

## Registration Form and Contact Details

Please fill in the details below and send the completed document, as appropriate, to the Chairman of the Animals Committee or the Chairman of the Plants Committee.

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Taxon reviewed (including common and taxonomic names):

Scientific name: *Amazona oratrix* sin. *Amazona ochrocephala* ssp. *oratrix*

Common names: Yellow-headed Amazon; Yellow-headed Parrot (English); *Loro cabeza amarilla* (Spanish); *Amazone à front jaune* (French).

Please return your completed paper or electronic document to one of the below:

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**Table 1 – Comments from reviewer on applicability of criteria for listing on Appendix I**

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<p style="text-align: center;"><b>CRITERION</b></p> <p>For your information for a species to fulfill the draft criteria for Appendix I it must meet the trade criteria and at least one of the criteria A-D.</p>	<p style="text-align: center;"><b>NOTES</b></p> <p>Whenever appropriate, indicate ways in which this criterion and definitions, explanations and guidelines could be improved and/or quantified to better suit this taxon and its relatives (If you need additional space, please use a separate sheet of paper).</p> <p>For the following specific questions, if a point estimate is not available, please provide a likely range of values (e.g., “about 6,000 – 10,000 individuals”) or some kind of rough estimate or inference (e.g., “likely to be less than 500 square kilometres”). Please try to make a numerical guess or give a verbal description and only use DNW (Do Not Know) if there is truly no information available on the quantity in question.</p>
<p><b>Trade Criterion</b>  <b>Is or may the species be affected by international trade?</b>  Please justify and explain in which way it is or may be affected by trade.</p>	<p>Yes, it is one of the most commercialized species of the family Psittacidae. The specimens are still being taken from the wild.</p> <p>The trade criterion applies for the species.</p>
<p><b>A) The wild population is small</b>, (if possible, please define this in relation to other species of the same taxonomic group * ), and is characterized by at least one of the following (see definitions below):</p> <p>* The taxonomic level to which this criterion has to be referred depends on the species, so it can be related to the Order, the Family or the Genus. If possible, this should be defined, explained and justified by the proponent.</p>	<p>What was/is the estimated size of the population? Please include units of measurement.</p> <p>Yes, the whole population of the species is around 7,000 individuals. So, in relation to other parrots and members of the Family (Psittacidae) it is considered to be very small and highly fragmented.</p> <p>The criterion applies for the species. Nevertheless, we propose a modification to the criterion (as shown on the left) so that absolute numbers are not used to define a small population and for the criterion to be less subjective. Also, it can be more useful and guide the proponents to define what is a small population.</p>
<p><b>A)(i)</b> an observed, inferred or projected <u>decline</u> in the</p>	<p>Yes, there was a 90% decrease in the area of distribution in the last 30</p>

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<p>number of individuals or the area and quality of habitat; or</p>	<p>years, and 70% of these only in the last 10 years.</p> <p>The criterion applies for the species.</p>
<p><b>A)(ii)</b> each <a href="#">sub-population being very small</a> (if possible, please define this in relation to other species of the same taxonomic group * ),; or</p> <ul style="list-style-type: none"> <li>The taxonomic level to which this criterion has to be referred depends on the species, so it can be related to the Order, the Family or the Genus. If possible, this should be defined, explained and justified by the proponent.</li> </ul>	<p>What were/are the estimated sizes of the <a href="#">subpopulation(s)</a>? Please include units of measurement.</p> <p>There has been an observed reduction in the number of individuals per subpopulation, but there are no specific data to support this.</p> <p>The criterion applies for the species.</p>
<p><b>A)(iii)</b> a majority of individuals, during one or more life-history phases, being concentrated in one <a href="#">sub-population</a>; or</p>	<p>No, it is not the case for the species.</p> <p>The criterion applies for the species.</p>
<p><b>A)(iv)</b> large short-term <a href="#">fluctuations</a> in the number of individuals appropriate to measuring population size for the species concerned;</p>	<p>If the population was/is characterized by large short-term <a href="#">fluctuations</a> in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years?</p> <p>Not enough information to determine this.</p> <p>The criterion applies for the species.</p>
<p><b>A)(v)</b> a high <a href="#">vulnerability</a> due to the species' biology or behaviour (including migration).</p>	<p>Yes, the species has very low fecundity, slow growth rate, high age at first maturity, long generation time, complex social structure, migration, aggregating behaviour and specialized niche requirements.</p> <p>The criterion applies for the species.</p>

<p><b>B) The wild <u>population</u> has a restricted <u>area of distribution</u> (if possible, please define this in relation to other species of the same taxonomic group * ) or is endemic to only one country, and is characterized by at least one of the following</b> (see definitions below):</p> <p>* The taxonomic level to which this criterion has been referred depends on the species, so it can be related to the Order, the Family or the Genus. If possible, this should be defined, explained and justified by the proponent.</p>	<p>What was/is the estimated <u>area of distribution</u>? If listing on the basis of one or more <u>sub-populations</u>, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement?</p> <p>Yes, some populations have a restricted area of distribution.</p> <p>The criterion applies for the species. Nevertheless, we propose a modification to the criterion (as shown on the left) so that absolute numbers are not used to define a restricted area of distribution. Also, we propose that if the species is endemic to one country it qualifies for this criterion. This is because it means that all or most of the responsibility for the conservation of a given species relies on that particular country and thus the species is under a bigger risk. It has to be another option and not an additional condition, because there might be some case where the species has restricted, but shared (not endemic to one country), distribution and then it would not qualify for this criterion.</p>
<p><b>B)(i) <u>fragmentation</u></b> or occurrence at very few locations; or</p>	<p>Yes, the populations of the species are very fragmented. Over 78% of the habitat in the NE and East of Mexico and over 37% in the Pacific coast. Based on the Inventario Forestal 1994.</p> <p>The criterion applies for the species.</p>
<p><b>B)(ii)</b> large fluctuations in the <u>area of distribution</u> or the number of <u>sub-populations</u>; or</p>	<p>There is not available information to determine this.</p> <p>The criterion applies for the species, but it is quite difficult to determine this.</p>
<p><b>B)(iii)</b> a high <u>vulnerability</u> due to the species' biology or behaviour (including migration); or</p>	<p>Yes, it is vulnerable because of the species' biology. The main reason is that it has very low fecundity, slow growth rate, high age at first maturity, long generation time, complex social structure, migration, aggregating</p>

<p>▼</p>	<p>behaviour and specialized niche requirements</p> <p>The criterion applies for the species.</p>
<p>B)(iv) an observed, inferred or projected <b>marked / significant</b> * decrease in any one of the following:</p> <p>* The following can be used to define an marked / significant decrease in number of individuals and sub-populations:</p> <p>a) A reduction of 70% or more over the last 10 years or three generations (whichever is the longer), of the original number of individuals or sub-populations.</p> <p>Note: This values are based on the proposed percentages proposed by the IUCN 2001 Criteria for inclusion in the Endangered category.</p>	
<ul style="list-style-type: none"><li>the <a href="#">area of distribution</a>; or</li></ul> <p>Note: We think this sub-criterion can be deleted, because it is already covered buy the next one. The loss of habitat implies a loss in the area of distribution, but is more accurate and informative about its impact on the species conservation. Besides, the lost of certain area of distribution does not necessarily implies a loss in the number of individuals or a higher risk of extinction, unless it is, for example, a loss in habitat or of important areas for certain life stages within it's natural distribution.</p> <p>A reduction in area of distribution can result from a: (1) habitat loss or (2) extirpation of the species from certain area(s), in which case can be confused with other criteria like reduction in population numbers or in the number of subpopulations.</p>	<p>Yes, the area of distribution has been reduced 70%.</p> <p>The criterion applies for the species.</p>

<ul style="list-style-type: none"> <li>the area of habitat*; or</li> </ul> <p>* To determine whether it is an important reduction of habitat or not, this factor has to be evaluated in relation to other species within the same taxonomic group (e.g. Order, Family, Genus) or justified for that particular species. Some factors such as a home range, territoriality, specialization degree, and habitat availability, can help to conduct the evaluation of this criterion and that of habitat quality.</p>	<p>Yes, approximately 70% of its area of distribution has been lost, and, therefore, a great part of its habitat as well.</p> <p>The criterion applies for the species.</p>
<ul style="list-style-type: none"> <li>the number of <a href="#">sub-populations</a>; or</li> </ul>	<p>We do not know if we have lost subpopulations such as the Oaxaca-Chiapas. However with the little information known, it seems the number of subpopulations hasn't been reduced, but the number of individuals of each subpopulation has been reduce drastically in less than 30 years.</p> <p>The criterion applies for the species.</p>
<ul style="list-style-type: none"> <li>the number of individuals; or</li> </ul>	<p>Yes, approximately 90% of the population has been lost.</p> <p>The criterion applies for the species.</p>
<ul style="list-style-type: none"> <li>the quality of habitat; or</li> </ul>	<p>Yes, it is very fragmented. There is a substantial reduction on the standing trees with suitable nesting cavities in those fragments. Large trees are more prone to fall down with strong winds in these forest fragments. Also the lack of nesting cavities is increasing.</p> <p>The criterion applies for the species.</p>
<ul style="list-style-type: none"> <li>the recruitment.</li> </ul>	<p>Yes, the species populations are characterized by a very low recruitment rate; approximately only 0.3% of chicks/nest. Besides, 65% of mates do</p>

	<p>not reproduce.</p> <p>The criterion applies for the species.</p>
<ul style="list-style-type: none"> <li>• areas of critical habitat or of high concentration of the species (e.g. seasonal, of certain life stages, etc.)</li> </ul> <p>We propose this new sub-criterion, which we consider very important for the evaluation of the species' risk of extinction and that not necessarily is covered by the criteria mentioned above. Besides, it can help proponents to notice or focus on important risk factors.</p>	<p>YES. There has been a reduction in nesting sites in suitable habitat.</p> <p>The criterion applies for the species.</p>
<p><b>C) A marked <u>decline</u> in <u>population size</u> in the wild, which has been either</b> (see definitions below):</p>	<p>Historical extent of <u>decline</u> - To what extent has the <u>population</u> or the <u>area of distribution</u> (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ___% of the historical levels of ___ years ago.)</p> <p>Recent rate of <u>decline</u> - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which).</p>
<p><b>C)(i)</b> observed as ongoing or as having occurred in the past (but with a potential to resume); or</p>	<p>Yes. It has been observed as ongoing and it indeed has occurred in the past. The population can recuperate if we stop trade and secure habitat.</p> <p>The criterion applies for the species.</p>
<p><b>C)(ii)</b> inferred or projected on the basis of any one of the following:</p>	
	<p>Yes, in the last 10 years there has been a reduction of 70% of the area of</p>

<ul style="list-style-type: none"> <li>• a marked decrease in area of habitat; or</li> </ul>	<p>distribution/ habitat.</p> <p>The criterion applies for the species.</p>
<ul style="list-style-type: none"> <li>• a marked decrease in quality of habitat; or</li> </ul>	<p>Yes. There has been a high fragmentation of breeding and foraging habitat in the Pacific and Gulf of Mexico populations. Over 78% of the habitat in the NE and East of Mexico and over 37% in the Pacific coast. Based on the Inventario Forestal 1994.</p> <p>The criterion applies for the species.</p>
<ul style="list-style-type: none"> <li>• high levels or detrimental practices of exploitation; or</li> </ul>	<p>Yes. Large illegal and legal exploitation in the last 10 years for the domestic and international markets.</p> <p>The criterion applies for the species.</p>
<ul style="list-style-type: none"> <li>• threats from extrinsic human-induced factors (others than direct exploitation) such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or</li> </ul>	<p>Yes. Competition with nesting sites with the Africanized species that is expanding and increasing in the country. The expansion of the West Nile Virus, now detected in Mexican wild birds, and also found in captive parrots is a potential threat for this and many new world species that never have been exposed to this virus</p> <p>The criterion applies for the species.</p>
<ul style="list-style-type: none"> <li>• threats from intrinsic or non-human factors.</li> </ul> <p>Intrinsic factors: demographic bottlenecks; natural high levels of inbreeding; life history traits (e.g., low fecundity, slow growth rate, high age at first maturity, long generation time); population structure (age/size structure, sex ratio); behavioral factors (e.g., social structure, migration, aggregating behaviour); high density (for sessile or semi-sessile species); specialized niche requirements (e.g., diet, habitat); species associations such as symbiosis and other forms of co-dependency; depensation (prone to continuing decline even in the absence of exploitation); natural catastrophes or rapid environmental changes (e.g., climate regime shifts).</p>	<p>YES. Low fecundity, slow growth rate, high age at first maturity, long generation time, complex social behaviour and aggregation behaviour, prone to natural catastrophes due to hurricanes and fires that reduce the availability of nesting sites or destroy some extirpated populations</p> <p>The criterion applies for the species.</p>

<ul style="list-style-type: none"> <li>a decreasing recruitment</li> </ul>	<p>Yes. Adults are trapped with mist nets to supply the domestic and international markets, chicks are obtained by cutting down nesting cavities, which reduces the availability of nesting sites for the pairs to breed.</p> <p>The criterion applies for the species.</p>
<ul style="list-style-type: none"> <li>A reduction of critical habitat or high concentration areas of the species (e.g. seasonal, of certain life stages, etc.).</li> </ul> <p>We propose this new sub-criterion, which we consider very important for the evaluation of the species' risk of extinction and that not necessarily is covered by the criteria mentioned above. Besides, it can help proponents to notice or focus on important risk factors.</p>	<p>YES chicks are obtained by cutting down nesting cavities, which reduces the availability of nesting sites for the pairs to breed.</p> <p>The criterion applies for the species.</p>
<p><b>D)</b> If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?</p>	<p>Yes, if the species is not included in Appendix I the species will continue to decline due to the high demand in the international market. Aviculturist find the species is needed in the captive breeding companies.</p> <p>The criterion applies for the species.</p>

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> <u>X</u> low fecundity                         | <input type="checkbox"/> <u>X</u> strong aggregating behaviour |   |
| <input checked="" type="checkbox"/> <u>X</u> slow growth rate           | (e.g., schooling)  |   |
| <input checked="" type="checkbox"/> <u>X</u> high age at first maturity | <input type="checkbox"/> low population density (for           | <input checked="" type="checkbox"/> <u>X</u> specialized niche requirements (e.g. |
| <input type="checkbox"/> distorted age, size or sex ratio               | sessile or semi-sessile species)                               | diet and habitat)   |
| <input type="checkbox"/> <u>X</u> complex social structure              |  | <input type="checkbox"/> species associations such as                             |
| <input type="checkbox"/> <u>X</u> extensive migratory behaviour         |  | symbiosis and other forms of co-  |
|   |  | dependency  |

- fragmentation and habitat loss
- reduced genetic diversity
- depensation (prone to continuing decline, even in the absence of exploitation)
- high degree of endemism
- threats from disease
- threats from invasive species
- threats from rapid environmental change (e.g. climate regime shifts)
- selectivity of removals (that may compromise recruitment)
- Other (please specify)

**Table 2 – Comments from reviewer on applicability of criteria for listing on Appendix II**

<p style="text-align: center;"><b>Criterion</b></p> <p>For your information for a species to fulfill the draft criteria for Appendix II it must meet at least one of the criteria A-D.</p>	<p style="text-align: center;"><b>NOTES</b></p> <p><b>Whenever appropriate, indicate ways in which this criterion and definitions, explanations and guidelines could be improved and/or quantified to better suit this taxon and its relatives (If you need additional space, please use a separate sheet of paper).</b></p>
<p><b>Trade Criterion</b> Is or may the <a href="#">species</a> be <a href="#">affected by international trade</a>?</p> <p>Please justify and explain in which way it is or may be affected by trade.</p>	<p>Yes. large illegal and legal exploitation in the last 10 years for the domestic and international markets. Specially in the last 10 years the international trade with this species has increased and several hundred birds have been smuggled to Europe</p> <p>The criterion applies for the species.</p>
<p><b>A)</b> It is known, or can be inferred (<b>on the basis of some evidence</b>), that the regulation of trade in the species is necessary to avoid it becoming eligible for inclusion in Appendix I in the near future. <b>Please explain how.</b></p>	<p>Yes. It is one of the most commercialized species of the family Psittacidae. The specimens are still being taken from the wild.</p> <p>The criterion applies for the species.</p>
<p><b>B)</b> It is known, or can be inferred or projected (<b>on the basis of some evidence</b>), that harvesting of specimens from the wild for international trade has, or may have, a detrimental impact on the species by either:</p>	
<p><b>B)(i)</b> Exceeding, the level that can be continued to perpetuity.</p>	<p>Yes. Current rates of capture of the species in the wild are not sustainable.</p> <p>The criterion applies for the species.</p>

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<p><b>B)(ii)</b> Reducing it to a population level at which its survival would be threatened by other influences (<b>Indicate what other influences are affecting the species</b>).</p>	<p>Yes. It can be threatened by reduction and fragmentation of habitat, competition for nesting sites, and introduction of new viral diseases to wild populations such as west Nile virus.</p> <p>The criterion applies for the species.</p>
<p><b>C)</b> The specimens of the species in the form in which they are traded resemble specimens of a species included in Appendix II under the provisions of Article II, paragraph 2(a), or in Appendix I, such that a non-expert, with reasonable effort, is unlikely to be able to distinguish between them.</p>	<p>Yes, chicks are similar to those of other species.</p> <p>The criterion applies for the species.</p>
<p><b>D)</b> There are compelling reasons, other (<b>IT WOULD BE USEFUL TO EXEMPLIFY THESE OTHER REASONS TO GUIDE THE PROPONENTS</b>) than those given in C to ensure that effective control of trade in currently listed species is achieved.</p>	<p>No.</p> <p>The criterion applies for the species.</p>

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> low fecundity                         | <input type="checkbox"/> extensive migratory behaviour                                | <input checked="" type="checkbox"/> specialized niche requirements (e.g. diet and habitat)       |
| <input checked="" type="checkbox"/> slow growth rate           | <input type="checkbox"/> strong aggregating behaviour (e.g., schooling)               | <input type="checkbox"/> species associations such as symbiosis and other forms of co-dependency |
| <input checked="" type="checkbox"/> high age at first maturity | <input type="checkbox"/> low population density (for sessile or semi-sessile species) | <input checked="" type="checkbox"/> fragmentation and habitat loss                               |
| <input type="checkbox"/> distorted age, size or sex ratio      |   |  |
| <input type="checkbox"/> complex social structure              |   |  |

- reduced genetic diversity
- depensation (prone to continuing decline, even in the absence of exploitation)
- high degree of endemism

- threats from disease
- threats from invasive species
- threats from rapid environmental change (e.g. climate regime shifts)

- selectivity of removals (that may compromise recruitment)
- Other (please specify)

### Definitions, explanations and guidelines

#### **Species**

In Article I of the Convention the term species is defined as “any species, subspecies or geographically separate population thereof”.

Species and subspecies refer to the biological concept of a species, and do not require any further definition.

The two terms also cover varieties.

“Geographically separate population” refers to parts of a species or a subspecies within particular geographical boundaries. This can also refer to populations or subpopulations, or, for the sake of convenience in certain cases, to ‘stocks’ as the term is understood in fisheries management.

Until now, the Conference of the Parties has interpreted ‘geographically separate populations’ as populations delimited by geopolitical boundaries, whereas they have rarely used the other option of geographical boundaries.

#### **Affected by trade**

A species “is or may be affected by trade” if:

1. it is known to be in trade, and that trade has or may have a detrimental impact on the status of the species; or
2. it is suspected to be in trade, or there is potential international demand for the species, that may be detrimental to its survival in the wild.

#### **Area of distribution**

Area of distribution of a species is defined as the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred or projected sites of occurrence, excluding cases of vagrancy and introductions outside its natural range (though inferring and projecting area of occurrence should be undertaken carefully, and in a precautionary manner). The area within the imaginary boundary should, however, exclude significant areas where the species does not occur, and so in defining an area of distribution, account should be taken of discontinuities or disjunctions in the spatial distribution of species. For migratory species, the area of distribution is the smallest area essential at any stage for the survival of that species (e.g., colonial nesting sites, feeding sites for migratory taxa, etc.). For some species for which data were available to make an estimate, a figure of less than 10,000 km<sup>2</sup> has been found to be an appropriate guideline (not a threshold) of what constitutes a restricted area of distribution. However, this figure is presented only as an example, since it is impossible to give numerical values that are applicable to all taxa. There will be many cases where this numerical guideline does not apply.

## Decline

A decline is a reduction in the abundance, or area of distribution, of a species. Decline can be expressed in two different ways: (i) the overall long-term extent of decline or (ii) the recent rate of decline. The long-term extent of decline is the total estimated or inferred percentage reduction from a baseline level of abundance or area of distribution. The recent rate of decline is the percentage change in abundance or area of distribution over a recent time period. The [data used to estimate or infer](#) a baseline for extent of decline should extend as far back into the past as possible.

A general guideline for a marked historical extent of decline is a percentage decline to 5%-30% of the baseline, depending on the reproductive biology of the species. The extremes of 5% and 30% will be applicable to only a relatively small number of species, but some species may even fall outside of these extremes. However, both these figures are presented only as examples, since it is impossible to give numerical values that are applicable to all taxa because of differences in their biology ([see footnote with respect to application of decline to commercially exploited aquatic species](#)).

A general guideline for a marked recent rate of decline is a percentage decline of 50% or more in the last 10 years or three generations, whichever is the longer. If the population is small, a percentage decline of 20% or more in the last 5 years or 2 generations (whichever is the longer) may be more appropriate. However, these figures are presented only as examples, since it is impossible to give numerical values that are applicable to all taxa because of differences in their biology.

The historical extent of decline and the recent rate of decline should be considered in conjunction with one another. In general, the higher the historical extent of decline, and the lower the productivity of the species, the more important a given recent rate of decline is.

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\* Application of decline for commercially exploited aquatic species:

In marine and large freshwater bodies, a narrower range of 5-20% is deemed to be more appropriate in most cases, with a range of 5-10% being applicable for species with high productivity, 10-15% for species with medium productivity and 15-20% for species with low productivity. Nevertheless some species may fall outside this range.

In general, historical extent of decline should be the primary criterion for consideration of listing in Appendix I. However, in circumstances where information to estimate extent-of-decline is limited, rate-of-decline over a recent period could itself still provide some information on extent-of-decline.

For listing in Appendix II, the historical extent of decline and the recent rate of decline should be considered in conjunction with one another. The higher the historical extent of decline, and the lower the productivity of the species, the more important a given recent rate of decline is.

A general guideline for a marked recent rate of decline is the rate of decline that would drive a population down within approximately a 10-year period from the current population level to the historical extent of decline guideline (i.e. 5-20% of baseline for exploited fish species). There should rarely be a need for concern for populations that have exhibited an historical extent of decline of less than 50%, unless the recent rate of decline has been extremely high.

Even if a population is not declining appreciably, it could be considered for listing in Appendix II if it is near the extent-of-decline guidelines recommended above for consideration for Appendix I-listing. A range of between 5% and 10% above the relevant extent-of-decline might be considered as a definition of 'near'.

A recent rate-of-decline is important only if it is still occurring, or may resume, and is projected to lead to the species reaching the applicable point for that species in the Appendix I extent-of-decline guidelines within approximately a 10-year period. Otherwise the overall extent-of-decline is what is important. When sufficient data are available, the recent rate-of-decline should be calculated over approximately a 10-year period. If fewer data are available, annual rates over a shorter period could be used. If there is evidence of a change in the trend, greater weight should be given to the more recent consistent trend. In most cases, listing would only be considered if the decline is projected to continue.

In estimating or inferring the historical extent of decline or the recent rate of decline, all relevant data should be taken into account. A decline need not necessarily be ongoing. If data are available only for a short period and the extent or rate of decline based on these data are cause for concern, the guidelines above (extrapolated as necessary or relevant) should still apply. However, natural fluctuations should not normally count as part of a decline, but an observed decline should not necessarily be considered part of a natural fluctuation unless there is evidence for this. A decline that is the result of [legal activities carried out pursuant to](#) a harvesting programme that reduces the population to a planned level, not detrimental to the survival of the species, is not covered by the term “decline”.

#### Extended period

The meaning of the term extended period will vary according to the biological characteristics of the species. Selection of the period will depend upon the observed pattern of natural fluctuations in the abundance of the species and on whether the number of specimens removed from the wild is consistent with a sustainable harvesting programme that is based on these natural fluctuations.

#### **Fluctuations**

Fluctuations in population size or area of distribution are considered large when [the population size or area in question](#) varies widely, rapidly or frequently. Where data exist to make an estimate, one order of magnitude has been found to be an appropriate guideline (not a threshold) for population size. Similarly, fluctuations can be considered ‘short term’ if the period of fluctuation is about two years. However, this figure is presented only as an example, since it is impossible to give numerical values that are applicable to all taxa. There will be many cases where this numerical guideline does not apply.

#### **Fragmentation**

Fragmentation refers to the case where most individuals within a taxon are found in small and relatively isolated sub-populations, which increases the probability that these small sub-populations will become extinct and the opportunities for re-establishment are limited. For some species in trade where data exist to make an estimate, an area of distribution of 500 km<sup>2</sup> or less for each subpopulation has been found to be an appropriate guideline (not a threshold) of what constitutes fragmentation. However, this figure is presented only as an example, since it is impossible to give numerical values that are applicable to all taxa. There will be many cases where this numerical guideline does not apply.

#### **Generation length**

Generation length is the average age of parents of the current cohort (i.e., newborn individuals in the population). Generation length therefore reflects the turnover rate of breeding individuals in a population. Generation length is greater than the age at first breeding and less than the age of the oldest breeding individual, except in taxa that breed only once. Where generation length varies under threat, the more natural (i.e., pre-disturbance) generation length should be used.

#### **Near future**

Refers to a time period in which it can be projected or inferred that a species would satisfy one (or more) of the criteria in Annex I unless it is included in Appendix II. Clearly this period will be taxon- and case- specific, however, 5-10 years may be considered a useful guideline. However, this figure is presented only as an example, since it is

impossible to give numerical values that are applicable to all taxa. There will be many cases where this numerical guideline does not apply.

## Population issues

### Population

Population refers to the total number of individuals of the species (as “species” is defined in Article 1 of the Convention and in this Annex (to be considered in light of any decision arising from consideration of Doc. 12.59)

### Sub-population

Sub-populations are defined as geographically or otherwise distinct groups in the population between which there is limited genetic exchange.

### Population size

When providing details on the size of a population or sub-population, it should be made clear whether the information presented relates to an estimate of the total number of individuals or to the effective population size (i.e., individuals capable of reproduction, excluding individuals that are environmentally and behaviourally or otherwise reproductively suppressed in the wild) or to another appropriate measure or component of the population.

In the case of species biologically dependent on other species for all or part of their life cycles, biologically appropriate values for the host or co-dependent species should be chosen.

### Small wild population

For some species where data exist to make an estimate, a figure of less than 5,000 individuals has been found to be an appropriate guideline (not a threshold) of what constitutes a small wild population. However, this figure is presented only as an example, since it is impossible to give numerical values that are applicable to all taxa. There will be many cases where this numerical guideline does not apply.

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### Very small wild sub-population

For some species where data exist to make an estimate, a figure of less than 500 individuals has been found to be an appropriate guideline (not a threshold) of what constitutes a very small sub-population. However, this figure is presented only as an example, since it is impossible to give numerical values that are applicable to all taxa. There will be many cases where this numerical guideline does not apply.

## Possibly extinct

A species is possibly extinct when exhaustive surveys in known and/or suspected habitat, and at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Before a species can be declared possibly extinct, surveys should take place over a time-frame appropriate to the species' life cycle and life form.

## Recruitment

Recruitment is the total number of individuals added to any particular demographic class of a

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population by either sexual or asexual reproduction.

### **Threatened with extinction**

Threatened with extinction is defined by Annex 1. The vulnerability of a species to threats of extinction depends on its population demographics, biological characteristics (such as body size, trophic level, life cycle, breeding structure or social structure requirements for successful reproduction), and vulnerability due to aggregating habits, natural fluctuations in population size, and/or residency/migratory patterns. This makes it impossible to give numerical threshold values for population size or area of distribution that are applicable to all taxa.

### **Vulnerability**

Vulnerability can be defined as the susceptibility to **intrinsic or external** effects which increase the risk of extinction. There are a number of taxon- or case-specific biological and other factors that may affect the extinction risk associated with a given percentage decline, small population size or restricted area of distribution. These can be, but are not limited to, aspects of any of the following:

- Life history (e.g., low fecundity, slow growth rate, high age at first maturity, long generation time)
- Low absolute numbers or biomass or restricted area of distribution
- Population structure (age/size structure, sex ratio)
- Behavioural factors (e.g., social structure, migration, aggregating behaviour)
- Density (for sessile or semi-sessile species)
- Specialized niche requirements (e.g., diet, habitat)
- Species associations such as symbiosis and other forms of co-dependency
- Fragmentation and habitat loss
- Reduced genetic diversity
- Depensation (prone to continuing decline even in the absence of exploitation)
- Endemism
- Threats from disease or invasive species
- Rapid environmental change (e.g., climate regime shifts)
- Selectivity of removals (that may compromise recruitment)