



WG Members:

Peter Paul Van Dijk – Co-chair – IUCN Tortoise and Freshwater Turtle SG; Thomasina Oldfield – Co-chair – TRAFFIC International; Hank Jenkins - Species Management Specialists, Inc.; Solomon Kyalo – Kenya CITES MA/SA; Simon Nemptzov – Israel CITES SA; Sabine Schoppe – TRAFFIC consultant.

Additional Occasional Participants:

Hesiquio Benitez – Conabio; David Morgan – CITES Secretariat; Colman Ó Criodain – WWF International; Yolanda Barrios and Paola Mosig – Rapporteurs

List of Case Studies presented:

Crocodylus niloticus ranching in Kenya – KWS – Solomon Kyalo
Cuora amboinensis in Indonesia – TRAFFIC – Sabine Schoppe
Malacochersus tornieri in Kenya – KWS – Solomon Kyalo
Ptyas mucosa in Indonesia – TRAFFIC – Thomasina Oldfield
Uromastyx lizards in Israel – Simon Nemptzov
Cuora amboinensis in Malaysia – TRAFFIC – Sabine Schoppe

Main points of the outcome

The Reptile and Amphibian WG highlighted that these species exhibit a wide variety of characteristics of biology and life history, and are subject to a wide variety of production and utilization systems and practices; these are summarized in the Appendix.

The R&A WG considered that the NDF process needs to be practical and also have various degrees of rigour as appropriate. The NDF process needs to begin with a risk assessment process, to guide the different degrees of subsequent analysis of information. The group felt it was important to produce a proposed decision tree to guide a SA to making a NDF or rejecting the proposal.

The proposed decision tree developed by the WG consists of a two-step process, described in detail in the Appendix. **First**, a **Provisional Risk Assessment** (PRA) considers the intrinsic vulnerability of the species or population, the general threats acting upon the (National) population, and the potential impact of the proposal, and leads to categorization of a

proposal to export as low, medium or high risk. A proposal ranked as 'High Risk' is rejected as detrimental. A proposal emerging as 'Low Risk' requires documentation of the elements supporting the low risk evaluation, and low-level monitoring of utilization and trade of the species. Proposals emerging from the PRA as 'Medium Risk' progress to the second step of the process. **Step Two** of the process involves **rigorous analyses of available data** to determine impact of past harvest and potential impact of proposed export, and determination of the extent and appropriateness of monitoring in place. Depending on the results of this analysis, and the rigour of the data available, an evaluation as non-detrimental or detrimental is arrived at and documented.

The WG concluded by highlighting general issues to improve implementation of the NDF process:

- The need to develop practical, scientifically acceptable monitoring programs, and to avoid incompatible methodologies which prevent consistent long-term assessment.
- The need to summarize and distribute field research methodologies.
- The desirability of establishing a repository of NDFs that have been made, so that they can be consulted by others for comparison and capacity building.
- The desirability of setting up web-based tools and information management systems where SAs can easily access pertinent information.

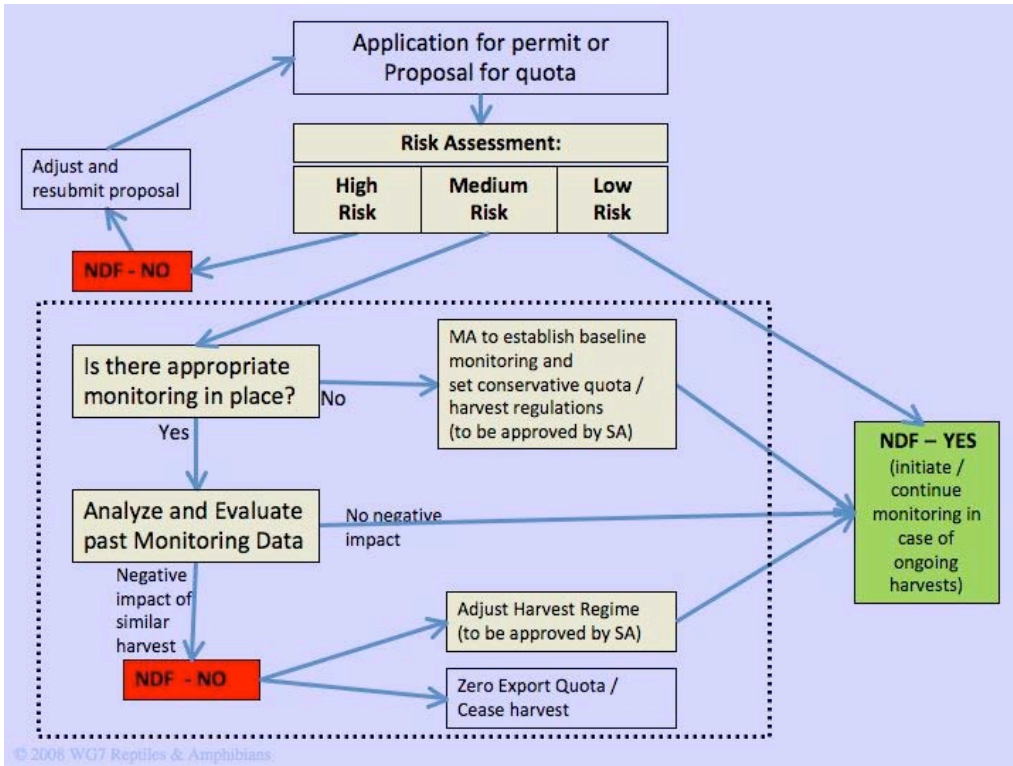


Figure 1. Outline flow chart of NDF process as developed by WG7 – Reptiles & Amphibians.

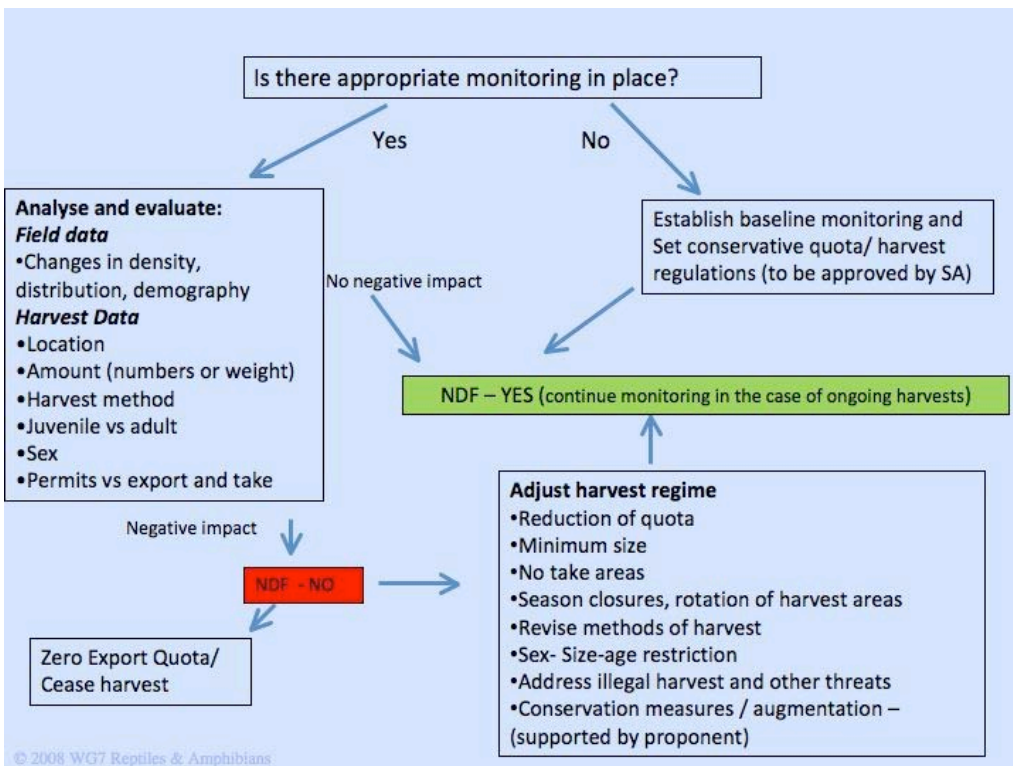


Figure 2. Flow chart of 2nd step of NDF process as developed by WG7 – Reptiles & Amphibians.

APPENDIX

Special considerations for NDFs for Reptiles and Amphibians

Reptiles and Amphibians exhibit a wide range of life history aspects, including species with characters that make them particularly susceptible to negative impacts from utilization, such as late maturity, long life span, and limited re-productive output (K-selected, slow), and habitat specialization. Other species display life history traits allowing them to recover from reasonable levels of utilization, such as high natural mortality at early life stages, high fecundity, and adaptability to human-altered biotopes. Most species have limited dispersal.

Extensive experience of production exists through ranching of crocodylian species and aquaculture of a few turtle and frog species. There is also an extensive history of reptile and amphibian populations and species that have been over-exploited, and/or subjected to the Review of Significant Trade process.

The WG considered that an NDF for reptile or amphibian species should consider the following biological and status elements: distribution and geographical variation; population size / density; vulnerability at the stage of harvest; size distribution, population structure; life history traits / reproductive capacity; ecological adaptability; dispersal capability; role in ecosystem; possible status of pest or invasive species.

The NDF should also consider the following data on utilization: Utilized population segment or life history stage (eggs/juveniles/adults, males/females) (size and weight limits); Production systems; Captive breeding / ranching; Nuisance animals; Legal and illegal trade issues; Utilization quantities; Collection methodology; Collection location; Tenure (exclusivity of utilization, jurisdiction over utilization, resource ownership); Closure periods; Effect of utilization. Finally, the WG considered that an appropriate monitoring program for a utilized reptile or amphibian population should evaluate one or more of the following elements:

Changes in Distribution; Changes in density; Changes in population structure; Collection areas (Proportion of total distribution, and change of areas); Catch per unit effort; Legal issues; and Other threats (habitat loss, climate change, pollution, etc.).

The WG recognized that reptiles and amphibians are subject to a variety of export proposals requiring NDFs, including ad-hoc / once-off permit applications and annual quotas. In addition, a number of Crocodile populations are subject to ranching systems following CoP approvals of proposals for downlisting populations from Appendix I to II for purposes of ranching. Trade in specimens from these systems is governed by Res.Conf. 11.16. The acceptance by the CoP of a proposal to downlist a population from Appendix I to II represents an NDF, and impacts and conservation benefits are monitored through the reporting requirements of Res.Conf. 11.16.

While much of the WG's deliberations were informed by the reptile case studies, consideration of some amphibian test cases indicate that our process and conclusions are applicable to amphibians as well.

The NDF Process as Developed by the Reptiles and Amphibians Working Group"

Step 1 – Provisional Risk Assessment.

A 'quick and dirty' process to allow SA to make early assessment of the proposal.

The Provisional Risk Assessment examines three major areas:

- The intrinsic vulnerability of the species or population.
- General threats acting upon the (National) population.
- The potential impact of the proposal.

The Intrinsic Vulnerability of the species or population examines its distribution, dispersal, population size / density, reproductive capacity, niche width, and role in the ecosystem.

General Threats acting on population that should be considered are levels of domestic use, illegal trade, human-induced impacts (such as habitat loss, pollution, human-animal conflict), invasives, diseases, and any other relevant threats.

The potential impact of the proposal to export includes consideration of the quantity or proportion of population targeted, the life stage targeted, the harvest method, harvest purpose, harvest area, effectiveness of regulation and management, and consideration of monitoring data.

The Provisional Risk Assessment leads to categorization of a proposal to export as low, medium or high risk. This categorization is made through a simple scoring system, detailed in the full working group report. This scoring system requires further consideration, refinement and evaluation, but the WG felt it was important to demonstrate the concept. We felt that quantifying the initial risk was important as guidance to the SA to indicate those proposals that could be relatively easily processed, and not require the resources inherent in a rigorous NDF analysis. **Low Risk** – Non-detriment finding made. SA ensures that low level monitoring programme is instituted, comprising monitoring of permits vs. actual take, accumulation of permits, and a 'low-key' harvest impact monitoring program (trader interviews, casual field observations). These data should be evaluated for subsequent requests in future years.

High Risk – Unacceptable risk, leading to rejection of proposal; any amended proposal requires re-evaluation from the beginning of the provisional risk assessment process.

Medium Risk – goes into step 2 of the process.

Step 2 – Analysis of available monitoring data and management

This part of the process involves determination of the extent and appropriateness of monitoring in place and rigorous analyses of available data to determine impact of past harvest and potential impact of proposed export. For reptile and amphibian species, an appropriate monitoring

program is considered to collect, analyse and evaluate data on parameters such as: changes in density, distribution, and demography of the harvested population, harvest location, harvest amount (number and/or weight), harvest method, demographic segments subject to harvest (age, gender), monitoring of permits vs. actual take, and accumulation of permits.

If appropriate monitoring is in place, the SA should analyze and evaluate past monitoring data to determine whether previous similar harvests have had negative or no negative impact; if no negative impacts are apparent, a positive NDF can be made for ongoing harvest at a comparable level.

If appropriate monitoring is not in place, the MA should ensure that an appropriate monitoring program is established. Once such a monitoring program is committed to, and subject to establishing a precautionary level of permitted harvest or quota, and subject to approval of these measures by the SA, a positive NDF can be made.

Once monitoring is in place for an appropriate length of time, the results of the monitoring program should guide/inform the decision process for ongoing or subsequent applications for trade in the species. In cases where the monitoring program documents a negative impact from harvest, the harvest regime must be adjusted by, for example: reduction of quota, imposing or changing minimum or maximum size or other restrictions on size, age or gender of individuals exploited, season closures, closed areas, rotation of harvest areas or other time/area restrictions, revising methods of harvest, measures to address illegal trade and/or other threats, and/or other conservation measures to protect and/or augment populations; support by the proponent for such measures is recommended. A (temporary) zero export quota or cessation of harvest is the other option. A subsequent NDF can only be made when the SA is satisfied that the adjusted harvest regime will represent no threat to the survival of the species in the wild and to recovery of the population to its pre-harvest level.

Sources of information on Reptile and Amphibian status, biological research and monitoring methodologies.

IUCN Red List of Threatened Species: <http://www.iucnredlist.org>

Crocodile information: <http://www.flmnh.ufl.edu/cnhc/cbd.html>

Turtle taxonomy, plus conservation biology accounts for selected species:
<http://www.iucn-tftsg.org/checklist/>

Reptilian taxonomy and distribution: <http://www.reptile-database.org/>

Amphibian taxonomy and biology: <http://www.globalamphibians.org/>

Measuring and Monitoring Biological Diversity - Standard Methods for Amphibians. Edited by W. Ronald Heyer, Maureen A. Donnelly, Roy W. McDiarmid, Lee-Ann C. Hayek, and Mercedes S. Foster. 1994. Smithsonian Institution Press. 384 pages. ISBN 1-56098-284-5.

Sampling Rare or Elusive Species: Concepts, Designs, and Techniques for Estimating Population Parameters. William L. Thompson. 2004. Island Press. 429 pages. ISBN 1559634510, 9781559634519

Occupancy Estimation and Modeling: Inferring Patterns and Dynamics of Species Occurrence. Darryl I. MacKenzie, James D. Nichols, J. Andrew Royle, Kenneth H. Pollock, Larissa L. Bailey, James E. Hines. 2006. Academic Press. 324 pages. ISBN 0120887665, 9780120887668

Handbook of Capture-Recapture Analysis. Edited by Steven C. Amstrup, Trent L. McDonald, Bryan F. J. Manly. 2005. Princeton University Press. 313 pages. ISBN 069108968X, 9780691089683