Documentation Standards and Consistency Checks for IUCN Red List Assessments and Species Accounts

Version 1.1
(April 2009)

A working document prepared by the IUCN Red List Unit, Cambridge, UK

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Introduction

Please note that this is a working document that 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 Species web site or contact the IUCN Red List Unit.

This document provides detailed instructions for documenting species accounts held in the IUCN Species Information Service (SIS) to support assessments for inclusion in the IUCN Red List of Threatened Species™. The information presented here builds on the minimum documentation standards for IUCN Red List assessments, and follows the IUCN SSC style guidelines (with some minor deviations), and the format of the 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 the documentation instructions, this document includes a list of the standard consistency checks that need to be carried out BEFORE assessments are submitted for publication in the IUCN Red List. For assessments being submitted from a major assessment project (e.g., comprehensive assessments of major taxonomic groups, assessments of endemic species from regional projects), **it is the responsibility of the coordinating assessment teams to ensure all the consistency checks are completed before submitting assessments for inclusion in the IUCN Red List.** The IUCN Red List Unit will not carry out thorough consistency checks for all submitted assessments, but indications that standards and checks have not been followed before submission will result in assessments being refused for the Red List until the outstanding issues have been addressed.

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

1. Documentation requirements in SIS

This section summarizes the documentation that must be recorded in species accounts held in SIS. For guidance on writing styles, formats, etc. please refer to sections 2 and 3 this document.

All assessments entering the IUCN Red List must be accompanied by minimum documentation; the following standard documentation is required for all new assessments being entered into SIS:

1.1. Taxonomy

More detailed guidance about taxonomy is given in section 3.

a. Record kingdom, phylum, class, order, family, genus and species (also subspecies, if this is the level being assessed) following the appropriate standard taxonomic references (see section 3).

b. Record the taxonomic authorities in the appropriate format (see section 3).

c. Where known, record common names and highlight the primary common name (in English).

d. Record any recent synonyms.

1.2. Summary documentation text

Summary documentation text is required for the topics listed below.

a. **Taxonomic Notes**. If there have been recent taxonomic changes or there are any current taxonomic doubts or debates about the validity or identity of the taxon, document these issues in the *Taxonomic Notes* section. This section is not to be used to simply copy and paste collection label notes into.

b. **Distribution**. Summarize the current information available for the geographic range for the species must be recorded in the *Geographic Range* field. 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 terrestrial and freshwater species, ensure that the appropriate biogeographic realms (see figure 1) in which the taxon occurs are also recorded in the *Biogeographic realms* page. For marine species, the biogeographic realms are not particularly relevant therefore it is not essential to record these.

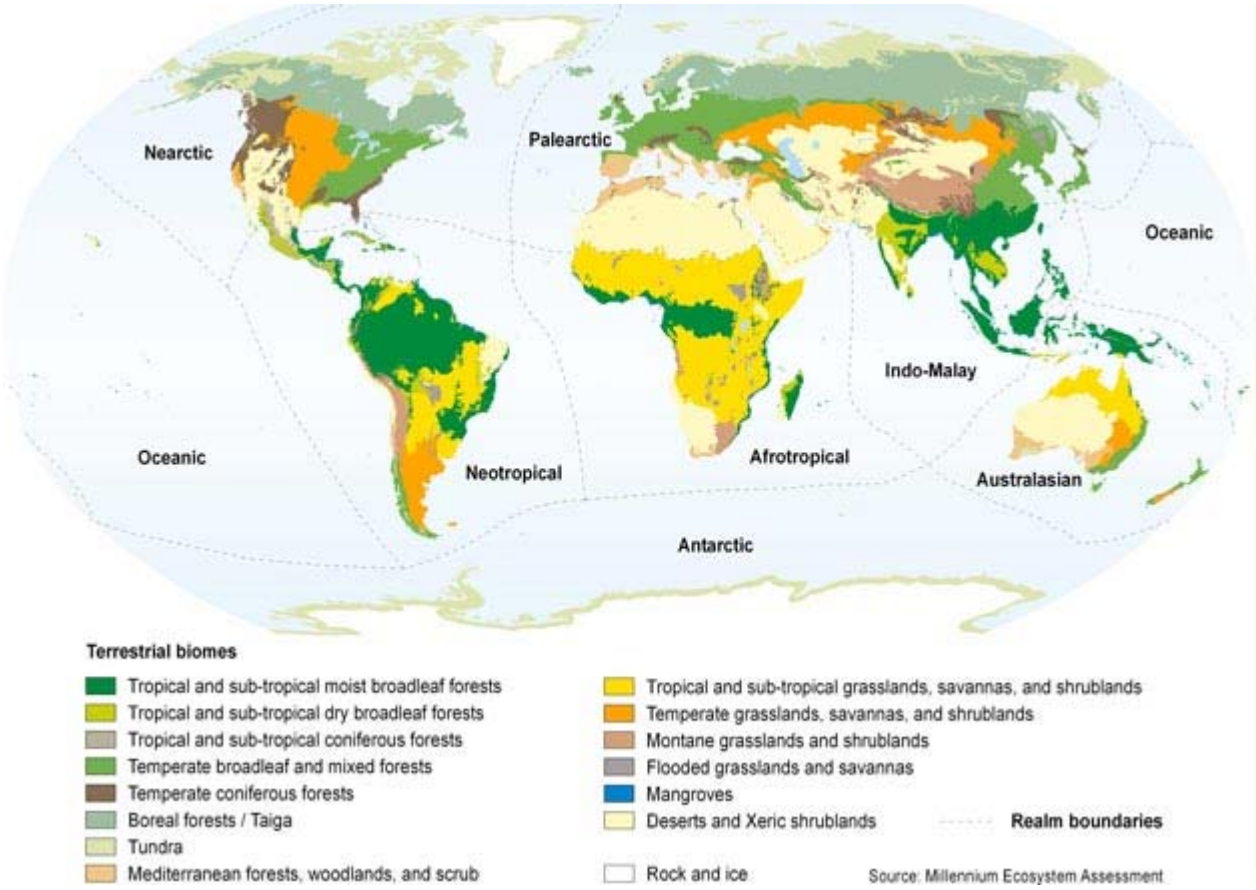


Figure 1. The biogeographical realms (large spatial regions within which ecosystems share a broadly similar evolutionary history). Although the biomes shown in this figure do not completely match the Habitat Classification scheme used for the Red List, there are some broad similarities, so they can be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

c. **Occurrence**. Select countries of occurrence, including sub-country units for threatened species, from the country list in SIS, remembering to record the presence and origin of the taxon in each country. For marine taxa, record the FAO areas; recording the Large Marine Ecosystems (LME) in which the taxon occurs is optional.

d. **Population**. In the *Population Documentation* field, summarize the information available for size and trend of the global population. Information about sizes and trends of subpopulations or trends in particular regions of the taxon's range can also be included in this section.

   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.

   Ensure the current population trend is also recorded (in the *Population* section).

e. **Habitats and Ecology**. Use the *Habitat Information* field to write a summary account of the suitable habitats and ecological requirements. This does not need to be extensive; for example, it is not necessary to know the details of behavioural traits, etc. unless these are relevant to the taxon's status (e.g., it has a particular life cycle, growth pattern or behaviour that makes it vulnerable to specific threats).

f. **Use and Trade**. Use the *General Use and Trade Information* field to write a summary account of the information available for any utilization and/or trade of the taxon (local, national and international trade).

g. **Threats**. In the *Threats Documentation* field, document the major threats affecting, or likely to affect, the taxon. Try to indicate whether these threats are historic threats that caused the population to decline or current threats affecting the population now, and whether they are likely to affect the population in future.

   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 reason for the threat, scale of the threat, and the stress this 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.)

h. **Conservation**. Use the *Conservation Actions Information* field to document the conservation actions currently in place, and realistic actions needed to mitigate the threats causing declines (if any).

i. **Red List Assessment**. Provide a rationale to justify the assessment 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 tells that story); instead it should use the key issues highlighted in the other documentation sections to summarize the reason why the taxon qualifies for the assigned category.

The summary documentation text in each of the above sections 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 (e.g., on the Red List web site) the different sections should merge to tell a story summarizing what the taxon is, its Red List status, where it occurs, what threats it faces, what is being done or is needed to help the taxon.

If criterion B (or criterion D2 based on area of occupancy) is used in the assessment, please include estimates of the extent of occurrence (EOO) and area of occupancy (AOO) in the rationale rather than just stating the thresholds from the criteria, e.g., "EOO <20,000 km²". It is also helpful to indicate the method used to estimate EOO and AOO (e.g., area within a minimum convex polygon (MCP) around all known sites of occurrence, MCP around all collection sites and extended to include potentially suitable habitat, MCP excluding large areas of unsuitable habitat, total area of river basins where the species is known to occur, AOO estimate from a 2x2 km grid overlay, etc.). **In SIS, this information may be included in the notes fields in the AOO and EOO pages in the *Distribution* section of the species account, along with the EOO and AOO estimates**.

For example (note that this is an example only; the information in this text may not be strictly accurate for this species. The example also assumes that the method used for EOO estimate has been provided in the EOO section in SIS):

	Preferred style	**Try to avoid**
Distribution:	*Adelophryne baturitensis* is known only from the Serra (or Maciço) de Baturité, in the State of Ceará, in	Brazil.

	northeastern Brazil.	
Population:	Until 1993, this frog was very common within its small range; often it was found at numerous localities. Between 1994 and 2003 the same sites were surveyed 34 times; not a single individual was found until in July 2004, 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.	Rare.
Habitat and 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.	Streams. Forest.
Threats:	The major threat to this frog 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 for urban expansion and tourist areas. 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.
Conservation:	*A. baturitensis* is not known from any protected areas, and clearly there is a need for improved habitat protection at sites where this species is known to occur. Further survey work is needed to determine whether or not this species is experiencing a decline, or is undergoing natural population fluctuations.	None.
Assessment rationale:	*Adelophryne baturitensis* has a	Vulnerable because EOO <20,000

	restricted range. It is known from 5-10 locations in the Maciço de Baturité in northeastern Brazil, where its total extent of occurrence (EOO) is approximately 550 km². Its forest habitat is declining due to logging and the rapid expansion of agriculture and human settlements in the area. These threats are likely to continue as the area is favourable for agriculture and there is no protection in place for the habitats required by this frog. The species is therefore listed as Vulnerable.	km², <10 locations, and declining habitat.

1.3. Data fields for expert Red List system

SIS includes an expert system which compares information stored in data fields against the IUCN Red List Criteria thresholds and automatically assigns a Red List assessment for that taxon. **Currently it is not compulsory to enter data into the SIS data fields; however, the expert system relies on the data in these fields, therefore if you expect to use this system then data must be entered into these fields appropriately.**

The 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.

In each case, the measurement units are mentioned 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.

Important Note: While data are being imported into SIS from the Data Entry Module (DEM), it is important to check that the format of data held in these fields (e.g., depth ranges, etc.) DO NOT include non-numerical information, because this may cause data to be lost. For example, if an extent of occurrence is recorded as ‘15,000 km².’ in the DEM, the data import may appear to carry this information across to the EOO field in SIS, but when a user clicks in this field in SIS, the information will disappear because this field is not designed for commas, full stops and text. Some examples of how to enter data into these fields are given below:

Use	Do not use
500	500 km²
10000	10,000
0-2000	<2,000
	< 2000
10000-1000000	>10,000
	> 10000

300	ca. 300

SIS provides more advice on how to enter data ranges and include best estimates (advice box appear when an invalid data format is entered into the field).

1.4. Classification Schemes

All of the currently adopted Classification Schemes are included in SIS. These must be completed for each taxon assessment. The current Classification Schemes are:

a. **Habitats Classification Scheme** (in the *Habitats and Ecology* section).
b. **Utilization Classification Scheme** (in the *Use and Trade* section).
c. **Threats Classification Scheme** (in the *Threats* section).
d. **Conservation Actions Classification Scheme** (in the *Conservation* section).

SIS also includes the **Ecosystem Services Classification Scheme** (*Ecosystem Services* section) and the **Livelihoods Classification Scheme** (in the *Use and Trade* section) to use if information is available for these; currently these classification schemes are not compulsory.

A note about the Threats Classification Scheme

Parts of the Threats CS in SIS are likely to be reworded to better clarify the codes. In particular, the *Biological Resource Use* section needs to be reworded; until that work is completed, the following table is provided to help users select the most appropriate threat codes within that section in the Classification Scheme:

5. Biological resource use
5.1. Hunting & trapping terrestrial animals
5.1.1. Intentional mortality (human use) **= intentional use (species is the target)**
5.1.2. Incidental or accidental mortality (bycatch) **= unintentional effects (species is not the target)**
5.1.3. Persecution / control
5.1.4. Motivation unknown / unrecorded
5.2. Gathering terrestrial plants
5.2.1. Intentional mortality (human use) **= intentional use (species is the target)**
5.2.2. Incidental or accidental mortality (bycatch) **= unintentional effects (species is not the target)**
5.2.3. Persecution / control
5.2.4. Motivation unknown / unrecorded
5.3. Logging & wood harvesting
5.3.1. Intentional mortality (human use – subsistence/small scale) **= intentional use: subsistence/small scale**
5.3.2. Intentional mortality (human use – large scale) **= intentional use: large scale**

5.3.3. Incidental or accidental mortality (bycatch – subsistence/small scale) **= unintentional effects: subsistence/small scale**

5.3.4. Incidental or accidental mortality (bycatch – large scale) **= unintentional effects: large scale**

5.3.5. Motivation unknown / unrecorded

5.4. Fishing & harvesting aquatic resources

5.4.1. Intentional mortality (human use – subsistence/small scale) **= intentional use: subsistence/small scale**

5.4.2. Intentional mortality (human use – large scale) **= intentional use: large scale**

5.4.3. Incidental or accidental mortality (bycatch – subsistence/small scale) **= unintentional effects: subsistence/small scale**

5.4.4. Incidental or accidental mortality (bycatch – large scale) **= unintentional effects: large scale**

5.4.5. Persecution / control

5.4.6. Motivation unknown / unrecorded

1.5. Assessment information

The following information must be recorded in the *Red List Assessment* section for each assessment:

a. **Red List Category and Criteria**. SIS has an expert system which calculates the appropriate Red List status based on whatever information is recorded in the data fields. However, if the manual over-ride is used, the assessment appropriate category and (if applicable) criteria must be selected.

b. **Assessment Date**. 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.

c. **Assessors**. One or more assessors names should be added (or and organization may be entered as being responsible for the assessment, for example, BirdLife International).

d. **Evaluated**. When the assessment has been evaluated, the *Evaluated* check box must be ticked and the date and outcome of the evaluation must be entered.

e. **Evaluators**. At least two named people are required to review each assessment. If possible, all evaluators should be people who were not directly involved in the assessment.

f. **Rationale**. See section 1.2. above.

g. **Reasons for Change**. If the taxon has been assessed previously, record whether it has changed status (i.e., it has moved into a different category, or there is no category change) and the main reason for the change (i.e., is it a genuine or a non-genuine change).

1.6. Bibliography

A comprehensive list of the all the data sources used and cited must be attached to the species account. In SIS, the bibliography for the assessment can be accessed from any screen in the assessment record (in the toolbar click on *Tools*, then *Manage References*). References may also be attached to specific fields (click on the book icon attached to the field). See section 2 for guidance on formatting citations and bibliographic references in SIS.

2. 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.

2.1. 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.

2.2. 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. If much more detailed and technical information is essential (for example, results of multiple surveys to support the overall population decline rate given in the summary documentation), this can always be incorporated into a PDF document with a link to that document from the appropriate field.

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.

2.3. 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 Red List web site, 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 (*Acipenser brevirostrum*)	Shortnose Sturgeon, *Acipenser brevirostrum* *Acipenser brevirostrum* (Shortnose Sturgeon) Shortnose Sturgeon (Acipenser brevirostrum)

3. 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 (*Lepus corsicanus*) 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 (*Lepus europaeus*), 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.	*Lepus corsicanus* is legally protected in continental Italy because of its conservation status. However, the problematic discrimination in the field between the *Lepus corsicanus* and *Lepus europaeus*, which is a game species, produces remarkable problems for effective protection. Since *Lepus corsicanus* 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
Calocedrus rupestris is rare in most provinces although it may be locally common in specific localities. The total population is estimated to be less than 2,500 mature individuals. Seedlings of *C. rupestris* are rare and hence recruitment is poor.	*Calocedrus rupestris* is rare in most provinces although it may be locally common in specific localities. The total population is estimated to be less than 2,500 mature individuals. Seedlings of *Calocedrus rupestris* are rare and hence recruitment is poor.

5. 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*).
6. 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 *Parathelphusidae*, but it has recently been reassigned to the *Gecarcinucidae*.

2.4. Numbers and Dates

2.4.1. Numbers

1. 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.

2. 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.

3. 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.

4. 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.).

2.4.2. 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 11th 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

2.5. Brackets, dashes, hyphens, etc.

2.5.1. 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.

2.5.2. 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."

2.5.3. 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***.

2.5.4. 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."

2.5.5. 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."

2.5.6. 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.

2.6. 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 (*Abies nebrodensis*) 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 (*Abies nebrodensis*) 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 (*Abies nebrodensis*) 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 (*Abies nebrodensis*) 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: *et cetera*)	etc.	*etc.* etc
and others (Latin: *et alia*)	*et al.*	et al. *et al*
approximately (Latin *circa*)	*c.* *ca*	c *c* ca *ca.*
in its original place (Latin: *in situ*)	*in situ*	in situ *in situ.*

Outside of its original place (Latin *ex situ*)	*ex situ*	ex situ *ex situ.*
compare (Roman: confer)	cf.	*cf.* cf
this purpose (Latin: *ad hoc*)	*ad hoc*	ad hoc *ad hoc.*
by itself (Latin: *per se*)	*per se*	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.

2.7. 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**
km²	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.

   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	<				

2.8. IUCN and 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 then 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 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).

2.9. Red List assessors and evaluators

NOTE: SIS will be changing the way it stores assessors', evaluators' and data contributors' names, whereby full names and contact details will be stored and this information used to generate names in the appropriate format for the Red List. In the interim, however, the following standards should be used.

2.9.1 Assessors

1. Write the assessors' names with the surname first followed by initials.
2. For multiple assessors, use a comma to separate these, and an ampersand (&) to link the final two names.
3. Assessors generally should be named people, but sometimes organizations are responsible for carrying out the assessments based on data contributed to them (e.g., BirdLife International does this). In this case, enter the full name of the organization responsible for the assessments in the *Assessors* field, and the names of contributors (following the same standard noted above) in the *Contributors* field.

For example:

Appropriate	**Inappropriate**
Freyhof, J. & Kottelat, M.	Jörg Freyhof; Maurice Kottelat Freyhof, J. and Kottelat, M. J. Freyhof & M. Kottelat
Siliwal, M., Molur, S. & Daniel, B.A.	Siliwal, M., Molur, S., and Daniel, B.A. Siliwal, M.; Molur, S.; Daniel, B.A.

2.9.1 Evaluators

1. Write the evaluators' names with the surname first followed by initials.
2. Use a comma to separate evaluator names, and an ampersand (&) to link the final two names.
3. Add the evaluators' relationship with the Red List in brackets after their name (e.g., which Red List Authority they are from, what Species Programme Unit they represent, etc.).
4. Avoid using abbreviations (e.g., write 'Red List Authority' instead of 'RLA')

For example:

Appropriate	Inappropriate
Kullander, F. (Freshwater Fish Red List Authority) & Smith, K. (IUCN Freshwater Biodiversity Assessment Unit)	Frank Kullander (Freshwater Fish Red List Authority); Kevin Smith (IUCN Freshwater Biodiversity Assessment Unit) Kullander, F. & Smith, K. Kullander, F. (FW Fish RLA) & Smith, K. (IUCN FBU)

2.10. Geographical information

1. The 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

2. 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.
3. When writing directions, do not capitalize these. For example, use "north" and not "North".
4. 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

5. Use a capital letter when referring to a cultural rather than a geographical entity. For example, use “Western culture”, “Eastern medicine”, “North-South divide”.
6. 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.”
7. 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.”

2.11. 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 km².	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 km².

2.12. References

2.12.1. 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 (Hershkovitz 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 (Hershkovitz 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 (Hershkovitz 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 (Hershkovitz 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 (Hershkovitz 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:

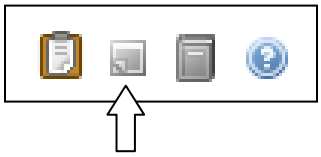
Preferred style	Try to avoid

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 *et al*. 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 notes icon:



Notes icon

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

2.12.2. 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 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 because 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 and 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, M.T. 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
Alburnus vistonicus, a new species from eastern Greece, with remarks on Chalcaburnus chalcoides macedonicus from Lake Volvi	Alburnus vistonicus, a new species from eastern Greece, with remarks on Chalcaburnus chalcoides macedonicus from Lake Volvi. Alburnus vistonicus, a new species from eastern Greece, with remarks on Chalcaburnus chalcoides macedonicus from Lake Volvi

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	Oryx
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

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.

3. 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)).

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

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 for Botanical Nomenclature* (IBZN 2000 – see http://www.bgbm.org/iapt/nomenclature/code/SaintLouis/0000St.Luistitle.htm).

3.1. 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, however 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 web site (www.iucnredlist.org)).
2. In the taxonomic backbone of SIS, the higher level names should be entered in CAPITAL letters. For example, use CANIDAE instead of Canidae. But, if a higher level taxonomic term is used within a text field, it should be Capitalized (see section 2.3 above).
3. Enter the taxonomic authority for the 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 scientific name if this is known; these common terms are used in the search function on the Red List web site to help non-taxonomists to find what they are looking for without using taxonomic terms.

3.2. Genus, Species and Subspecies Names

SIS already includes an extensive list of genus 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 enter a new name. 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 web site (www.iucnredlist.org)).
2. Enter the taxonomic authority for the genus, if this is known or can easily be found.
3. 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 web site to help non-taxonomists to find what they are looking for without using taxonomic terms.
4. When being used in a body of text, all genus, species and subspecies names are italicized (see section 2.3 above).
5. Genus names are always Capitalized, while species and subspecies names are written in lower case. For example:

Correct	**Incorrect**
Acipenser baerii	*acipenser baerii* *Acipenser Baerii*
Acipenser baerii baerii	*Acipenser Baerii baerii* *Acipenser Baerii Baerii*

3.3. 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.

3.3.1. 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. A comma is used to separate the author name and the publication year, and 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
Seriola gracilis Lowe, 1843	*Seriola gracilis*, Lowe 1843 *Seriola gracilis* (Lowe, 1843) **(but see point 5 below)** *Seriola gracilis* 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.

Correct	Incorrect
Acipenser baerii baerii Brandt, 1869	*Acipenser baerii* Brandt, 1869 *baerii*
Acipenser baerii baicalensis Nikolskii, 1896	*Acipenser baerii* Brandt, 1869 *baicalensis* 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
Raja bathyphila Holt & Byrne, 1908	*Raja bathyphila* Holt and Byrne, 1908 *Raja bathyphila* 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 it currently appears under**.

   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
Dipturus crosnieri (Séret, 1989)	*Dipturus crosnieri* Séret, 1989

	Dipturus crosnieri McEachran & Dunn, 1998 *Dipturus crosnieri* (McEachran & Dunn, 1998)

3.3.2. 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**
Abies beshanzuensis M.H. Wu	*Abies beshanzuensis* 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**
Abies beshanzuensis M.H. Wu	*Abies beshanzuensis* Wu *Abies beshanzuensis* 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 full name of the species 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 attached to the species *Abies pectinata* which had been described (and remained unchanged since) by Gilib. At the time, the correct citation for this variety was:

   Abies pectinata Gilib. var. *nebrodensis* Lojac.

3.4. Synonyms

As previously mentioned, the IUCN Red List is not intended as 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. But 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. Currently, it is not compulsory to record the basionym in the list of synonyms, however a future version of SIS may use the presence of basionyms to automatically insert parentheses around author names (for animal names) without data recorders having to check this detail. Therefore, in these cases it would be useful to add the original published name to the synonyms list and attach the note “Basionym”.
4. Ensure the genus, species (and subspecies, if applicable) names and taxonomic authority for each synonym is provided, following the same rules outlined above.

4. Consistency Checks

This section gives a summary of the general 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 the Red List is to check that all of the assessments include the required documentation, in the standard format and that the assessment accounts are clear, informative and the supporting information matches the final Red List assessment (e.g., 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).

The standard checks that should be carried out on all assessments 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.
- The taxonomic authority is recorded and is in the correct format.

Common names

- Common names are recorded, where these exist
- The primary common name is highlighted.

Summary text

- Documentation is entered for:
    - Taxonomic notes (if necessary)
    - Distribution
    - Population
    - Habitats & Ecology
    - Use & Trade
    - Threats
    - Conservation Measures
    - Red List Assessment Rationale
- The text is clear and understandable.
- Spelling has been checked.
- Correct formats are used for reference citations, etc.
- Italics have been added in the appropriate places (*et al*., species names, etc.)

Data fields

- All data fields completed (AOO, EOO, Population decline rates, etc.)

Biogeographic Realms

- Biogeographic realms are recorded for terrestrial and freshwater taxa.

Systems

- Appropriate systems recorded (terrestrial, freshwater, marine).

Occurrence information

- Country occurrences are recorded, with presence/origin noted for each country.
- Marine taxa have FAO (and, if desired, LME) occurrences recorded, with presence/origin noted for each area.

Population trend

- Population trend is recorded (and doesn't contradict the population text).

Classification Schemes

- Habitat Classification Scheme information recorded (and doesn't contradict the habitats text), with suitability and importance noted.
- Utilization Classification Scheme information recorded.

- Threats Classification Scheme information recorded (and doesn't contradict the threats text), with timing, scope, severity and stresses noted.
- Conservation Actions Classification Scheme information recorded (and doesn't contradict the conservation actions text).
- Ecosystem Services are recorded (but this is not compulsory at present).

Bibliography

- All references cited in the text appear in the bibliography.
- References in the bibliography follow the appropriate format.

Red List Assessment

- Category and criteria noted.
- Assessment date noted.
- Assessors are recorded and are in the correct format.
- At least two evaluators are recorded, and are entered in correct format.
- Date and outcome of evaluation are noted.
- The appropriate author citation is entered in the 'Red List Assessment Authors' field in the *Publication Information* section – this is the information displayed for citation of the assessment on the Red List web site, and usually (but not always) it is the same as the information in the assessors field.
- All EX, EW and CR(PE) taxa have a 'last seen' date recorded.
- Reason for change recorded.
- Rationale is understandable and fully supports the assessment.

Error checks

It is likely that a future version of SIS will implement automatic checks for some of the items mentioned below. In the interim, please carry out at least the following checks (you can probably think of others in addition to this list):

- The criteria and supporting information are appropriate for the selected category.
    - Criteria apply only to CR, EN and VU; no other categories should have criteria attached to them.
    - 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 recorded as 'extinct' in all their country and subcountry (and FAO and LME areas, if applicable) occurrence records.
- Ensure that the reason for change recorded is a comparison between the current assessment and the last assessment for that taxon (rather than a reason for change since the last comprehensive assessment for that taxonomic group, which is used for Red List Index calculations and may be based on backcasting).
- 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'.