Supporting Information	Specific Condition	Purpose	Guidance Notes
8. Coding of important conservation actions in place and needed	For taxa listed as Extinct in the Wild, Critically Endangered, Endangered, Vulnerable, Near Threatened, and where appropriate, Data Deficient.	<ul style="list-style-type: none"> Useful for providing a high-level indication of the most important actions in place and likely to be required, both for individual species and in multi-species analyses 	<p>These codes complement rather than pre-empting or replacing more detailed Action Planning or Systematic Conservation Planning. Coding up conservation actions is not Required for Data Deficient taxa, but if possible these taxa should be coded where appropriate.</p> <p>See section 2.4.4.</p>
9. Narrative text on the utilization of the taxon	For utilized taxa	<ul style="list-style-type: none"> Useful to support and provide explanation and context for coding of utilization 	See section 2.2.5 .
10. Coding of the end use (purpose) and scale of utilization of the taxon	For utilized taxa	<ul style="list-style-type: none"> Useful for providing a high-level indication of the most important ways in which species are utilized, both for individual species and in multi-species analyses 	See section 2.4.6 .

2. Supporting Information for IUCN Red List Assessments stored in SIS

All assessments entering the IUCN Red List must include supporting information. This section provides guidance on what to record in the species account text and data fields within SIS for required and recommended supporting information (see [section 1](#) for the full lists of required and recommended supporting information). For guidance on writing styles, formats, etc. please refer to [section 3](#) and [section 4](#) this document.

Box 1. An important note about copying and pasting text from Microsoft Word and PDF documents

Before entering any text into an assessment account in SIS, it is important to know that certain Microsoft programmes contain hidden non-standard HTML codes that can seriously affect how text is displayed on the internet. This can also severely increase the file size on the web page and affect the site's functionality. For example, you may copy the following text from an MS Word document:

...landing statistics are generally unavailable as all species of batoids are recorded as "unidentified rays and skates".

and paste this into SIS, where it looks correct. However, once transferred to the Red List website, this text may be displayed as:

...landing statistics are generally unavailable as all species of batoids are recorded as ?unidentified rays and skates?.

This highlights the importance of avoiding copying and pasting directly from MS Word or PDF documents wherever possible. If text must be copied from external sources into SIS, we recommend that you first save the text as a text (.txt) file—you can use Notepad for this. This will remove all format tags and styles (i.e., it removes all hidden codes), then the text can safely be copied from the .txt file into SIS and reformatted within the system, if necessary.

2.1. Taxonomy

Taxonomic information is required supporting information. Higher taxonomy, scientific name, and taxonomic authority are required for all Red List assessments ([Table 1](#)), and major synonyms are required for taxa with commonly used alternative names and taxa that have been treated under different names in past IUCN Red Lists ([Table 2](#)).

For taxonomy in SIS, Assessors are only permitted to edit synonyms. Adding new taxonomy to the system or editing existing taxonomy is managed by the IUCN Red List Unit. If new taxonomy needs to be added to SIS, the following information needs to be provided to the Red List Unit:

- Kingdom, phylum, class, order, family, genus and species (also subspecies, if this is the level being assessed) following the appropriate standard taxonomic references ([section 4](#)). Note that the IUCN Red List does not record taxonomy to the level of suborders, subfamilies and subgenera.
- Taxonomic authority, in the appropriate format ([section 4.3](#)).
- Taxonomic source. This is the reference for the taxonomic concept being followed. For example, *Amphibian Species of the World* is the taxonomic source for amphibians (e.g., Frost 2013). Where there is a deviation from a standard checklist, it is particularly important to record the taxonomic source used. Where there is no standard checklist available, the

taxonomic source may be the published reference for the taxon's original description, or (if the taxon has been revised since its description) reference to the publication where the taxonomic concept was most recently revised.

All taxa assessed for the IUCN Red List must be validly published in accordance with the appropriate international nomenclatural codes and should be currently accepted names. Standard taxonomic checklists should be used wherever possible for scientific names. The standard lists adopted by IUCN are periodically reviewed and listed on the IUCN Red List website (<http://www.iucnredlist.org/technical-documents/information-sources-and-quality#standards>). For many groups, no standards are available, or there may be a valid reason for adopting another treatment. In such cases, the taxonomic treatment should be clearly indicated and, if this is not one of the standards followed by IUCN the reference must be cited in full and a reason for the deviation given.

For animals, the taxonomic authority should include the year of publication; plant names do not include the publication year. Abbreviations used for plant author names should follow Brummit and Powel (1992) and subsequent updates on the International Plant Names Index website (<http://www.ipni.org/index.html>).

Box 2. Red List assessments and changing taxonomic concepts

When a species is being reassessed for the IUCN Red List, it is extremely important to consider what taxonomic concept was used for the previous assessment (i.e., have there been any taxonomic revisions resulting in the species being split into several species with smaller ranges and population sizes, or being merged with other species to form a new concept with a much larger range and population size?)

If the taxonomic concept has changed since the previous assessment, but the old species name has been retained, then the previous Red List assessment will not be comparable to a new assessment.

See [section 4.5](#) for guidance on this issue.

Once the taxonomy has been entered into SIS, major synonyms (if any) must also be recorded. This includes synonyms arising through recent taxonomic changes. More detailed guidance about taxonomy and nomenclature is given in [section 4](#).

Subpopulation Names

For subpopulation level assessments, an appropriate subpopulation name is required ([Table 2](#)). Subpopulation names usually refer to the name of the geographic area, sea or river where the subpopulation occurs. The word "subpopulation" is also included. For example:

Carcharhinus amboinensis Southwest Indian Ocean subpopulation

Neamblysomus julianae Bronberg Ridge subpopulation

Subpopulations can only be edited or added to SIS by the IUCN Red List Unit.

Common Names

Within SIS, in the *General Information* section for the taxon, fields are available to record common names in most languages. Prior to September 2012, known common names (in English, French and

Spanish), were required with a Red List assessment. While common names are very useful, particularly for communication purposes, this information is now discretionary (optional) and can be recorded if the Assessor wishes to do so, or if a specific project requests that this information be recorded. Please refer to [section 3.3](#) for guidance on preferred formatting for common names for a Red List assessment.

2.2. Summary Information Text

For Red List assessments, narrative text about geographic range, population, habitat and ecology, and threats is required supporting information for all taxa except those that are Least Concern ([Table 2](#)). While this information is also useful for Least Concern taxa, it is not essential; Assessors (or assessment Project Managers) can decide for themselves whether or not to record this for Least Concern species.

Taxonomic notes are also required for taxa that were previously assessed under a different scientific name, or until recently were treated as a different taxonomic concept ([box 2](#) and [section 4.5](#)), and taxa with taxonomic uncertainties or widespread ambiguities ([Table 2](#)).

General text about important conservation actions is recommended supporting information for all taxa except those listed as Least Concern ([Table 3](#)). Similarly, general text on use and trade of all taxa that are utilized is recommended, but is not strictly required for the assessment ([Table 3](#)).

Assessors may decide to also include data for parameters triggering the Red List Criteria within the narrative text instead of (or in addition to) recording these in the data fields in SIS ([Table 1](#)). It is advisable to record actual estimated values (e.g., 1,500 km², or 100-240 km²) in the text instead of repeating the thresholds from the IUCN Red List Categories and Criteria; by doing this Assessors will clearly demonstrate that the taxon falls within certain criteria thresholds. This also helps Assessors for future reassessments to identify where parameter estimates have changed since the previous assessment.

The summary documentation text in each of the sections noted below should be succinct but informative, and should be based on the most recent information available for the taxon. Please try to avoid one-word answers; when read together (i.e., in the species account published on the Red List website) the different sections should merge to tell a story summarizing what the taxon is, its current Red List status, where it occurs, what threats are affecting it, and what actions are being done or need to be implemented to prevent it from moving closer to extinction. In each case, if there is no information available on the taxon at all, please state this and explain why this is the case.

Box 3. Important note about the Data Entry Module (DEM)

The Data Entry Module (DEM) is now obsolete and should no longer be used for compiling IUCN Red List assessments. The DEM is not fully compatible with the online SIS and if assessments are uploaded from the DEM into SIS, there will still be a lot of work required to manually translate DEM information into the appropriate codes used in SIS. Effectively, by using the DEM you will double the time it takes to complete a Red List assessment.

If you are still relying on the DEM to store and submit your assessments, please contact the IUCN Red List Unit to arrange for access to SIS to allow you to continue to assess taxa.

2.2.1 Taxonomic Notes

Taxonomic notes are required supporting information for taxa that have undergone recent taxonomic changes or where there are any taxonomic doubts or debates about the validity or

identity of the taxon ([Table 2](#)). In SIS, these notes are recorded in the *Taxonomic Notes* field (in the *General Information* section for the taxon). This section **should not** be used to simply copy and paste collection label notes into. See the [Box 2](#), and [section 4.5](#) for more information on taxonomic changes.

Example:

	Preferred style	Try to avoid
Taxonomic Notes:	<i>Alethe diademata</i> (following Dowsett and Forbes-Watson 1993) previously included populations from Upper Guinea and Lower Guinea. However, only individuals from Upper Guinea are now recognized as <i>A. diademata</i> , while the Lower Guinea population is accepted as the separate species, <i>A. castanea</i> .	Not the same taxonomic concept used for previous assessments.

Adding Taxonomic Notes to SIS

In SIS, the *Taxonomic Notes* field is attached to the **Taxonomic information** instead of to the assessment itself. This allows Assessors to edit taxonomic notes at any time (e.g., if taxonomic revisions are underway, but a reassessment is not yet underway). However, these notes are only displayed on the IUCN Red List website when a new assessment (or reassessment) is published. If an Assessor wishes updated taxonomic notes to be attached to a currently published assessment, it is important that they contact the Red List Unit to arrange for this to happen.

For any references cited in the taxonomic notes, these should be directly attached to the *Taxonomic Notes* field, and **not** to the Taxonomic Sources section or directly to the assessment (unless these references are also cited within the reference itself).

2.2.2. Geographic Range

A summary of currently available information on geographic range is required supporting information for all taxa that are not assessed as Least Concern ([Table 2](#)). For taxa that are particularly sensitive to collecting or hunting, it is prudent to avoid providing information that allows people to see exactly where the species can be found, but a less precise summary should be provided.

For taxa listed under criteria B, all distribution data and qualifiers related to the thresholds met must be recorded ([Table 1](#)). These may be recorded in the separate data fields in SIS ([section 2.3.2](#)), or they may be included within the *Geographic Range Information* text field. If the information is being recorded within the text field, ensure that the text clearly indicates all of the relevant subcriteria parameters, and all qualifiers (observed, estimated, inferred, projected, or suspected) used to justify the assessment.

For instance, if criteria B1ab(i,ii,iii)+2ab(i,ii,iii) are used in the assessment and the data are being captured within the text, ensure that all of the following is included in the geographic range text field:

- 1) Estimated extent of occurrence (EOO) in km², with an indication of how this was estimated.
- 2) Estimated area of occupancy (AOO) in km², with an indication of how this was estimated.
- 3) Estimated number of locations (if number of locations is the basis of using criteria B1a+2a) with reference to major threats and how these affect the taxon to justify this estimate.
- 3) Justification of why the taxon is severely fragmented (if severe fragmentation is the basis of using criteria B1a+2a).

- 4) Justification for stating that there is continuing decline in EOO, AOO, and area, extent and/or quality of habitat (including indication of the appropriate qualifiers used: observed, estimated, projected, or inferred).

Examples:

	Preferred style	Try to avoid
Distribution: (where specific data and qualifiers are recorded in separate data fields in SIS)	This species is known only from the Serra (or Maciço) de Baturité, in the State of Ceará, in northeastern Brazil.	Brazil.
Distribution: (where specific data and parameters are included in the narrative text)	This species is known only from the Serra (or Maciço) de Baturité, in the State of Ceará, in northeastern Brazil. The species' extent of occurrence (EOO) is estimated at 2,500 km ² (based on total area within a minimum convex polygon around all known occurrences), but the area occupied within this EOO is estimated at 550 km ² (based on a 2x2 km ² grid overlay on the range map; see Smith <i>et al.</i> 2011). There are four areas within the range where concentrations of this species tend to occur (see figure 3 in Smith <i>et al.</i> 2011). The main threat (habitat loss) appears to affect each of these areas relatively independently; therefore the species is estimated to occur in only four locations.	Brazil. EOO <5,000 km ² . AOO <500 km ² . 4 locations.

2.2.3. Population

A summary of the currently available population information is required supporting information for all taxa that are not assessed as Least Concern ([Table 2](#)). In SIS, this is recorded in the *Population Information* text field. The summary should include currently available information on the global population size and trends. Information about the population structure (e.g., number, sizes, and trends of subpopulations, and trends in particular regions within the taxon's range) is also useful, particularly if criterion C2 is used for the assessment. .

If there is no quantitative information on population sizes or trends, it is helpful to record whether the species is common, abundant, rare, etc. If there really is no information at all about the population, please note this and indicate why this is case (e.g., no surveys have been carried out because the area isn't safe to work in, no research has been undertaken for the species, etc.).

For taxa listed under criteria A or C, all population data and qualifiers related to the thresholds met must be recorded ([Table 1](#)). These may be recorded in the separate data fields in SIS ([section 2.3.2](#)), or they may be included within the *Population Information* text field. If these are recorded within the text field, ensure that the text clearly indicates all of the relevant subcriteria parameters, and all qualifiers used to justify the assessment.

For instance, if criteria A2ac; C2a(i) are used in the assessment and the data are being captured within the text, ensure that all of the following information is included:

- 1) Rate of population reduction over the past ten years or three generations (note that for criteria A and C1, generation length must also be recorded – [Table 2](#) and [section 2.3.2](#)).
- 2) Qualifier for the stated reduction (i.e., observed, estimated, inferred or suspected reduction)

- 3) Information supporting the use of direct observation and decline in AOO, EOO and/or quality of habitat as the basis for the reduction.
- 4) Estimated current population size, with an indication of how this was estimated.
- 5) Justification for continuing decline in population size, and the qualifier for this (i.e., is continuing decline observed, estimated, projected, or inferred?)
- 6) Estimated size of the largest subpopulation.

Examples:

	Preferred style	Try to avoid
<i>(where specific data and qualifiers are recorded in separate data fields in SIS)</i>	<p>Population: Until 2002, this frog was very common within its small range; often it was found at numerous localities. Between 2002 and 2011 the same sites were surveyed 34 times; not a single individual was found until in July 2012, when three individuals were recorded. It is suspected that the population is genuinely declining, but more research is needed to investigate the possibility of natural population fluctuations occurring.</p>	Rare.
<i>(where specific data and parameters are included only in the narrative text)</i>	<p>Population: Until 2002, this frog was very common within its small range; often it was found at numerous localities. Between 2002 and 2011 the same sites were surveyed 34 times; not a single individual was found until in July 2012, when three individuals were recorded. More research is needed to investigate the possibility of natural population fluctuations occurring for this species, but based on existing information is suspected that the population has genuinely declined by at least 90% over the last ten years. If this species still remains in the wild, it is likely that the population is still declining. Based on current evidence, the population size is suspected to be less than 50; the species may even already be extinct.</p>	This is a rare species. The population has declined by >90% since 2002.

2.2.4. Habitats and Ecology

A summary of the taxon's suitable habitats and ecological requirements is required supporting information for all taxa that are not assessed as Least Concern ([Table 2](#)). In SIS, this is recorded in the *Habitats & ecology information* field. This summary should include information on the essential habitats and ecological conditions required by the taxon. This does not need to be extensive; for example, it is not necessary to know the details of all behavioural traits, etc. unless these are relevant to the taxon's risk of extinction (e.g., it has a particular life cycle, growth pattern or behaviour that makes it susceptible to specific threats).

Example:

	Preferred style	Try to avoid
Habitats & Ecology:	Most specimens have been found in reasonably well-preserved closed forests in dry or moist leaf-litter on the ground, in bromeliads, and in stream margins. However, the species can also survive in shaded coffee plantations. It is a diurnal species that breeds by direct development, and it is likely that the eggs are deposited in wet spots on the ground.	Forest streams.

2.2.5. Use and Trade

Prior to September 2012, Assessors were required to record text for use and trade of the taxon. This is no longer strictly required for assessments to be published on the IUCN Red List. However, this is very useful information therefore it is recommended that this be recorded for those taxa that are utilized ([Table 3](#)), including taxa that are legally or illegally hunted or collected.

In SIS, this information is recorded in the *General notes regarding trade and use of the species* text field. This text should summarize the information currently available for any utilization and/or trade of the taxon (including legal and illegal hunting and collection, and for local, national and international trade).

Example:

	Preferred style	Try to avoid
Use & Trade:	Although this species is legally protected in all of its range countries, illegal collection continues in many parts of its range. Hunters particularly target young individuals for the international pet trade.	Illegal collection.

2.2.6. Threats

A summary of the main threats currently affecting or likely to affect the taxon is required supporting information for all taxa that are not assessed as Least Concern ([Table 2](#)). In SIS, this is recorded in the *Threats Information* text field. Try to indicate whether these threats are historic, current (and whether they are likely to continue into the future), or if these are threats that are highly likely to occur in the near future (include a justification of why this is the case).

Often this text is used to inform the codes recorded in the Threats and Stresses Classification Schemes; therefore it is helpful to document as much detail about the threats as possible, including the main causes of the threat, the scale of the threat (is it affecting the entire global population or does it occur in only specific parts of the taxon's range), and the stress each threat places on the species. For example, if deforestation is the main threat affecting the species, explain what is driving the deforestation (e.g., large scale hardwood timber extraction for national and international trade, ongoing forest clearance for expansion of coffee plantations, etc.) and how this is affecting the species being assessed (e.g., removal of mature individuals and seeds from the wild population, removing suitable habitat, altering the habitat to the extent that suitable breeding sites are becoming increasingly scarce, etc.)

Example:

	Preferred style	Try to avoid
Threats:	The major threat affecting this species is extensive habitat loss across its range caused by logging, mainly for the timber trade, and to convert forest areas to agricultural land (large-scale plantations) and, urban expansion and tourist area development. The region’s very good soils and favourable climate encourages agricultural expansion; the species cannot survive in the banana plantations that are rapidly taking over the area.	Forest loss.

2.2.7. Conservation Actions

Prior to September 2012, Assessors were required to include a summary of conservation and actions in place and needed for the taxon. This is no longer strictly required for assessments to be published on the IUCN Red List, but it is recommended that this be recorded wherever possible for extant, taxa that are not assessed as Least Concern ([Table 3](#)).

In SIS, this text is recorded in the *Conservation Actions Information* field. The text should include conservation actions currently in place, and realistically achievable actions needed to mitigate the current causes of declines (if any). Research actions (in place and needed) can also be recorded in this section.

Example:

	Preferred style	Try to avoid
Conservation:	The species is not known from any protected areas, but clearly there is a need for improved habitat protection at sites where it is known to occur. Further survey work is required to determine whether or not this species is experiencing a genuine decline, or is undergoing natural population fluctuations.	None in place.

2.2.8. Assessment Rationale

All assessments published on the IUCN Red List require a rationale—sometimes also referred to as the “justification” ([Table 1](#)). The rationale justifies the IUCN Red List Category and Criteria selected for the taxon.

In SIS, this is recorded in the *Rationale for the Red List Assessment* field. The rationale should not simply quote the Red List Criteria thresholds that are met (the criteria code already indicates these); instead it should use the key issues highlighted in the other documentation sections to summarize the reasons why the taxon qualifies for the assigned category. Include in the rationale any inferences or uncertainty that relate to the interpretation of the available data and information in relation to the criteria and their thresholds.

When including estimates for data related to the IUCN Red List thresholds within the rationale (e.g., extent of occurrence (EOO), area of occupancy (AOO), number of locations, population size, etc.) try to use the actual estimates instead of just stating the thresholds from the criteria. For

example, use “estimated extent of occurrence (EOO) is 15,000 km²” rather than “EOO <20,000 km²”.

Example:

	Preferred style	Try to avoid
Assessment rationale:	This is a range-restricted species, known from 6-8 locations in the Maciço de Baturité, northeastern Brazil. Its extent of occurrence (EOO) is around 2,500 km ² , and area of occupancy (AOO) is 550 km ² . Its forest habitat is declining due to logging and rapid expansion of agriculture and human settlements. These threats are likely to continue as the area is favourable for agriculture and there is no current protection for this frog’s habitat. The species is listed as Vulnerable.	Vulnerable because EOO <20,000 km ² , AOO <2,000 km ² , occurs in <10 locations, and habitat is declining.

2.3. Data fields

Along with text fields to record narrative text to support the Red List assessment, SIS has a wide range of data fields. Some of these must be completed before an assessment can be published on the IUCN Red List (i.e., they are required supporting information; [Table 1](#) and [Table 2](#)); some are not required but are recommended supporting information ([Table 3](#)); and others are available in SIS to be completed if Assessors or assessment Project Managers want this information recorded in the assessment (i.e., they are discretionary (optional) fields).

2.3.1. Data fields for additional information

The following fields in SIS are used to record additional information that allows the Red List website to function properly or allows data to be analysed and used for communication purposes.

a) Current Population Trend

Current population trend is required supporting information for all IUCN Red List assessments ([Table 1](#)). The options for this are: Increasing, Decreasing, Stable, Unknown. It is also recommended that the qualifier be recorded for this information (observed, estimated, inferred, suspected) ([Table 3](#)).

“Current” population trend refers to trends over a period of *ca.* three years around the present. The population narrative text should include clear justification for the current population trend recorded in this field. If quantitative data are available, analysis of these data needs to be interpreted carefully, taking account of uncertainty and variability in the dataset over the short time frame.

Although current population trend is not strictly necessary to support the Red List assessment, this is valuable information for analyses of overall patterns of trends, for communication purposes.

b) System

Coding for occurrence of the taxon in freshwater (i.e., inland waters), terrestrial, and marine ecosystems is required for all Red List assessments ([Table 1](#)). In SIS, this is recorded in the *System* section, where all three options are available with a checkbox alongside.

For taxa occurring in brackish inland waters, select “Freshwater (inland waters)”.

For estuarine taxa, the system recorded will depend on where in the estuary the taxon occurs. If it occurs high up in the estuary (i.e., not at or near the coast), select “Freshwater (inland waters)”. If it occurs at the mouth of the estuary only, select “Marine”. If it occurs widely throughout the estuary, or if this information is not known, select both “Freshwater (inland waters)” and “Marine”.

Note that more detailed habitat description and coding can be recorded in the narrative text and in the Habitats Classification Scheme.

This information is valuable for analyses, communications purposes, presenting Red List data to various policy fora, calculating the Red List Index, and for searching on the Red List website.

c) Plant Growth Form

For all plant assessments, the plant growth form (e.g., annual, cycad, epiphyte, fern, shrub, tree, etc.) is required information ([Table 2](#)).

This information is required to facilitate searches on the Red List website (e.g., for all threatened trees), and to allow analyses of this information. Definitions for the terms used for Plant Growth Forms can be found in the Classification Schemes page on the IUCN Red List website (<http://www.iucnredlist.org/technical-documents/classification-schemes>).

d) Biogeographic Realms

Recording the Biogeographic Realms in which the taxon occurs ([figure 1](#)) is not required for the Red List assessment, but it is recommended supporting information for terrestrial and freshwater taxa ([Table 3](#)). In SIS, these are recorded in the *Biogeographic Realm* section (a series of tick boxes). For marine taxa, currently there is no widely accepted equivalent of biogeographic realms.

A GIS tool will be developed to facilitate automatic coding of this from distribution maps.

Recording biogeographic realms is useful for searching on the IUCN Red List website, and for analysing these data.

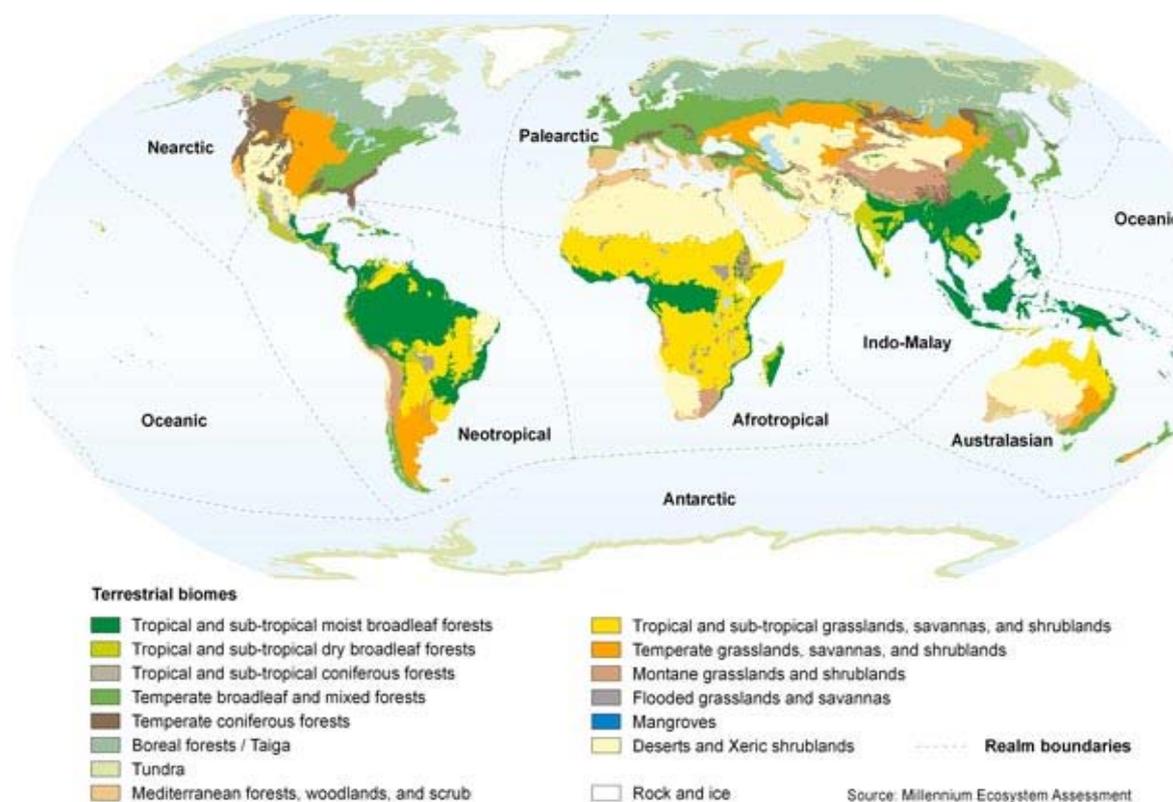


Figure 1. The biogeographical realms (large spatial regions within which ecosystems share a broadly similar evolutionary history). Although the biomes shown in this figure do not completely match the Habitat Classification Scheme used for the Red List, there are some broad similarities, so they can be used as a rough guide.

e) Elevation or Depth Limits

Recording elevation or depth limits is not required, but is recommended supporting information (Table 3) because this is very useful for supporting assessments, describing the distribution, and in particular, for considering the impacts of climate change on the species. In SIS, the elevation and depth limits fields can be found in the *Distribution* section.

SIS also includes data fields to record *Depth Zones* for aquatic species (shallow photic (0-50 m), deep photic (51-200 m), Bathyl (201-4,000 m), etc.). These are discretionary (optional) fields, which SIS users can use if they wish (e.g., to be able to analyse the status of marine species occurring in these zones).

2.3.2 Data fields for the Red List Criteria calculator in SIS

SIS includes an expert system (the Red List Criteria calculator) which compares data fields holding parameters related to the IUCN Red List Criteria against the criteria thresholds and automatically assigns a Red List assessment for that taxon. Assessors should keep in mind that if they wish to use the Red List Criteria calculator in SIS, then the data must be entered into the appropriate fields.

Recording all parameters and qualifiers that support the assessment (i.e., parameters for all criteria and sub-criteria met at the highest Red List Category) is required supporting information (Table 1). This may be recorded in the data fields in SIS for the Red List Criteria calculator, or they may be included within the narrative text.

The Red List Criteria calculator data fields are attached to each of the various documentation sections. For example, the *Distribution* section includes fields for recording area of occupancy

(AOO), extent of occurrence (EOO), number of locations, etc., all of which are used to determine whether the criterion B thresholds are met.

SIS also includes a **Criteria Factor View**, which displays all of the data fields used by the Red List Criteria calculator; often it is easier to use that view to ensure all of the appropriate data fields have been completed for the calculator to work properly.

In each case, the measurement units are displayed alongside the data field; SIS will not allow units, or any other text or punctuation (e.g., commas, full stops) to be entered into the data fields. In many cases, you will not have a single figure for a particular parameter, but will know that true figure is within a specific range or is greater than or less than a specific figure. You can still enter this information into SIS.

For example:

Data to be entered	Format to use in SIS
500 km ²	500
10,000	10000
< 2,000	0-2000 or 1-2000
> 10,000	10000-1000000
Somewhere between 3 and 9	3-9
Between 500 and 10,000, but best estimate is 650	500-10000, 650
Certainly between 200 and 5,000, but most likely somewhere between 1,000 and 3,000	200-5000, 1000-3000

2.4. Classification Schemes

All of the currently adopted Classification Schemes are included in SIS. The current Classification Schemes are listed below.

2.4.1. Habitats Classification Scheme (*Habitats and Ecology* section in SIS).

Coding for **suitable habitats** is required supporting information for all Red List assessments ([Table 1](#)). To speed up the process of entering habitat codes for a taxon, SIS automatically records suitability = suitable as default when a habitat code is selected. Assessors should record this to the lowest level in the Habitats Classification Scheme and should also record whether the habitat is important to the taxon or not (e.g., can the taxon survive in alternative habitats if that one is lost).

Note that recording marginal and possible habitats is discretionary (optional). If Assessors choose to record these habitats, they must also change the degree of suitability for each of these habitats from the default setting of “suitable” (to “marginal” or “possible”).

Examples and guidance for using the Habitats Classification Scheme are available on the IUCN Red List website (<http://www.iucnredlist.org/technical-documents/classification-schemes>).

2.4.2. Threats Classification Scheme (*Threats* section in SIS).

Coding for **major threats** is required supporting information for all taxa except those assessed as Data Deficient or Least Concern ([Table 2](#)). Assessors should record this to the lowest level in the Threats Classification Scheme.

Coding of timing (and stresses (see point c. below) for each major threat is not strictly required, but is recommended supporting information (Table 3). Coding of scope and severity of the threat is discretionary (optional).

Note that only major threats are required. If Assessors decide to also record minor threats (e.g., threats affecting only a very small proportion of the global population), then it is essential that both scope and severity be recorded for all threat codes recorded. This will allow major and minor threats to be clearly identified within the codes selected for the taxon.

Examples and guidance for using the Threats Classification Scheme are available on the IUCN Red List website (<http://www.iucnredlist.org/technical-documents/classification-schemes>).

2.4.3. Stresses Classification Scheme (*Threats* section in SIS – attached to each threat code selected in the Threats Classification Scheme)

Although recording **stresses** for each threat selected from the Threats Classification Scheme is not required, this is recommended supporting information (Table 3). This information is very useful for demonstrating the means by which the threats are impacting taxa.

In SIS, the Stresses Classification Scheme can be accessed via each threat code selected from the Threats Classification Scheme. Multiple stresses may be selected for each threat code.

Examples and guidance for using the Stresses Classification Scheme are available on the IUCN Red List website (<http://www.iucnredlist.org/technical-documents/classification-schemes>).

2.4.4. Conservation Actions Classification Schemes (*Conservation Actions In Place* and *Conservation Actions Needed* sections in SIS).

Coding of important conservation actions in place and needed is not required, but is recommended supporting information for all taxa that are not assessed as Extinct or Least Concern (Table 3); for Data Deficient taxa, it is recommended that conservation actions are coded where appropriate.

These codes provide a high-level indication of conservation actions currently in place and recommended actions to implement in order to prevent the taxon moving nearer to extinction.

Conservation Actions In Place

In SIS, conservation actions in place are recorded through a series of standard questions: Is there an action recovery plan in place for the taxon? Does it occur in at least one protected area? Is it included in international legislation? etc.)

Conservation Actions Needed

The purpose of recording conservation actions needed is to complement more detailed Action Planning or Systematic Conservation Planning that may be in place or being developed. These codes are not intended to pre-empt or replace detailed Action Plans.

When selecting conservation actions needed, Assessors are advised to treat these as a set of realistic key actions that can be achieved within the next five years, rather than as a wish list of everything that could be potentially help the taxon.

Examples and guidance for using the Conservation Actions Classification Schemes are available on the IUCN Red List website (<http://www.iucnredlist.org/technical-documents/classification-schemes>).

2.4.5. Research Actions Classification Scheme (*Research Actions Needed* section in SIS)

Prior to September 2012, Assessors were required to record research actions needed for the taxon. This is now discretionary (optional) supporting information.

Examples and guidance for using the Research Actions Classification Scheme are available on the IUCN Red List website (<http://www.iucnredlist.org/technical-documents/classification-schemes>).

2.4.6. Use and Trade Classification Scheme (*Use and Trade* section in SIS).

Coding of the end use (purpose) and scale of utilization of the taxon is not required, but is recommended supporting information for all taxa that are utilized ([Table 3](#)).

The main purpose of recording use and trade information is to allow these data to be analysed: this information is useful for informing international, regional and national trade regulations (e.g., CITES).

In addition to the use and trade text field ([section 2.2.5](#)), SIS includes a Use and Trade Classification Scheme that allows you to code utilized taxa for:

- Purpose of any use (e.g., for food, medicine, pet trade, research, etc.).
- Source of harvested individuals (e.g., from wild or captive populations).
- Form removed (e.g., whole individuals or parts of individuals: eggs, seeds, fruit, etc.)
- Level of trade (subnational, national or international)
- Harvest level (in terms of volume, weight or number of individuals)
- Whether harvesting for this use is a possible threat to the species.

The use and trade section is under revision in SIS; this section of the Guidelines will be updated when the revised format is released.

2.4.7. Countries of Occurrence Classification Scheme (*Countries of Occurrence* section in SIS).

Country occurrence coding (including presence and origin) for countries where the taxon is native or has been reintroduced is required supporting information for all Red List assessments ([Table 1](#)).

To help speed up the process of adding these to species accounts, SIS automatically records presence = Extant and origin = Native for each country added. While this saves time for data entry, it is important to check the final country list and to modify any presence and origin codes if necessary (e.g., for countries where the species is now extinct or where the species has been reintroduced).

A tool will be developed to automatically populate country occurrence codes in SIS from GIS maps. This will be particularly useful for coding country occurrence for very widespread, Least Concern taxa.

Coding of occurrence in countries where the taxon is vagrant or introduced is not strictly required; SIS provides Assessors with the opportunity to record these countries if they wish.

Sub-country Occurrence

Prior to September 2012, it was required that sub-country units be recorded at least for threatened species. This is no longer strictly required for Red List assessments, however, it is recommended supporting information ([Table 3](#)).

Sub-country occurrence is useful information for searching the website and analysing significant sub-country data (e.g., to analyse data for threatened species occurring in Hawaii). It is therefore recommended that sub-country units for large countries and islands far from mainland countries be recorded if possible.

SIS also includes Classification Schemes for recording **FAO Area Occurrence**, **Large Marine Ecosystem (LME) Occurrence**, **Ecosystem Services**, and **Livelihoods**. All of these are discretionary (optional) supporting information, with fields available in SIS for Assessors to use if they wish.

2.5. Assessment Information

The following information must be recorded in the *Red List Assessment* section in SIS.

2.5.1. Red List Category and Criteria (*Red List Status* section in SIS)

SIS has an expert system (Red List Criteria calculator –[section 2.3.2](#)) which calculates the appropriate Red List status based on information recorded in the data fields. However, Assessors can also enter the assessment manually. Whichever method is used, Assessors must ensure that the appropriate Red List Category, Criteria, and sub-criteria met at the highest category of threat are recorded ([Table 1](#)).

Application of the categories and criteria must be in accordance with the *IUCN Red List Categories and Criteria. Version 3.1* and the current version of the *Guidelines for Using the IUCN Red List Categories and Criteria*. Both documents are available on the IUCN Red List website (<http://www.iucnredlist.org/technical-documents/categories-and-criteria>).

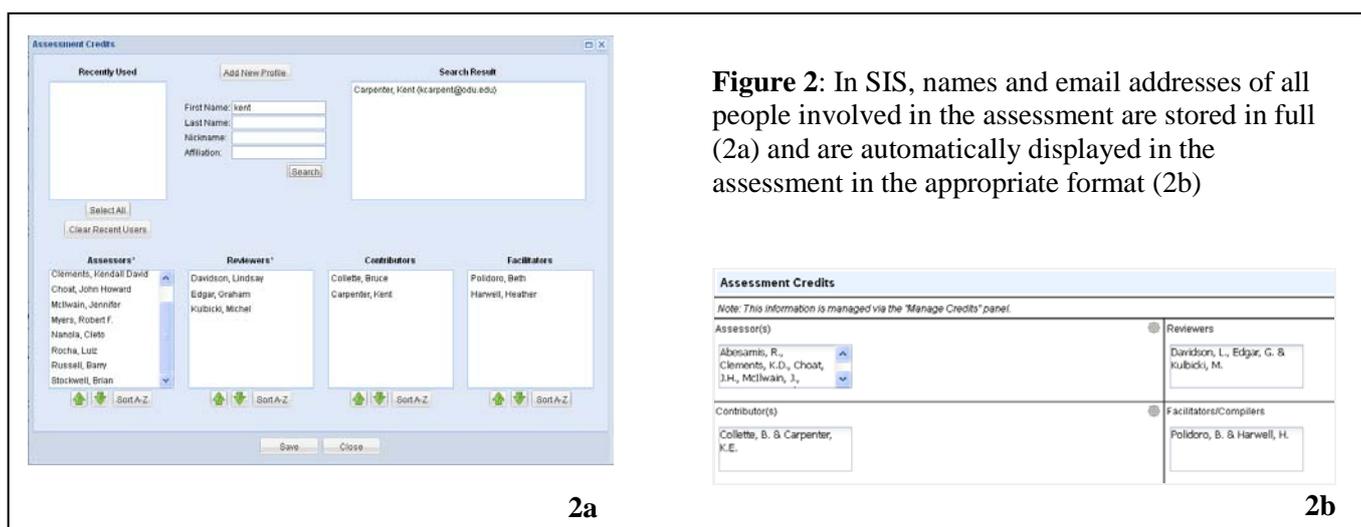
2.5.2. Assessment Date (*Assessment Information* section in SIS)

The assessment date is the final date when all Assessors involved in the assessment agree on the appropriate Red List status for the taxon. This date field should not be completed until all Assessors have approved of the final assessment.

For all dates in SIS, the format **yyyy-mm-dd** is used as standard. There is also a calendar attached to each date field, which can be used to select the appropriate date.

2.5.3. Assessors, Reviewers, Contributors, Facilitators and Compilers (*Assessment Information* section in SIS)

In SIS, the full names and email addresses of Assessors, Reviewers, Contributors, and Facilitators/Compilers are stored and this information used to generate names in the appropriate format for the IUCN Red List assessment. Contact details remain stored within SIS, while in the published assessment names are displayed with the surname first followed by initials (e.g., Freyhof, J. & Kottelat, M.)



Assessors

All IUCN Red List assessments require at least one Assessor ([Table 1](#)).

Assessors are species experts who also have good knowledge of the IUCN Red List Categories and Criteria. The Assessor's role in the assessment process is to use all appropriate data currently available for a taxon, and the IUCN Red List Categories and Criteria, to assess the taxon appropriately, and to ensure that the assessment has the appropriate supporting information.

In general, Assessors are named people, but sometimes organizations are responsible for producing assessments based on data contributed to them (e.g., BirdLife International, NatureServe).

When a taxon is being reassessed, in SIS all of the data from the previous published assessment can be copied to a new assessment to be edited. The names of all Assessors involved in the previous assessment are also carried across to the new assessment and can either be retained as Assessors (with new Assessor names added, if appropriate); or, if the assessment is being modified substantially, the previous Assessors can be moved the **Contributors** field to acknowledge their contribution information used in the reassessment.

See [Box 4](#) below for a summary of the relationship of Assessors with the other roles for an assessment.

For further guidance on the IUCN Red List assessment process and the role of Assessors, see the *Rules of Procedure: IUCN Red List assessment process 2013-2016* (https://cmsdata.iucn.org/downloads/rules_of_procedure_for_red_list_2013_2016_final.pdf).

Reviewers

All IUCN Red List assessments require at least one Reviewer ([Table 1](#)). For taxa assessed as threatened, commercially significant taxa, and assessments that may be contentious, it is encouraged that the assessment is reviewed by more than one Reviewer. Note that Assessors cannot also be Reviewers for taxa they have assessed; however it is acceptable for a Reviewer to have been Assessor for a previous published assessment for the same taxon.

Reviewers are people with good knowledge of the IUCN Red List Categories and Criteria. Ideally, Reviewers should also have good knowledge of the taxon being assessed, but sometimes (e.g., through lack of available species experts) this is not possible. The Reviewer's role is to read the information presented in the assessment and confirm whether the information has been interpreted appropriately and the IUCN Red List Criteria have been applied correctly.

See [Box 4](#) below for a summary of the relationship of Reviewers with the other roles for an assessment.

For further guidance on the IUCN Red List assessment process and the role of Assessors, see the *Rules of Procedure: IUCN Red List assessment process 2013-2016* (https://cmsdata.iucn.org/downloads/rules_of_procedure_for_red_list_2013_2016_final.pdf).

Contributors

For some taxa, species experts or owners of databases containing species data may provide information specifically for use in the species account, but they are not directly involved in the actual assessment itself. These people are ***Contributors***.

Reviewers may also have contributed information for the assessment, without being directly involved in the assessment itself. Therefore a Reviewer may also be named as a Contributor.

SIS provides a field to record Contributors' names. This information is discretionary (optional), but recording Contributor names in SIS allows these people to be acknowledged in the published assessment.

In SIS, when a taxon is being reassessed all data from the previous published assessment can be copied to a new assessment to be edited. All names recorded in the Contributors field in the previous assessment are also copied across to the Contributors field in new assessment.

See [Box 4](#) below for a summary of the relationship of Contributors with the other roles for an assessment.

Facilitators/Compilers

Taxa being assessed through a global assessment project often have IUCN staff, Red List Partner staff, consultants, or volunteers to reviewing published literature and entering relevant information into SIS in preparation the assessment. These are data ***Compilers***.

For large assessment projects, experts are often brought together for an assessment workshop where small groups of experts will discuss the compiled information for a list of taxa and carry out assessments. Each working group within an assessment workshop will have a ***Facilitator*** who is responsible for recording comments from the experts, helping to keep discussions relevant to the Red List assessment, and guiding the assessment process to ensure all taxa assigned to the group are assessed to the best quality possible in the time available during the workshop.

Compilers and Facilitators are also involved in tidying and checking assessments after the assessment workshop to ensure quality and consistency.

SIS provides a field to record Facilitators and Compilers. This information is discretionary (optional), but recording Facilitator and Compiler names in SIS allows these people to be acknowledged in the published assessment.

In SIS, when a taxon is being reassessed all data from the previous published assessment can be copied to a new assessment to be edited. All names recorded in the Facilitators/Compilers field in the previous assessment are also copied across to the new assessment.

See Box 4 for a summary of the relationship of Facilitators and Compilers with the other roles in an assessment.

Box 4. Relationship between Assessors, Contributors, Facilitators/Compilers and Reviewers

Y = Yes. The same person can perform both roles for the same assessment (e.g., an Assessor may also be a Compiler)

N = No. The same person cannot perform both roles for the same assessment (e.g., an Assessor cannot also be a Reviewer)

	<i>Assessor</i>	<i>Contributor</i>	<i>Facilitator/Compiler</i>	<i>Reviewer</i>
<i>Assessor</i>		N	Y (for Compiler only)	N
<i>Contributor</i>	N		Y	N
<i>Facilitator/Compiler</i>	Y (for Compiler only)	Y		Y (for Facilitator only)
<i>Reviewer</i>	N	N	Y (for Facilitator only)	

2.5.4. Review Process Information (*Assessment Information* section in SIS)

The review process fields should be completed by assessment Reviewers or Project Managers. When the review process has been completed, the *Reviewed* check box must be ticked and the date and outcome of the review (passed, rejected, returned for improvements) must be recorded. The date of review should be recorded as soon as all Reviewers involved agree on the outcome of the review process.

2.5.5. Rationale (*Assessment Rational* section in SIS)

A rationale is required information for all IUCN Red List assessments ([Table 1](#) and [section 2.2.8.](#))

2.5.6. Reasons for Change (*Reasons for Change* section in SIS)

For all taxa being reassessed, recording the ‘Reason for Change’ in Red List Category since the previous assessment is required supporting information ([Table 2](#)).

The ‘Reason for Change’ section should be completed for **ALL** reassessed taxa. The purpose of this section is to record whether the status has changed since the previous assessment (i.e., has it moved into a different category, or is there no change in category), and the main reason for any changes (i.e., is it a genuine or a non-genuine change).

For genuine category changes, Assessors must record whether the change happened since the previous assessment (a genuine “recent change”), or it happened before the previous assessment but after the taxon was first assessed (a genuine change “since first assessment”).

Red List Index

Red List Index (RLI) calculations use data for genuine status changes only. However, it is important that the reason for change noted in SIS is used in combination with back-casting to check whether any previously published assessments need to be adjusted for the RLI (i.e. genuine changes and data for current versus previous published assessments should not be used blindly).

More detailed guidance on back-casting assessments for RLI calculations will be developed.

2.6. RAMAS[®] Red List

If an assessment has been made using RAMAS[®] Red List, Assessors are required to supply the RAMAS datafile for the assessment ([Table 2](#)).

Red List assessments may be made using the software package RAMAS[®] Red List (version 2.0 or later; Akçakaya and Ferson 2001). This program assigns taxa to IUCN Red List Categories according to the rules of the *IUCN Red List Categories and Criteria. Version 3.1* and has the advantage of being able to explicitly handle uncertainty in the data. The software captures much (but not all) of the minimum supporting information required for IUCN Red List assessments, but in some cases the information will be reported differently. The following points should be noted:

- If RAMAS[®] Red List is used to obtain a listing, this should be stated.
- Uncertain values should be entered into the program as a best estimate and a plausible range, or as an interval (see the RAMAS[®] Red List manual or help files for further details).
- The settings for attitude towards risk and uncertainty (i.e. dispute tolerance, risk tolerance and burden of proof) are all pre-set at a mid-point. If any of these settings are changed this should be documented and fully justified, especially if a less precautionary position is adopted.
- Depending on the uncertainties, the resulting classification can be a single category and/or a range of plausible categories. In such instances, the following approach should be adopted (the program will usually indicate this automatically in the Results window):
 - If the range of plausible categories extends across two or more of the threatened categories (e.g. Critically Endangered to Vulnerable) and no preferred category is indicated, the precautionary approach is to take the highest category shown, i.e. CR in the above example. In such cases, the range of plausible categories should be documented under the rationale including a note that a precautionary approach was followed in order to distinguish it from the situation in the next point. The following notation has been suggested e.g. CR* (CR-VU).
 - If a range of plausible categories is given and a preferred category is indicated, the rationale should indicate the range of plausible categories met e.g. EN (CR-VU).
- The program specifies the criteria that contributed to the listing (see Status window). However, when data are uncertain, the listing criteria are approximate, and in some cases may not be determined at all. In such cases, the assessors should use the Text results to determine or verify the criteria and sub-criteria met. Listing criteria derived in this way must be clearly indicated in the rationale (refer to the RAMAS[®] Red List Help menu for further guidance on this issue).
- If the preferred category is indicated as Least Concern, but the plausible range extends into the threatened categories, a listing of 'Near Threatened' (NT) should be used. The criteria, which triggered the extension into the threatened range, should be recorded under the rationale.
- Any assessments made using this software must be submitted with the RAMAS[®] Red List input files (i.e. the *.RED files).

New global assessments or reassessments of taxa currently on the IUCN Red List, may be submitted to the IUCN Red List Unit for publication (subject to review) in a future edition of the *IUCN Red List of Threatened Species*TM. Submissions from within the IUCN SSC network should be made using the Species Information Service (SIS) database. Other submissions may be submitted electronically; these should preferably be as files produced using RAMAS[®] Red List or in a format agreed with the IUCN Red List Unit prior to submission.

2.7. Distribution Map

A distribution map is required supporting information for all IUCN Red List assessments ([Table 1](#)). The map should aim to provide the current known distribution of the taxon within its native range. The limits of distribution are determined using known occurrences of the taxon, and knowledge of its habitat preferences, remaining suitable habitat, elevation limits, etc.

A GIS shapefile (for geo-referenced polygons or point localities) is the preferable format for spatial data, given their value for spatial data analyses, visual displays, and future functionality of the Red List website. However, a paper map, text file coordinates, pdf document, or a graphics file are also acceptable if a GIS shapefile cannot be created.

For GIS shapefiles, a set of standard data attributes must be recorded to describe the taxon's distribution (see [Annex 1](#) for the list of attributes, and codes for presence, origin and seasonality data).

A detailed guidance document is being developed to provide guidance on IUCN mapping standards for creating distribution maps to support Red List assessments. Guidance on IUCN mapping standards is also available through the online IUCN Red List Training course (<https://www.conservationtraining.org/mod/page/view.php?id=3756>).

2.8. Bibliography

A comprehensive list of the all data sources used, cited in full, is required supporting information for all IUCN Red List assessments ([Table 1](#)). In SIS, the assessment bibliography can be accessed from any screen in the species account (in the toolbar click on *Tools*, then *Manage References*). References may also be attached to specific fields (click on the cogwheel icon attached to the field and select *References*).

See [section 3.11](#) for guidance on formatting citations and bibliographic references in SIS.

3. General Formatting and Style Guidelines

This section gives detailed information and guidelines on the general styles and formats that should be used to maintain consistency in the IUCN Red List.

3.1. Language

Although IUCN officially uses three languages (English, French and Spanish), currently the IUCN Red List is available only in English therefore all documentation appearing in the species accounts in SIS must be written in English.

UK English has been adopted for spelling and grammar standards in the Red List (although there are some exceptions), and hence the documentation in SIS should use the same standard. If in doubt, please use the Oxford English Dictionary as a general reference. A few examples of the more common conflicting spellings are given below:

Preferred spelling for the IUCN Red List	Try to avoid
grey	gray
colour	color
favourite	favorite
centre	center
programme	program
metre	meter
kilometre	kilometer
organization	organisation
colonize	colonise
recognize	recognise

Exception: For common names, North American spellings are acceptable, but common names using UK spellings should also be added for these taxa to ensure that Red List users from different countries will find the species they are looking for. For example, *Carcharhinus amblyrhynchos* has both ‘Gray Reef Shark’ and ‘Grey Reef Shark’ recorded as common names.

3.2. General writing style

IUCN Red List users come from a very wide range of backgrounds; from taxonomists to journalists, biologists to policy makers, postgraduates to high school students. Not all users understand taxonomy or the meaning of specific biological terms or the technical terms we commonly use in the Red List, however generally all users are interested to learn what is threatened, where and why.

When writing species accounts in SIS, the purpose of the text is twofold: 1) to provide information that supports the Red List assessment for that species; and 2) to provide some background information about the species, which helps Red List users to visualize that organism, where it occurs, what its needs are, what threats are affecting it, and what can be done about the situation.

People will carry on reading, and will learn more about and sympathize with the species if they can quickly and easily understand the summary documentation. This does not mean that the writing should be overly simplified; using correct grammar, restricting the use of highly technical terms, avoiding extensive use of unexplained acronyms and long lists of technical data, and thinking about the overall message you are trying to get across will help to form a more elegant account that people will read and learn from.

Avoid unnecessary words or using multiple words that mean the same thing. For example:

Preferred style	Try to avoid
Often this dragonfly is found close to fast-flowing streams.	Often this dragonfly is found in close proximity to fast-flowing streams.
The region's very good soils and favourable climate encourages agricultural expansion; the species cannot survive in the banana plantations that are rapidly taking over the area.	The very good soils and favourable climate of the region are encouraging agricultural expansion, and the species is unable to survive in the banana plantations that are rapidly taking over the area.

Attachments for Species Accounts

If more detailed or technical information is essential (e.g., results of multiple surveys to support the overall population decline rate given in the summary documentation), this should be attached to the assessment in SIS. Attachments should be Word, jpegs, or Excel files (**NOT** pdf documents). The IUCN Red List Unit will transfer these to pdf documents suitable for publication on the IUCN Red List website.

3.3. Scientific and common names

It is not essential to include the scientific or common name in the text. Indeed, the preference may be to avoid this, particularly in groups where the taxonomy is likely to change because this can result in a lot of editing if the scientific name has been cited repeatedly. Also, common names can be a bit random and taxa may be known by different common names in different areas of their range. However, if no scientific or common name is used in the text, please try to refer back to the taxon in some other way; for example, use phrases such as “This diurnal lizard ...” or “This arboreal frog ...”

Refer to the following guidelines if scientific and common names are being used within the documentation text:

1. If the taxon has several common names, try to select one name only to use throughout the text (the one selected as the primary name).
2. If a common name exists, this can be used in place of the scientific name throughout the text. On the IUCN Red List website, the documentation text is displayed in the following order:
 - (1) Taxonomic notes; (2) Rationale; (3) Distribution; (4) Population; (5) Habitat & Ecology; (6) Threats; (7) Conservation Actions.

Scientific names will, of course, be used in the taxonomic notes section. Elsewhere, it may be necessary to use the scientific name once only in the rationale, and thereafter use the common name without losing a logical flow to the species account.

In the first instance, use the common name first followed by the scientific name within brackets and in italics. For example:

Preferred style	Try to avoid
	Shortnose Sturgeon, <i>Acipenser brevirostrum</i>
Shortnose Sturgeon (<i>Acipenser brevirostrum</i>)	<i>Acipenser brevirostrum</i> (Shortnose Sturgeon)
	Shortnose Sturgeon (<i>Acipenser brevirostrum</i>)

3. Whether being included in the species account text or being entered into the *Common Names* field in SIS, common names should be capitalized. For example:

Preferred style	Try to avoid
American Pika	American pika
Rufous-necked Hornbill	Rufous-Necked Hornbill rufous-necked hornbill

4. If the taxon has a common name, the scientific name should be mentioned once only and thereafter only the common name should be used. For example:

Preferred style	Try to avoid
The Corsican Hare (<i>Lepus corsicanus</i>) is legally protected in continental Italy because of its conservation status. However, problematic discrimination in the field between the Corsican Hare and the European Hare (<i>Lepus europaeus</i>), which is a game species, produces remarkable problems for effective protection. Since the Corsican Hare was recognized as a true species (in 1998), hare hunting has been banned in Sicily.	<i>Lepus corsicanus</i> is legally protected in continental Italy because of its conservation status. However, the problematic discrimination in the field between the <i>Lepus corsicanus</i> and <i>Lepus europaeus</i> , which is a game species, produces remarkable problems for effective protection. Since <i>Lepus corsicanus</i> was recognized as a true species (in 1998), hare hunting has been banned in Sicily.

Exception: For some taxa, common names do not exist or are not universally recognised. In these cases, the first mention of the scientific name should be in full and thereafter the genus should be abbreviated to the first initial only. For example:

Preferred style	Try to avoid
<i>Calocedrus rupestris</i> is rare in most provinces although it may be locally common in some areas. Population size is less than 2,500 mature individuals. Seedlings of <i>C. rupestris</i> are rare and hence recruitment is poor.	<i>Calocedrus rupestris</i> is rare in most provinces although it may be locally common in some areas. Population size is less than 2,500 mature individuals. Seedlings of <i>Calocedrus rupestris</i> are rare and hence recruitment is poor.

- When referring to a group of species with the same generic scientific name, the abbreviation “spp.” may be used (e.g., “*Varanus* spp.” refers to more than one species of *Varanus*). The abbreviation “sp.” refers to only one species (e.g., “*Varanus* sp.” refers only one, unspecified species of *Varanus*).
- When citing a taxonomic level higher than the genus, (i.e. family, order, class, division or phylum) no italicization is needed, but the term should be capitalized. For example:

Preferred style	Try to avoid
This species formerly was included in the Parathelphusidae, but it has recently been reassigned to the Gecarcinucidae.	This species formerly was included in the PARATHELPHUSIDAE, but it has recently been reassigned to the GECARCINUCIDAE. This species formerly was included in the <i>Parathelphusidae</i> , but it has recently been reassigned to the <i>Gecarcinucidae</i> .

3.4. Numbers and Dates

3.4.1. Numbers

- Write numbers between one and nine in full. For example:

Preferred style	Try to avoid
Although regular surveys have been carried out in all known suitable habitats around the island, this seahorse has been found at only three sites on the south coast and six on the west coast.	Although regular surveys have been carried out in all known suitable habitats around the island, this seahorse has been found at only 3 sites on the south coast and 6 on the west coast.

- For numbers above nine, write these numerically. For example:

Preferred style	Try to avoid
After 105 sightings recorded in 1998, repeated annual surveys since have recorded decreasing numbers, with only 32 sightings recorded during the most recent survey in 2007.	After 105 sightings recorded in 1998, repeated annual surveys since have recorded decreasing numbers, with only thirty two sightings recorded during the most recent survey in 2007.

- When starting a sentence with a number (even if it is greater than nine), write the number in full. For example:

Preferred style	Try to avoid
Fifteen grouse were spotted outside the reserve.	15 grouse were spotted outside the reserve.

- For numbers with four or more numerals, use commas to separate the hundreds. For example:

Preferred style	Try to avoid
This fish usually occurs at depths of more than 2,000 m.	This fish usually occurs at depths of more than 2000 m.
	This fish usually occurs at depths of more than 2.000 m.

5. For numbers of 1,000,000 or more, write the main numeral followed by the qualifier ‘million’ or ‘billion’, etc. (e.g., 2.4 million, 80–100 million, 27 billion, etc.).

3.4.2. Dates

1. When writing a date out in full, use the structure dd/month/yyyy. For example:

Preferred style	Try to avoid
11 January 2005	January 11, 2005
	11 th January 2005

2. When referring to a particular century the preference is:

Preferred style	Try to avoid
19th century	nineteenth century
	19th Century
1980s	1980’s
	1980 s

3.5. Brackets, dashes, hyphens, etc.

3.5.1. Brackets

Curved brackets, also called parentheses, enclose information which is a supplement to the rest of a sentence. Try to avoid using too many brackets as they can interrupt the flow of a sentence or paragraph.

3.5.2. Dashes

1. **En dashes** (–) are primarily for showing duration or range as in 9:00–5:00 or 112–600 m or 15–31 March. A single en dash can also act like a colon or a comma, marking off a few words from the first part of the sentence. For example:

“The fate of the Tasmanian Tiger was finally sealed – a stark lesson for humanity”.

2. **Em dashes** (—) act like brackets and can be used to set apart clauses in a sentence. For example:

“Dam construction—for hydropower and water management—is also a threat to the European Eel.”

3.5.3. Hyphens

Hyphens are used for hyphenating words (e.g., reef-forming corals), separating characters (e.g., in a phone number, as in 123-555-0123), or as a minus sign (e.g., 4-3=1).

It is difficult to give a general rule for when to use or not to use a hyphen. *If anyone can provide us with a general rule that works, please do so.*

3.5.4. Colons

Use a colon to indicate that what follows it is an explanation or elaboration of what precedes it. That is, having introduced some topic in more general terms, you can use a colon and go on to explain that same topic in more specific terms. For example:

“The Clanwilliam Rock Catfish occurs in nine tributaries of the Olifants River: Oudste, Thee, Noordhoeks, Boontjies, Boskloof, Heks, Rondegat, Jan Dissels, and Dwars.”

“Although 12 sites within the range were surveyed, the species was found at only one site: Willapa Bay.”

3.5.5. Semi-colons

1. Use a semi-colon to join complete sentences together into a single sentence, where the sentences are too closely related to be separated by a full stop. For example:

“Atlantic Sturgeon was an important item of commerce to early American and Canadian colonists; large quantities of sturgeon meat, roe, oil and isinglass were exported to Europe in the late 17th and 18th centuries.”

2. A semi-colon can also be used where a series of elements are long or complex and involve other punctuation marks such as commas. For example:

“Stabile *et al.* (1996) identified five regional or river-specific stocks: Lake Ponchartrain and Pearl River; Pascagoula River; Escambia and Yellow rivers; Choctawhatchee River; and Apalachicola, Ochlockonee, and Suwannee rivers.”

3.5.6. Commas

1. Use commas to separate items in a list. For example:

“The main threats affecting the population are deforestation, agriculture and hunting”;

2. In a series consisting of four or more elements, use commas to separate all the elements, including the final one. For example:

“This shark feeds mainly on bony fishes including tunas, barracuda, white marlin, dolphinfish, lancetfish, oarfish, threadfish, and swordfish.”

3. Use commas to enclose additional information within a sentence. For example:

“This species, together with the Silky Shark (*Carcharhinus falciformis*) and Blue Shark (*Prionace glauca*), has often been described as one of the most abundant oceanic shark species in the world.”

4. Use a comma after an introductory or opening phrase. For example:

“In general, snakes will only attack humans when riled.”

5. Use commas, for example, around “for example”. See the previous sentence as an example.

3.6. Abbreviations and common Latin terms

1. Try to avoid using the abbreviations ‘e.g.’ and ‘i.e.’ within the body of a text; instead use “for example”, “including”, “that is”, “in other words”, or “that means”. For example:

Preferred style	Try to avoid
The Sicilian Fir (<i>Abies nebrodensis</i>) was used extensively as a building material in the 19th century and it can be seen in many local structures, for example, in the doors and roof-beams of local churches.	The Sicilian Fir (<i>Abies nebrodensis</i>) was used extensively as a building material in the 19th century and it can be seen in many local structures, e.g., in the doors and roof-beams of local churches.

2. If ‘e.g.’ or ‘i.e.’ are used, note the position of the two full stops in both of these abbreviations (e.g. and i.e.), use a comma to separate the abbreviation and the attached statement, and enclose the whole statement within brackets. For example:

Preferred style	Try to avoid
The Sicilian Fir (<i>Abies nebrodensis</i>) was used extensively as a building material in the 19th century and it can be seen in many local structures (e.g., in the doors and roof-beams of local churches).	The Sicilian Fir (<i>Abies nebrodensis</i>) was used extensively as a building material in the 19th century and it can be seen in many local structures, e.g. in the doors and roof-beams of local churches.

3. There is a general rule for deciding whether or not to use a full stop after an abbreviation: if the abbreviation stops before the end of the word then use a full stop, but if the abbreviation ends with the final letter of the full word then do not use a full stop. For example, both ‘c.’ and ‘ca’ are commonly used abbreviations for *circa*). Recommended formats for some common terms and abbreviations are given below.

Meaning	Preferred style	Try to avoid
and the rest (Latin: <i>et cetera</i>)	etc.	<i>etc.</i> etc
and others (Latin: <i>et alia</i>)	<i>et al.</i>	et al. <i>et al</i>
approximately (Latin <i>circa</i>)	<i>c.</i> <i>ca</i>	<i>c</i> <i>c</i> ca <i>ca.</i>
in its original place (Latin: <i>in situ</i>)	<i>in situ</i>	in situ <i>in situ.</i>
Outside of its original place (Latin <i>ex situ</i>)	<i>ex situ</i>	ex situ <i>ex situ.</i>
compare (Roman: confer)	cf.	<i>cf.</i> cf
this purpose (Latin: <i>ad hoc</i>)	<i>ad hoc</i>	ad hoc <i>ad hoc.</i>
by itself (Latin: <i>per se</i>)	<i>per se</i>	per se
personal communication	pers. comm.	pers comm pers com.
personal observation	pers. obs.	pers obs
in or from a letter	in litt.	in lit
Professor	Prof.	Prof
Doctor	Dr	Dr.
above sea level	Asl	a.s.l.
editor	ed.	ed
editors	Eds	eds.

3.7. Symbols and measurement units

1. With the exception of their use at the start of a sentence, percentages should be written as a number. For example:

“It is estimated that the population has declined by 80–85% over the last 10 years” or “Forty percent of the lakeside habitat has been converted to tourist developments since 2002.”

2. The preferred standard for writing measurements is to leave one space between the number and the symbol (e.g., 3 m, 15-20 km, 1,200 ft).

Exception: do not use a space before the percentage symbol (i.e., use 20% and not 20 %).

3. Use the appropriate symbols and abbreviations. For example:

Preferred style	Try to avoid
km ²	sqkm km2
5°N	5 degrees N
15°C	15 degrees Celsius
25%	25 percent

4. SIS includes the options of superscript (e.g., for ‘km²’) and subscript (e.g., for ‘N_{max}’). In the Mozilla Firefox web browser, a useful add-on tool (ABCtajpu) is available that allows special characters and symbols to be entered into text. To install this tool, do a Google search for “ABCtajpu” to find the ABCtajpu Firefox add-ons page and follow the instructions therein.

For the Google Chrome web browser, use the utf-8 characters extension for special characters and symbols (available from the Chrome web store:

<https://chrome.google.com/webstore/detail/utf-8/fcemphgmjnjpmmdhcedhjiegickfbia?hl=en>).

It is also useful to know the html codes for particular symbols that you may need to use in species accounts. The following list provides some of the more common standard abbreviations and symbols that you may need (along with the appropriate html code for symbols that do not appear on your keyboard):

	Abbreviation / Symbol	Html code (use Alt + code)		Abbreviation / Symbol	Html code (use Alt + code – using numeric keypad)
metre	m		Degrees	°	0176
kilometre	km		Squared	²	0178
tonnes	t		Cubed	³	0179
feet	ft		one quarter	¼	0188
kilogrammes	kg		one half	½	0189
centimetres	cm		three quarters	¾	0190
litre	l		division sign	÷	0247
millilitre	ml		plus-or-minus sign	±	0177
gramme	g		multiplication sign	×	0215
year	yr		en dash	–	0406
years	yrs		em dash	—	0407
percent	%		trademark sign	™	0153
greater than	>		copyright sign	©	0169
less than	<				

3.8. IUCN and IUCN Red List terminology

1. Refer to “IUCN” or and not “the IUCN”.
2. When referring to IUCN SSC Specialist Groups, avoid using the abbreviation SG. Instead, use the full name of the group, at least in the first instance. For example:

“Members of the IUCN SSC Crocodile Specialist Group have carried out annual surveys of the population since 2001.” or “Members of the IUCN SSC Crocodile Specialist Group (CSG) have carried out annual surveys of the population since 2001. The results of these surveys, combined with other data gathered by CSG members, indicate substantial declines within the last five years”.
3. If the IUCN Red List is referred to more than once in text, use “The IUCN Red List of Threatened Species” first, and thereafter refer to “The IUCN Red List”.
4. The official Red List URL is www.iucnredlist.org (**not** www.redlist.org).
5. Refer to the “IUCN Red List Categories and Criteria” and not the “IUCN Red List categories and criteria”.

6. The IUCN Red List Categories are official terms, therefore when these are cited they must be capitalized. For example:

Correct	Incorrect
Extinct	extinct
Extinct in the Wild	extinct in the wild Extinct in the wild
Critically Endangered	critically endangered Critically endangered
Endangered	endangered
Vulnerable	vulnerable
Near Threatened	near threatened Near threatened Nearly Threatened
Least Concern	least concern Least concern Least Concerned
Data Deficient	data deficient Data deficient
Not Evaluated	not evaluated Not evaluated

7. All of the Red List Categories have official abbreviations (EX, EW, CR, EN, VU, NT, LC, DD, NE). Note that the correct abbreviation for Critically Endangered is ‘CR’ **and not** ‘CE’.
8. When referring to taxa that are assessed as CR, EN or VU, you may refer to them as being “threatened” (but not “Threatened”, because this term does not refer to one specific category).

3.9. Geographical information

1. The IUCN Red List (and hence SIS) uses the International Organization for Standardization (ISO) 3166 codes for country names and code elements. Some examples of appropriate country name citations are given below:

Preference	Try to avoid
Viet Nam	Vietnam
Lao PDR	Laos
Cote d'Ivoire	Ivory Coast
Myanmar	Burma
Kazakhstan	Kazakstan
Democratic Republic of Congo Or DRC	Zaire

- Use capital letters for geographical names, but lower case when referring to parts of a country or region. For example, use Northern Ireland, Western Australia and East Africa for these geographical areas; but use “east Japan”, “northwest Norway”, and “western Europe” for these areas.
- When writing directions, do not capitalize these. For example, use “north” and not “North”.
- When compass points are abbreviated, use upper case for these. For example:

Preferred style	Try to avoid
N	N
SE	S-E
ENE	E-NE

- Use a capital letter when referring to a cultural rather than a geographical entity. For example, use “Western culture”, “Eastern medicine”, “North-South divide”.
- Capitalize the names of specific national parks, but use “national parks” when writing about them in general. For example:

“This species is found in four national parks, but the majority of the population occurs in the Peak District National Park.”
- Similarly, capitalize the names of specific geographic features, but use lower case when referring to these in general. For example:

“There are four major oceans on the planet: the Pacific Ocean, Atlantic Ocean, Arctic Ocean, and Indian Ocean. The Antarctic Ocean (or Southern Ocean) is here included within the Indian Ocean.”

3.10. Acronyms

Please remember that not all Red List users know what our acronyms and abbreviations for technical terms and organizations mean. If these must be used, write their meaning out in full in the first instance with the shortened version in brackets immediately afterwards; thereafter, use the

acronym or abbreviation (this does contradict the general rule of using as few words as possible, however it will clarify the text). For example:

Preferred style	Try to avoid
This species breeds within one, well-managed national park, and it is listed in Appendix 1 of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and in the Convention on Migratory Species (CMS). It is also the focus of several research projects run by two international non-government organizations: Conservation International (CI) and BirdLife International (BI).	This species breeds within one, well-managed NP, and it is listed in Appendix 1 of CITES, and in CMS. It is also the focus of several research projects run by two international NGOs: CI and BI.
The extent of occurrence (EOO) is estimated to be much greater than the threshold for criterion B, but the area of occupancy (AOO) is within the threshold for Endangered. Combining known occurrences with areas of suitable habitat where the species is likely to occur gives an estimated AOO of 300 km ² .	The EOO is estimated to be much greater than the threshold for criterion B, but the AOO is within the threshold for Endangered. Combining known occurrences with areas of suitable habitat where the species is likely to occur gives an estimated AOO of 300 km ² .

3.11. References

3.11.1. Citing references within text

1. Information sources can be cited in two ways within a body of text: if the author's name is an integral part of the sentence, include the publication date in brackets after the author's name; or, if the source is not included within the information itself, include the author's name and publication date together within brackets. For example:

Preferred style	Try to avoid
Flannery (1995) reports the Sulawesi Fruit Bat as common near villages on the Sula Islands.	Flannery, 1995, reports the Sulawesi Fruit Bat as common near villages on the Sula Islands.
The Sulawesi Fruit Bat is common near villages on the Sula Islands (Flannery 1995).	The Sulawesi Fruit Bat is common near villages on the Sula Islands; Flannery (1995). The Sulawesi Fruit Bat is common near villages on the Sula Islands (Flannery (1995)).

2. Do not use a comma to separate author names and publication dates. For example:

Preferred style	Try to avoid
The Sulawesi Fruit Bat is common near villages on the Sula Islands (Flannery 1995).	The Sulawesi Fruit Bat is common near villages on the Sula Islands (Flannery, 1995).

3. If a publication has two authors, use 'and' instead of an ampersand to link them. For example:

Preferred style	Try to avoid
This species occurs in central to southern Chile and Argentina (Musser and Carleton 2005).	This species occurs in central to southern Chile and Argentina (Musser & Carleton 2005)

4. If more than one source is cited for the same information, use a comma to separate these. For example:

Preferred style	Try to avoid
Brumback's Night Monkey is a lowland species, with a range extending east from the Cordillera Oriental in Colombia, between the Ríos Arauca and Guaviare (Herskovitz 1983, Defler 2003).	Brumback's Night Monkey is a lowland species, with a range extending east from the Cordillera Oriental in Colombia, between the Ríos Arauca and Guaviare (Herskovitz 1983; Defler 2003).

Exception: If part of the string includes more than one publication for the same author, use a comma to separate these, and a semi-colon to separate the other citations. For example:

Correct	Incorrect
Brumback's Night Monkey is a lowland species, with a range extending east from the Cordillera Oriental in Colombia, between the Ríos Arauca and Guaviare (Herskovitz 1983; Defler 2003, 2004a,b).	Brumback's Night Monkey is a lowland species, with a range extending east from the Cordillera Oriental in Colombia, between the Ríos Arauca and Guaviare (Herskovitz 1983; Defler 2003; 2004a&b).
	Brumback's Night Monkey is a lowland species, with a range extending east from the Cordillera Oriental in Colombia, between the Ríos Arauca and Guaviare (Herskovitz 1983, Defler 2003, Defler 2004a; Defler 2004b).

5. Where several references occur with the same primary author, but different subsequent authors, and same year of publication, cluster the references by primary author; arrange the cluster alphabetically by secondary, tertiary, etc., author; add 'a', 'b', 'c', 'd', etc. after the publication year; and cite the references as 'primary author name *et al.* 2005a, primary author name *et al.* 2005b'. For example, the following publications:

Bennett, A., Hugill, B. and Knee, A. 1990. How to cite references. *Bibliography Bible*. 12(1): 5-10.

Bennett, A., Hugill, B., Stevens, B. and Knee, A. 1990. How to cite more references. *Bibliography Bible*. 12(2): 20-23.

Bennett, A., Stevens, B., Knee, A. and Hugill, B. 1990. Even more reference citations. *Bibliography Bible*. 12(3): 17-19.

Bennett, A., Stevens, B., Hugill, B. and Knee, A. 1990. Advanced citations for complicated references. *Bibliography Bible*. 13(1): 3-7.

Bennett, A., Knee, A. and Stevens, B. 1990. Who needs all these references anyway? *Bibliography Bible*. 13(2): 14-105.

Would be arranged as:

Bennett, Hugill and Knee 1990a

Bennett, Hugill, Stevens and Knee 1990b

Bennett, Knee and Stevens 1990c

Bennett, Stevens, Hugill and Knee 1990d

Bennett, Stevens, Knee and Hugill 1990e

And these would be cited in a body of text as:

"It is important to be consistent when citing information sources within a body of text (Bennett *et al.* 1990a, Bennett *et al.* 1990b, Bennett *et al.* 1990c, Bennett *et al.* 1990d, Bennett *et al.* 1990e)."

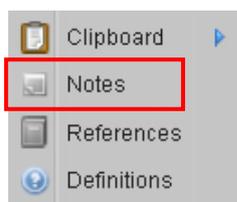
6. If a publication has more than two authors, cite only the first author then use '*et al.*'. For example:

Preferred style	Try to avoid
The identification of spawning sites in Lough Leane and their protection from declining water quality and development works is a priority to ensure the future survival of the species (Doherty <i>et al.</i> 2004).	The identification of spawning sites in Lough Leane and their protection from declining water quality and development works is a priority to ensure the future survival of the species (Doherty, O'Maoileidigh and McCarthy 2004).

7. If the information source is a personal communication or a personal observation include the initial(s) of the person who communicated the information BEFORE the surname, followed by the appropriate abbreviation (no comma), then the year the information was received. For example:

Preferred style	Try to avoid
The Macedonian Shad's previously occurred in Lake Koronia, but in 1995 the lake dried up killing all the fish present there (G. Barbieri pers. comm. 2006).	The Macedonian Shad's previously occurred in Lake Koronia, but in 1995 the lake dried up killing all the fish present there (Barbieri, pers. comm.).
	The Macedonian Shad's previously occurred in Lake Koronia, but in 1995 the lake dried up killing all the fish present there (Barbieri, Pers. Comm., 2006).

NOTE: For all pers. comm., pers. obs., and in litt. citations, there should be a record of where the original statement came from (e.g., if in an email or a letter, an electronic or hard copy of this should be held somewhere and the details noted). Every field in SIS has a notes field attached to it where these details can be recorded. The notes field can be opened by clicking on the cogwheel icon attached to any and selecting *Notes*:



For example, the citation 'M. Kottelat pers. comm. 2008' may have the following note attached "M. Kottelat pers. comm. 2008: email dated 12th June 2008 from Maurice Kottelat to Kevin Smith (IUCN Freshwater Biodiversity Assessment Unit).

3.11.2. References in a bibliographic list

In SIS, information such as authors, publication year, title, journal name, book titles, etc. must be entered into separate fields; SIS can then automatically generate the reference citation in the appropriate format based on the reference type and the information in these fields.

In general, **DO NOT** add commas, full stops, semi-colons, etc. at the end of authors, titles, etc. in the SIS reference fields; these will be added automatically when the citation is generated. However, it is important to enter the information into the fields in the appropriate format otherwise the final citation will not follow the correct standard.

1. Author Names.

- a. For all author names, use the format 'Smith, A.B.' (note that initials are separated by a full stop and no space).
- b. Separate co-author names using a comma.
- c. Use 'and' between the penultimate and last co-author names, with no comma before 'and'.

- d. In general, where author names include text such as “de”, include this at the front of the surname.
- e. Where author name has “junior” attached to it, add this as a abbreviation (Jr) at the end of the name.

For example:

Preferred style	Try to avoid
Cochran, D.M. and Goin, C.J.	Cochran, D.M. & C.J. Goin Cochran, D. M. and Goin, C. J.
de Gaulle, C.	Gaulle, de C. Gaulle, C. de
Smith, K., Jr. and Jones, P.A.	Smith, Jr. K., and Jones, P.A. Smith, K. Junior and Jones, P.A.
Carnaval, A.C.O.Q., Puschendorf, R., Peixoto, O.L., Verdade, V.K. and Rodrigues, M.T.	Carnaval, A.C.O.Q., R., Puschendorf, O.L., Peixoto, V.K. Verdade and M.T. Rodrigues Carnaval, A.C.O.Q., Puschendorf, R., Peixoto, O.L., Verdade, V.K., & Rodrigues, M.T.

2. Publication year.

Enter the publication year **without** adding any punctuation after it. SIS will automatically add a full stop after the year when it creates the citation. For example:

Preferred style	Try to avoid
1990	1990. 1990,

3. Titles.

In SIS, book titles are automatically italicised so there is no need to do this manually; for all reference types the just enter the title into the *Title* field. However, if Latin terms (e.g., scientific names) are included in the title, these need to be in italicised. Use html codes for this. Do not include any full stops at the end of the title. For example:

Preferred style	Try to avoid
<i>Alburnus vistoncus</i>, a new species from eastern Greece, with remarks on <i>Chalcaburnus chalcoides macedonicus</i> from Lake Volvi	Alburnus vistoncus, a new species from eastern Greece, with remarks on Chalcaburnus chalcoides macedonicus from Lake Volvi. <i>Alburnus vistoncus, a new species from eastern Greece, with remarks on Chalcaburnus chalcoides macedonicus from Lake Volvi</i>

4. Editors.

- a. For editors names, the initials appear before the surname.
- b. Do not use a full stop or a comma after the editors names.
- c. SIS automatically adds the associated text for this (i.e., there is no need to add ‘In:’ or ‘(eds)’ in the *Editor* field).

For example:

Preferred style	Try to avoid
C.D. Barker	Barker, C.D. (ed.)
C.D. Barker and A.B. Smith	In: C.D. Barker and Smith, A.B. (eds),

5. Journal Titles.

- a. In references, journal titles appear in italics. However, SIS automatically handles this formatting, so there is no need to add codes for italics in the *Journal* field.
- b. Avoid using abbreviations for journals, because 1) it can be difficult to maintain consistency and check that the correct abbreviations are used; and 2) it can be difficult to understand what these mean for some of the less well-known journals.

For example:

Preferred style	Try to avoid
Oryx	<i>Oryx</i>
Annales de la Faculté des Sciences du Yaoundé	Ann. Fac. Sci. Yaoundé
Bulletin of Marine Science	Bull. Mar. Sci. Bull.Mar.Sci.
Chelonian Conservation and Biology	Chelonian Conservation & Biology
Herpetological Review	Herp. Review Herp Rev

6. Journal volume, issue and page numbers.

SIS formats these automatically, so there is no need to enter brackets, colons, spaces, etc. Simply type the appropriate information into the *Volume*, *Issue* and *Pages* fields.

4. Systematics

This section provides a mixture of commonly accepted rules for nomenclature, and specific rules for entering and citing this information in SIS.

While the IUCN Red List is not intended as a comprehensive taxonomic authority of the world's species, it is important for those responsible for entering assessment information into SIS to know and understand some of the basic rules of taxonomy and nomenclature.

Taxonomy is the process of identifying, naming and classifying organisms according to apparent common characteristics. While this sounds quite straight forward in theory, in practice different taxonomists studying the same groups of organisms often have different approaches to this process. The result is that the same organism can be classified under different taxonomic concepts; what one taxonomist sees as one species may well be seen as several different species by another taxonomist. **The issue of developing taxonomic standards for the Red List is still under discussion.**

Nomenclature is the process of naming organisms and the system of names used. Just as different taxonomists may use different taxonomic concepts, they may also have different opinions on the taxonomic names allocated to an organism (e.g., different taxonomists may place an organism in different taxonomic families). To maintain consistency and stability in the IUCN Red List, certain standard references for nomenclature have been adopted (e.g., for mammals the general reference source is Wilson and Reeder (2005)), although sometimes the IUCN Red List will deviate from the standard reference on the advice of a Specialist Group. In such cases, supporting documentation and published references must be provided to explain why the standard reference is not being followed.

For a summary of the current reference sources used, see the page *Information Sources and Quality* on the IUCN Red List website (www.iucnredlist.org).

Editing Taxonomy in SIS

Taxonomic information in SIS is managed by the IUCN Red List Unit. If you have a list of taxa to assess that are not already in SIS, or if you see existing taxonomy in SIS that needs to be modified, please contact the IUCN Red List Unit directly (contact Craig Hilton-Taylor (craig.hilton-taylor@iucn.org) or Caroline Pollock (caroline.pollock@iucn.org)).

The information below is provided to help you to understand how the Red List Unit manages taxonomy in SIS and to provide guidance on what taxonomic information assessors and project managers should provide in the event that new taxonomy or taxonomic changes are required within SIS.

Rules for entering and citing taxonomic information in SIS

The IUCN Red List (and hence, SIS) follows the standard rules for writing scientific names of organisms. Although there are general rules that apply to all organisms, it is important to note that some details are different for plants and animals. All entries for animal taxa on the Red List follow the rules as defined by the *International Code for Zoological Nomenclature* (ICZN 1999 – see <http://www.iczn.org/iczn/index.jsp>). All entries for plant taxa on the Red List follow the *International Code of Nomenclature for algae, fungi, and plants (Melbourne Code)* (ICN 2012 – see <http://www.iapt-taxon.org/nomen/main.php>).

4.1. Higher Taxonomic Levels

SIS already includes an extensive list of names for the taxonomic levels kingdom, phylum, class, order, and family, however this list of names is not comprehensive. In many cases the appropriate higher taxonomy can simply be selected from the list of names in SIS, but it may sometimes be necessary to enter a new name or modify the status of an existing name. In these cases, the following basic rules should be followed:

1. Try to use the general taxonomic standards and nomenclature checklists for taxonomic names being added to SIS (see the page *Information Sources and Quality* on the IUCN Red List website (www.iucnredlist.org)).
2. If the standard taxonomic reference is not using the most up-to-date taxonomy (e.g., taxonomic revisions have been recently published and are generally accepted by the taxonomic community for that group, but the taxonomic reference source has not yet been updated to reflect this), please provide documentation to support the deviation from the standard reference source (i.e., provide the publication reference(s) (or, ideally, a copy of the publication) and a short explanation of why this taxonomy is being used and not the taxonomy shown in the standard reference source).
3. In the taxonomic backbone of SIS, the higher level names (for kingdom, phylum, class, order, family) are currently entered in CAPITAL letters. For example, CANIDAE is used instead of Canidae. But, if a higher level taxonomic term is used within a text field, it should be treated as a proper noun with the first letter capitalized (see [section 3.3](#)).
4. Please provide the taxonomic authority for the higher-level names, if this is known or can easily be found.
5. After the new name has been saved in SIS, add the common term for this scientific name if this is known; for example, the family CANIDAE has all of the common names Dogs, Foxes, Jackals and Wolves attached to it. These common terms are used in the search function on the Red List website to help non-taxonomists to easily find what they are looking for without using taxonomic terms.

4.2. Genus, Species and Subspecies Names

SIS already includes an extensive list of genus and species names. However, as with the higher taxonomic levels, this list is not comprehensive, and also taxonomic changes and new terms will regularly need to be incorporated into SIS. So, while in many cases the appropriate genus can simply be selected from the list of names in the system, it will sometimes be necessary to add a new name to the system. When genus names are added to SIS, please ensure that:

1. The general taxonomic standards and nomenclature checklists are used for any taxonomic names being added to SIS (see the page *Information Sources and Quality* on the IUCN Red List website (www.iucnredlist.org)).
2. If the standard taxonomic reference is not using the most up-to-date taxonomy (e.g., taxonomic revisions have been recently published and are generally accepted by the taxonomic community for that group, but the taxonomic reference source has not yet been updated to reflect this), please provide documentation to support the deviation from the standard reference source (i.e., provide the publication reference(s) (or, ideally, a copy of the publication) and a short explanation of why this taxonomy is being used and not the taxonomy shown in the standard reference source).
3. Enter the taxonomic authority for the genus name, if this is known or can easily be found.

4. After the new name has been saved in SIS, add the common term for this genus, if this is known; these common names are used in the search function on the Red List website to help non-taxonomists to find what they are looking for without using taxonomic terms.
5. When being used in a body of text, all genus, species and subspecies names are italicized (see [section 3.3](#)).
5. Genus names are always Capitalized, while species and subspecies names are written in lower case. For example:

Correct	Incorrect
<i>Acipenser baerii</i>	<i>acipenser baerii</i>
	<i>Acipenser Baerii</i>
<i>Acipenser baerii baerii</i>	<i>Acipenser Baerii baerii</i>
	<i>Acipenser Baerii Baerii</i>

4.3. Taxonomic Authorities

The taxonomic authority is the name of the person (or people) who described the species. There are very specific rules governing how taxonomic authorities are written, and these rules are different for animals and plants. A very brief summary of the general rules are given below.

4.3.1. Animals

For animal names, the following rules apply:

1. The authority is written as the name(s) of the author(s) who published the **original description** of the taxon, followed by the year the original description was published.
2. For the IUCN Red List, the following standard format for taxonomic authorities has been adopted:
 - A comma is used to separate the author name and the publication year.
 - There is no full stop used after the name (unless the name is being used at the end of a sentence).

For example:

Correct	Incorrect
Lowe, 1843	Lowe 1843.
	Lowe (1843)
	Lowe [1843]

3. The name of the author follows the name of the taxon without any intervening punctuation mark (but see point 5 below for an important exception).

For example:

Correct	Incorrect
<i>Seriola gracilis</i> Lowe, 1843	<i>Seriola gracilis</i> , Lowe 1843
	<i>Seriola gracilis</i> (Lowe, 1843) (but see point 5 below)
	<i>Seriola gracilis</i> Lowe (1843)

4. For subspecies, only one authority name appears: for nominate subspecies (i.e., the subspecies name matches the species name), the authority for the species' description is used; for other subspecies, the authority is the name and year for the description of that subspecies.

For example:

Correct	Incorrect
<i>Acipenser baerii baerii</i> Brandt, 1869	<i>Acipenser baerii</i> Brandt, 1869 <i>baerii</i>
<i>Acipenser baerii baicalensis</i> Nikolskii, 1896	<i>Acipenser baerii</i> Brandt, 1869 <i>baicalensis</i> Nikolskii, 1896

5. Where there are co-authors involved in the description, use an ampersand (&) to separate the two author names. For example:

Correct	Incorrect
<i>Raja bathyphila</i> Holt & Byrne, 1908	<i>Raja bathyphila</i> Holt and Byrne, 1908
	<i>Raja bathyphila</i> Holt, Byrne (1908)

6. If the species has been moved to a different genus since its original description, the original authority is kept with the new taxonomic name, but the authority is placed within brackets; **authorities within brackets have the specific meaning that at the time of its description the taxon was placed under a different genus than the one in which it currently appears.**

For example, in 1989, Séret published the description of a new species of skate, which he named *Raja crosnieri*. In 1998, McEachran and Dunn moved the species to the newly recognized genus *Dipturus*, making the new name for this fish *Dipturus crosnieri*. The full citation of the new species name is:

Correct	Incorrect
	<i>Dipturus crosnieri</i> Séret, 1989
	<i>Dipturus crosnieri</i> (Séret, 1989) McEachran & Dunn, 1998
<i>Dipturus crosnieri</i> (Séret, 1989)	<i>Dipturus crosnieri</i> McEachran & Dunn, 1998
	<i>Dipturus crosnieri</i> (McEachran & Dunn, 1998)

4.3.2. Plants

For plant names, the following general rules apply:

1. The original author(s) who originally described the species are cited **without the year of publication**.

Correct	Incorrect
<i>Abies beshanzuensis</i> M.H.Wu	<i>Abies beshanzuensis</i> M.N. Wu, 1960

2. It is very common to see initials included with plant authorities and for them to be written in an abbreviated form. The main references used to decipher these abbreviations are Brummitt and Powell (1992) and the International Plant Names Index (IPNI – see <http://www.ipni.org/>). For example:

Correct	Incorrect
<i>Abies beshanzuensis</i> M.H.Wu	<i>Abies beshanzuensis</i> Wu
	<i>Abies beshanzuensis</i> Ming Nsiang Wu

3. If the taxon has been moved to a different genus, or if a subspecies or variety has been raised to species-level since its original description was published, the original authority should be placed within brackets. However, in contrast to the rules for animals, for plants the author(s) responsible for the altered name are added outside of the brackets.

For example, the Sicilian Fir was originally described as a variety of *Abies pectinata* by Lojac. The taxon was later raised to species level by Giovanni Ettore Mattei who placed the species in the genus *Abies*. The correct citation for the current species name is:

Abies nebrodensis (Lojac.) Mattei

4. For plant subspecies and varieties, the authors of both the species-level and subspecies- / variety-level descriptions are cited.

For example, when Lojac. first described *nebrodensis* it was a variety of the species *Abies pectinata* which had been described (and remained unchanged since) by Gilib. At the time, the correct citation for this plant variety was:

Abies pectinata Gilib. var. *nebrodensis* Lojac.

4.4. Synonyms

The IUCN Red List is not intended to be a comprehensive taxonomic authority of the world's species. Therefore there is no need to enter a comprehensive list of synonyms since the description of the species.

The following general rules should be followed when entering synonyms into SIS:

1. Add all synonyms that are still in regular usage.
2. Do not include old and obscure names (but, see point 3 below).
3. When a taxon has been moved to a different genus since its original description, the original published name is called the 'basionym' in plants and 'original combination' in animals. Currently, it is not compulsory to record the original name in the list of synonyms, but this is very useful to ensure the authority names are correctly cited.
4. Ensure the genus, species names (and subspecies and variety names, if applicable) and taxonomic authority for each synonym is provided, following the same rules outlined above.

4.5. Taxonomic changes: splitting and merging taxa

When a species concept has been revised, resulting in a species being split into several new species concepts or merged with other species to form a single species, the Red List Unit has to edit the taxa affected by the revision within SIS. **It is very important to consider changes in taxonomic concepts when carrying out Red List assessments** because previously published assessments attached to the species' name may no longer refer to the same taxonomic concept.

Consider the following example:

Prior to 2008, the Reticulated Swellshark (*Cephaloscyllium fasciatum* Chan, 1966) included two subpopulations: one off the coastlines of Vietnam and China, and one off northwestern Australia. The species (based on available information from both subpopulations) was assessed as Data Deficient in 2003.

In 2008, White and Ebert revised the taxonomy for *Cephaloscyllium fasciatum*, splitting the species concept into two separate species:

- *Cephaloscyllium fasciatum* Chan, 1966 refers only those individuals in the western Pacific around Viet Nam and China.
- *Cephaloscyllium hiscosellum* White & Ebert, 2008 refers to individuals occurring in the eastern Indian Ocean off northwestern Australia.

In 2010, both species were assessed: *Cephaloscyllium fasciatum* as Data Deficient, and *Cephaloscyllium hiscosellum* as Least Concern.

Although the species name *Cephaloscyllium fasciatum* has DD assessments for both 2003 and 2010, these assessments refer to very different taxonomic concepts: in 2003, data from a much larger population and range was considered than for the 2010 assessment. Therefore, the two assessments are not directly comparable and the 2003 assessment should not appear as a historic assessment for the *Cephaloscyllium fasciatum*.

Such taxonomic splits are handled through the following steps:

1. The appropriate Red List Authority (e.g., in the above example, the Shark RLA) or assessment project manager contacts the Red List Unit to inform them of the taxonomic

revision needed in SIS, providing all supporting documentation to fully explain the situation (e.g., sending a copy of the publication is useful as there may be other taxonomic revisions included in the paper that also need to be considered in SIS).

2. The name of the old taxonomic concept (e.g., in the above example, the entry for *Cephaloscyllium fasciatum* with the 2003 DD assessment attached) is changed to *Genus species_old* (e.g., in the above example, *Cephaloscyllium fasciatum* was changed to *Cephaloscyllium fasciatum_old*).
3. The taxonomic status for the old taxonomic concept is changed to “discarded” in SIS. This prevents the modified name and the old assessment from being published on the Red List website at the next Red List update, but retains the taxon and the assessment in SIS (i.e., the old assessment is not lost).
4. New entries are created for the new species concept and the new species that have split from the old concept (e.g., in the above example, new entries were created for *Cephaloscyllium fasciatum* and *Cephaloscyllium hiscosellum*).
5. The assessors complete assessments for the new species (e.g., members of the IUCN SSC Shark Specialist Group prepared new assessments for *Cephaloscyllium fasciatum* and *Cephaloscyllium hiscosellum* within SIS and submitted these for publication on the Red List).

Note: If a new assessment is not completed for the new taxonomic concept in time for the next Red List update, that taxon name will drop out of the published Red List, because the old concept is no longer recognised and has been changed to “Discarded” in SIS (see point 3 below). If this is a concern for the assessors then the following alternative arrangement can be made:

The name of the old taxonomic concept (e.g., in the above example, the entry for *Cephaloscyllium fasciatum* with the 2003 DD assessment attached) can be retained as it is. A new taxonomic concept can then be created in SIS named *Genus species_new* (e.g., in the above example, *Cephaloscyllium fasciatum_new*) allowing the assessors to prepare an assessment for the new concept ready to submit for a later Red List update. After submission, the Red List Unit will modify the names and taxonomic status appropriately to allow the old assessment to be replaced by the new assessment without the name being lost from the Red List.

Please ensure you explain which option you prefer when you contact the Red List Unit to explain taxonomic changes needed in SIS.

If, in the above example, the taxonomic change was happening in reverse (i.e., if *Cephaloscyllium fasciatum* and *Cephaloscyllium hiscosellum* were being merged together to form a new taxonomic concept for *Cephaloscyllium fasciatum* that included all individuals from both species), a similar process would occur. Please contact the Red List Unit if such a taxonomic change is needed in SIS.

5. Pre-submission Checks

This section gives a summary of the general supporting information checks and consistency checks that must be carried out before assessments are submitted for inclusion in the IUCN Red List.

The final step before assessments are submitted for publication on the IUCN Red List is to check that all of the assessments include the required supporting information, in the standard format and that the assessment accounts are clear, informative, and the data and information presented match the final IUCN Red List assessment. For example, if the taxon is assessed as CR B1ab(iii) and the extent of occurrence is stated as 200 km² in the text but 95 km² in the data field, then there is a contradiction that needs to be resolved before the assessment is submitted.

5.1. Supporting Information Checks

Before submitting assessments, refer to [Table 1](#), [Table 2](#) and [Table 3](#) to check that all of the appropriate information is included. A summary of the general supporting information checks for each assessment are listed below:

Taxonomy

- Taxonomy from kingdom to species (and subspecies, if applicable) follows appropriate standard reference. Any deviations (e.g., the Shark Specialist Group following Compagno rather than Eschmeyer for current shark taxonomy) should be explained in the taxonomic notes section (see [section 2.1](#) and [section 2.2.1](#)).
- The taxonomic authority is recorded and is in the correct format (see [section 2.1](#) and [section 4.3](#)).
- Any recent synonyms have been recorded, in the appropriate format (see [section 2.1](#) and [section 4.4](#)).

Common names

If common names have been recorded, check that:

- The appropriate format has been used for common names (see [section 3.3](#))
- The primary common name is highlighted in SIS.

Summary text

- Narrative text has been entered for:
 - Taxonomic notes (if necessary; see [Table 2](#) and [section 2.2.1](#))
 - Geographic range (required for all non-LC taxa; see [Table 2](#) and [section 2.2.2](#))
 - Population (required for all non-LC taxa; see [Table 2](#) and [section 2.2.3](#))
 - Habitats & Ecology (required for all non-LC taxa; see [Table 2](#) and [section 2.2.4](#))
 - Threats (required for all non-LC taxa; see [Table 2](#) and [section 2.2.6](#))
 - Red List Assessment Rationale (required for all assessments; see [Table 1](#) and [section 2.2.8](#))
- If appropriate, narrative text has been entered for:
 - Use & Trade (recommended for utilized taxa; see [Table 3](#) and [section 2.2.5](#))
 - Conservation Actions (recommended for non-EX and non-LC taxa; see [Table 3](#) and [section 2.2.7](#))
- For all narratives, the text is clear and understandable.
- Spelling has been checked.
- Appropriate formats are used for reference citations, etc. (see [section 3](#))

- Italics have been added in the appropriate places (*et al.*, species names, etc.)

Data fields

- All data fields completed (including qualifiers) for parameters triggering IUCN Red List Criteria met at the highest Red List Category level (see [Table 1](#), [section 2.3.2](#), and the *Criteria Factor View* in SIS), including:
 - Generation Length (for criteria A and C1)
 - Rate of reduction (for criteria A and C1)
 - Time period over which reduction is measured (for criteria A and C1)
 - Basis for rate of reduction (for criterion A)
 - Causes of reduction understood, reversible and/or ceased (for criterion A)
 - Extent of occurrence – EOO (for criterion B1)
 - Area of occupancy – AOO (for criterion B2)
 - Number of locations (for criteria B1a and B2a)
 - Severe fragmentation (for criteria B1a and B2a)
 - Continuing decline in EOO, AOO, habitat area/extent/quality, number of locations/subpopulations (for criteria B1b and B2b)
 - Continuing decline in population size (for criteria B1b, B2b, and C)
 - Extreme fluctuation in EOO, AOO, and number of locations/subpopulations (for criteria B1c and B2c)
 - Extreme fluctuation in population size (for criteria B1c, B2c and C2)
 - Population size (for criteria C and D, and VU D1)
 - Size of largest subpopulation (for criterion C2)
 - Highly restricted range or small number of locations and plausible threat (for VU D2)
 - Probability of extinction in the wild (for criterion E)
- Qualifiers (observed, estimated, projected, inferred, suspected) are recorded for each data field, where applicable.
- Data fields for additional information and for website functionality (see [Table 1](#) and [section 2.3.1](#)), including:
 - Current population trend (required for all assessments; see [Table 1](#) and [section 2.3.1](#))
 - System (required for all assessments; see [Table 1](#) and [section 2.3.1](#))
 - Biogeographic realms, if applicable (recommended for terrestrial and freshwater taxa; see [Table 3](#) and [section 2.3.1](#))
 - Plant growth form (required for all plant taxa; see [Table 2](#) and [section 2.3.1](#))
 - Elevation or depth limits, if applicable (recommended supporting information; see [Table 3](#) and [section 2.3.1](#))

Occurrence information

- Countries of occurrence, with Presence and Origin coding, all countries within the taxon's native and reintroduced range (see [Table 1](#) and [section 2.4.7](#)).
- If applicable, sub-country occurrence units within large countries and islands far from the mainland (recommended supporting information; see [Table 3](#) and [section 2.4.7](#)).

Classification Schemes

- Habitat Classification Scheme codes recorded for suitable habitats (required for all assessments; see [Table 1](#) and [section 2.4.1](#)).

- Threats Classification Scheme codes recorded for major threats (required for all non-DD and non-LC taxa; see [Table 2](#) and [section 2.4.2](#)).
- Conservation Actions In Place Classification Scheme codes recorded, if applicable (recommended for all non-EX and non-LC taxa; [Table 3](#) and [section 2.4.4](#)).
- Conservation Actions Needed Classification Scheme codes recorded, if applicable (recommended for all non-EX and non-LC taxa; [Table 3](#) and [section 2.4.4](#)).
- Utilization Classification Scheme codes recorded, if applicable (recommended for all utilized taxa; [Table 3](#) and [section 2.4.6](#)).

Distribution Map

Ensure that a distribution map has been prepared ([Table 1](#), [section 2.7](#), and [Annex 1](#))

- If it is possible to prepare GIS shapefiles, then this is the preferred format.
- Record all of the required data attributes ([Annex 1](#)).

Red List Assessment Information

- Red List Category and Criteria, including all relevant subcriteria (see [Table 1](#) and [section 2.5.1](#))
- Assessment date (see [section 2.5.2](#)).
- Name(s) of Assessor(s) names (see [Table 1](#) and [section 2.5.3](#)).
- Name(s) of Reviewer(s) (see [Table 1](#) and [section 2.5.3](#)).
- Review process information (see [section 2.5.4](#)).
- All EX, EW, CR(PE) and CR(PEW) taxa have date last recorded attached (see [Table 2](#)).
- The fields *Possibly Extinct* or *Possibly Extinct in the Wild* have been completed for all taxa being assessed as CR(PE) or CR(PEW) (see [Table 2](#)).
- All DD taxa have appropriate documentation and DD reason completed (see [Table 2](#))
- All reassessed taxa have a reason for change recorded (see [Table 2](#) and [section 2.5.6](#)).
- Rationale is included and is understandable and fully supports the assessment (see [Table 1](#) and [section 2.2.8](#)).

Bibliography

- All references cited in the text appear in the bibliography (see [Table 1](#) and [section 2.8](#)).
- References in the bibliography follow the appropriate format (see [section 3.11](#)).

Common Errors

An automatic system is being developed in SIS (the *Integrity Checker*), which will allow SIS users to quickly check for many of the errors listed below. Meanwhile, please carry out at least the following checks (you can probably think of others in addition to this list):

- The Red List Criteria and supporting information are appropriate for the selected category.
 - Criteria apply only to CR, EN and VU; for NT taxa, record criteria met and nearly met in the rationale.
 - Criteria D1 and D2 are used for Vulnerable only; for CR and EN, criterion D is used.
 - If criteria A or C1 are used, ensure the generation length has been stated and that the appropriate time period has been used. Also check that the reasoning behind the estimated rate of decline is appropriately documented.
 - If criterion A1 is used, check the assessment carefully; A1 is specific to causes of population decline being understood and have stopped and the effects are reversible.
 - If criteria B1 or B2 are used, check that EOO or AOO estimates are given.

- If criteria B1a or B2a are used, check that the assessment is clear about whether severe fragmentation or number of locations have been used for the assessment. Also check that the number of locations has been estimated appropriately (based on the most serious threat rather than simply on collection sites).
- If VU D2 is used, check that there is a plausible threat to the species rather than having a restricted range and no threats at all.
- If criterion E is used, ensure the quantitative model (with the assumptions used in this) is available for inspection.
- Check for contradictions between information in the summary documentation and the data fields (e.g., text says population has declined by 32% but data field records decline of at least 50%).
- Check that EX and EW taxa are also recorded as ‘Presence = extinct’ in **all** of their country and subcountry (and FAO and LME areas, if applicable) occurrence records.
- For all reassessed taxa, check that the reason for change recorded is a comparison between the current assessment and the last published assessment. If the taxon changed status **BEFORE** the previous assessment but after the first assessment, ensure this is properly recorded.
- Where a reason for change has been recorded, check that there **IS** at least one previous published assessment for that taxon.
- Ensure that the reason for change makes sense; for example, if a taxon moves from EX to CR the reason for change should be ‘New information’ and not ‘Genuine change’.

5.2. Consistency Checks

Before a large number of assessments are submitted for publication on the IUCN Red List, it is also important to check the assessments for consistency in how the IUCN Red List Categories and Criteria have been applied to different taxa, particularly taxa occurring in the same area and facing the same threats.

Different Assessors may apply the IUCN Red List Criteria slightly differently because of differences in attitudes. When faced with uncertain data, some Assessors will be more precautionary in their interpretation of the data, tending to list taxa in higher threat categories, while others are more evidentiary and tend to seek out further evidence before listing a taxon in a higher threat category.

In large assessment projects involving lots of taxa, often it is necessary to carry out many assessment workshops, sometimes over several years. These workshops may involve different Assessors and Facilitators, all having different attitudes towards uncertainty.

Sometimes, by the end of a long project or even a long workshop, the same person can even apply the Red List Criteria slightly differently from how they applied the criteria at the start of the process (e.g., throughout the project they may have gained a better understanding of the IUCN Red List Criteria, or tiredness can take its toll during a long workshop and result in an Assessor or Facilitator misinterpreting information or being heavily influenced by peer pressure).

For these reasons, large assessment projects must include a consistency check period where project staff will check for errors in how the Red List Criteria have been applied before submitting assessments to the RLU. This gives them a chance to address these issues before final submission. During this process, some taxa may have their assessments adjusted accordingly, with the agreement of the Assessors and Reviewers.

After submission, the RLU carries out further consistency checks as a last-stop effort to catch any errors, inconsistencies and to fix these before the assessments are finally published on the IUCN Red List website.

Annex 1: Attributes for Spatial Data

For the distribution map, there is a list of spatial data attributes which must be recorded. These attributes help describe the taxon's distribution. The tables below list the standard attributes for spatial data (Table 1); the codes used to indicate presence, origin and seasonality (Tables 2a, b and c); and how these codes are used to create legends for the distribution map (Table 3).

Table 1: Attributes to record for spatial data.

Field	ESRI Field Type	Description
ID_NO	Integer	Internal Record ID (must match the corresponding field in SIS)
BINOMIAL	String	Scientific name (must match the corresponding field in SIS)
BASIN_ID (freshwater species only)	Integer	River catchment ID number. This must match the corresponding BASIN_ID or HYDRO_ID in the hydrosched/catchment layer.
PRESENCE	ShortInt	Is/was the species in this area (codes listed in Table 2a)
ORIGIN	ShortInt	Why/how the species is in this area (codes listed in Table 2b)
SEASONAL	ShortInt	What is the seasonal presence of the species in the area (codes listed in Table 2c)
COMPILER	String	Name of the individual/s or institution responsible for generating the polygon, if not IUCN.
YEAR	ShortInt	Year in which the polygon was mapped, compiled, or modified
CITATION	String	Individual/s or institution responsible for providing the data

Table 2a: Codes used to record the taxon's presence.

Code	Presence	Definition
1	Extant	The species is known or thought very likely to occur presently in the area, usually encompassing current or recent localities where suitable habitat at appropriate altitudes remains.
2	Probably Extant	The species' presence is considered probable, either based on extrapolations of known records, or realistic inferences (e.g., based on distribution of suitable habitat at appropriate altitudes and proximity to areas where it is known or thought very likely to remain Extant). 'Probably Extant' ranges often extend beyond areas where the species is Extant, or may fall between them.
3	Possibly Extant	The species may possibly occur, based on the distribution of suitable habitat at appropriate altitudes, but where there are no known records. 'Possibly Extant' ranges often extend beyond areas where the species is Extant (see definition of "Extant" above) or Probably Extant (see definition of "Probably Extant" above), or may fall between them.
4	Possibly Extinct	The species was formerly known or thought very likely to occur in the area, but it is most likely now extirpated from the area because habitat loss/other threats are thought likely to have extirpated the species and/or owing to a lack of records in the last 30 years.
5	Extinct	The species was formerly known or thought very likely to occur in the area, but there have been no records in the last 30 years and it is almost certain that the species no longer occurs, and/or habitat loss/other threats have almost certainly extirpated the species.
6	Presence Uncertain	The species was formerly known or thought very likely to occur in the area but it is no longer known whether it still occurs (usually because there have been no recent surveys).

Table 2b: Codes used to record the taxon's origin.

Code	Origin	Definition
1	Native	The species is/was native to the area
2	Reintroduced	The species is/was reintroduced through either direct or indirect human activity.
3	Introduced	The species is/was introduced outside of its historical distribution range through either direct or indirect human activity
4	Vagrant	The species is/was recorded once or sporadically, but it is known not to be native to the area.
5	Origin Uncertain	The species' provenance in an area is not known (it may be native, reintroduced or introduced)

Table 2c: Codes used to record the taxon's seasonality.

Code	Seasonality	Definition
1	Resident	The species is/was known or thought very likely to be resident throughout the year
2	Breeding Season	The species is/was known or thought very likely to occur regularly during the breeding season and to breed.
3	Non-breeding Season	The species is/was known or thought very likely to occur regularly during the non-breeding season. In the Eurasian and North American contexts, this encompasses 'winter'.
4	Passage	The species is/was known or thought very likely to occur regularly during a relatively short period(s) of the year on migration between breeding and non-breeding ranges.
5	Seasonal Occurrence Uncertain	The species is/was present, but it is not known if it is present during part or all of the year.

Table 3: Different combinations of presence, origin and seasonality codes are used to create legends for the final distribution map. The legends are listed in the table below (refer to Tables [2a](#), [2b](#) and [2c](#) for an explanation of the presence, origin and seasonality codes).

Legend	Presence	Origin	Seasonality
Extant (resident)	1	1	1
Extant (breeding)	1	1	2
Extant (non breeding)	1	1	3
Probably Extant (resident)	2	1	1
Probably Extant (breeding)	2	1	2
Probably Extant (non breeding)	2	1	3
Reintroduced	1 or 2	2	1 or 2 or 3
Introduced	1 or 2	3	1 or 2 or 3
Possibly Extinct	4	1 or 2 or 5	1 or 2 or 3 or 4 or 5
Extinct	5	1 or 2 or 5	1 or 2 or 3 or 4 or 5
Origin Uncertain	1 or 2	5	1 or 2 or 3