

Ruling of the IUCN Red List Standards and Petitions Working Group

10 September 2007

Taxon: *Lepidochelys olivacea* Olive Ridley
Petitioner: Nicholas Mrosovsky
RLA/SG: Marine Turtle Specialist Group (MTSG)
Red List: VU A2bd (2007)
Ruling: VU A2bd

The IUCN Red List Unit (formerly the IUCN Red List Programme Office) received the petition on 6th May 2006. The petition was made on the grounds that the documentation supporting the 1996 listing of the species as Endangered under criterion A1bd had not been provided, hence it was unclear if this species warranted this listing or not. Because the listing in question was based on an earlier version of the IUCN Red List Categories and Criteria, following the Petitions Process, the Red List Authority (RLA) was asked to reassess the taxon within six months (i.e., to be submitted by 6th November 2006). On the 3rd November the RLA submitted a draft new assessment to the Red List Unit, and requested more time to finalize the assessment and supporting documentation. The draft assessment was forwarded to the Petitioner to see if he was sufficiently happy with the draft to drop the petition. The Petitioner indicated on 20th November 2006 that he was only willing to consider withdrawing the petition if certain provisos could be met. As these provisos deviated from the Petitions Process, it was decided that we should abide by the established rules and move into the formal part of the Petitions Process (point 6 of the Petitions Process document). The RLA and Petitioner were asked on the 22nd November 2006 to prepare and submit justifications for their respective cases within four months (i.e., by 23rd March 2007). Documents were received from both Parties on the 23rd, but in the case of the RLA, it was a draft new assessment with a request for an extension of the deadline to allow review of the draft by other members of the Specialist Group. After reviewing the situation, Simon Stuart as Chair of the IUCN SSC Biodiversity Assessments Sub-Committee (BASC), granted the RLA an extension until the 11th April 2007 to finalize the new assessment. The final document was submitted on the due date and after some minor editorial corrections (requested by the Red List Unit) the new assessment document was forwarded to the Petitioner on the 13th April 2007. Likewise, the Petitioner's justification was forwarded to the RLA on the 13th April 2007 and both Parties were given three weeks to prepare and submit a 1-page addendum to their original submissions should they wish to do so (i.e., to be submitted by 4th May 2007). The justification of the petitioner, the new assessment from the RLA, and 1-page addendums from both the RLA and the petitioner were sent to the Standards and Petitions Working Group (SPWG) of the BASC on 7th May 2007.

The new assessment lists the species as VU under A2bd. Although the petition argued against the earlier EN listing (and even states that “If it is not listed as EN, then my appeal has been successful”), the issues raised apply to the recent VU listing as well. These issues are discussed under three categories: matters of fact (disputes about the data, and the methods and assumptions of the calculation of the population reduction based on these data), matters of interpretation (whether criterion A1 or A2 is applicable), and issues related to the transparency of the data sources and documentation of analytical assumptions.

A) Matters of fact

0. General

The SPWG notes that the assessment is for the global status of the species. As such, the outcome is determined primarily by the trends in the largest sites (#3, #7, #9, #13, #14 and #22). These six sites contribute 1.1-1.2 million to the abundance three generations ago and 872,000 to the present abundance. For this reason, the SPWG focused its attention on these sites, noting that, although there may be issues related to the remaining sites, these issues would not impact the final outcome of the assessment sufficiently to warrant a change to the current VU listing. Nevertheless, the SPWG encourages continued dialogue between the MTSG and the Petitioner regarding the other sites.

It should be noted that although the 60-year period considered by the assessment covers the years 1945-2005, the MTSG generally assumed no decline over the first generation (1945-65) due to lack of data. The overall reduction would have exceeded 31-36% had such extrapolations been conducted based on suspected declines over this period.

1. Current abundance for Ostional

The current abundance for Ostional (site #14) is set to 134,000 mature individuals. The Petitioner notes that an incomplete draft (not available to the SPWG) referred to reducing “the value in the 26 Oct 2006 incomplete draft for Ostional from ca 1 million to 500,000”. The information provided to the SPWG suggests the earlier estimates of >1,000,000 nests were over-estimated by the MTSG and that an estimate ca 300,000 nests per annum in recent years is more reasonable based on information in Solis *et al.* (2007). This is a judgment call by the MTSG, which the SPWG is unable to validate, but accepts as reasonable at face value. The figure of 134,000 in Table 3 reflects accounting for a nest frequency of 2.5 nests / female given a total number of nests of 336,000.

2. Use of a nest rate of 2.9%

The estimates of past and recent abundance for Escobilla (site #9) are based solely on counts and not the hatch rate (and whether that hatch rate is sustainable). Thus, the validity (or otherwise) of the estimate of hatching rate does not impact the estimates of abundance for this site and hence the outcome of the assessment.

3. Use of extrapolation

Use of extrapolation is a valid way to make inference about past and present abundance, and the approach taken by the MTSG follows the general guidance provided by the SPWG. The information provided in Table 3 is not always sufficient to determine the

basis for the extrapolations (see below for additional comment on issues of transparency and documentation). However, the spreadsheet on which the calculations were based used data from 1974-2005, fitted with an exponential function with an R^2 value of 83%, in order to extrapolate abundance at Chacahua (site #8) back to 1965.

4. A generation time of 20 years

The Petitioner notes a preference for a generation time of 19.5 years (rather than the 20 years assumed by the MTSG) given the range of 17-22. The SPWG believes that the selection of 20 years is appropriate given the available information and its precision; use of 19.5 or 20 years would not impact the outcome of the assessment.

5. Estimates of present abundance for Site #12

The data in Table 1 of Hope (2002) [*Environmental Conservation*: 29: 375-284] states that the number of nests at the arribada sites for Chacocente and La Flor can be estimated by multiplying 66,885 nests per arribada by 5-7 arribada each year. This would equate to a total of 401,310 nests (or 160,524 nesting females). These data are in conflict with the estimate of present (and past) abundance used by the MTSG (27,906, based on data in Honarvar and van den Berghe (in press)). Although the interpretation of the data from Hope by the MTSG appears to be incorrect, replacement of the 27,906 value in Table 3 by 160,524 would not impact the final outcome of the assessment substantially (the global reduction would be roughly 25-31%). A category of VU would still be justified even if this change is made, given a fairly precautionary attitude to risk, as the A2 threshold for reduction is 30%. Such an attitude to risk is appropriate in this case given the fact that the estimates of reduction in Table 3 ignore reductions in the first generation (1945-65); the actual decline in this period is likely to be more than 0%.

B) Matters of interpretation

The major issue of interpretation is whether criterion A1 or A2 is more appropriate in this case. The following text from the IUCN Red List Guidelines (<http://intranet.iucn.org/webfiles/doc/SSC/RedList/RedListGuidelines.pdf>) provides detailed guidance on A1 versus A2 relevant to this case. Also, note comments about uncertainty in these Guidelines.

Under criterion A, a specific quantitative threshold indicating the population reduction must be met to qualify for one of the categories of threat. Under criterion A1, these thresholds are 90% (CR), 70% (EN) and 50% (VU). Under criteria A2, A3 and A4, these thresholds are 80% (CR), 50% (EN) and 30% (VU). These different rates reflect the understanding that taxa in which the causes of reduction are clearly reversible AND understood AND ceased are less at risk from extinction than those where the causes of reduction may not have ceased OR may not be understood OR may not be reversible. In order to use A1, three conditions must be met. (1) The reduction must be reversible. For example, the population size must not be so low that factors such as Allee effects make it impossible or unlikely to recover. It is the condition that must be reversible, not the cause of the deteriorated state, so, for example, loss of habitat may be irreversible even if the action that caused the loss has ceased. (2) The causes of the reduction (the threatening factors) must be identified and their actions must be understood. Thus, it is not sufficient to simply list the threatening factors; it is also necessary to understand the scale and mechanism of their action (e.g., the magnitude and spatial

distribution of overfishing, or the relationship between pollution and the population reduction). (3) The threatening factors must have ceased (e.g., overfishing has stopped).

It is the view of the SPWG that four factors indicate that an assessment of A2, rather than A1, is appropriate here:

1. There is enough uncertainty over the issue of illegal egg harvest to justify a precautionary attitude – trends in illegal harvest are notoriously difficult to detect. Furthermore, documented increases in population size are for relatively recent periods. While the supposition that reduction in commercial egg harvesting is the major cause for this increase may be correct, the evidence relies on the coincident closure of factories with slowing declines or increases in a few of the populations. Note that the A2 criterion says that “the reduction **or** its causes may not have ceased”. There is insufficient evidence to conclude here that the cause of past reductions has been removed and that declines have ceased.
2. Other threats, particularly by-catch, continue. Considering the species’ long life and the high mortality in early ages (and thus the high reproductive value of adults), by-catch may have a significant (and continuing) effect on population declines.
3. While there may be some question of reversibility, sub-population increases have generally occurred over quite recent time intervals (c. 0.5 to 1 generations). It is currently only supposition that observed large reductions will be compensated by recovery or establishment of new arribadas. Furthermore, Allee effects are plausible for this species as they appear to be well demonstrated in other marine animals.
4. There is incomplete understanding as to why populations expand and decline in particular areas, hence the potential for shifting populations or Allee effects, especially in the arribadas, to be significant. To apply A1 it should be clear that the current population dynamics are consistent with an understanding of the relationship between the cause and the decline, and evidence that eliminating the cause had halted the decline. Such evidence is not apparent here.

C) Issues of transparency

The Petitioner argues that the sources of data used in the assessment were not made available in a timely manner. The SPWG has commented on this issue in a previous ruling on marine turtles, and has little to add.

The SPWG notes that the RLA has gathered a large amount of data, and has done a much more detailed analysis, much better supported with data and documentation than the previous assessment. Nevertheless, the way in which units are used in the tables (“adults”, “nests”, “nesting females”) makes following the calculations considerably more difficult than should be the case. For example, it is stated that there were 336,000 “nesting females” at Ostional in 2006 (Table 3, site #14, “raw data”). However, the “nesting female sub-population size” is only 134,000. Although the same words are used for both numbers, the first refers to total number of nests while the second refers to nesting females (after accounting for an assumed 2.5 nests per female). Care should be

taken in future to ensure that the words used in tables of data have clear and unique meanings as this will enhance the transparency of the assessment process.

Although one of the significant sources of information is based on a presentation, and it would have been preferable if the author of the presentation in question could have written it up as a report to increase transparency, it is important to note that the majority of the sources are well documented and available.

The SPWG strongly encourages the RLA to make available all the remaining sources of information.