A model towards the sustainable harvest of parrots in Mexico

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Contents based on a model by Ariel Rojo and Lizardo Cruz refined in a workshop on Conservation and Sustainable Use of Wild Birds in the context of Wildlife Management Units (UMAs) in Mexico with the input of members of the Mexican Psittacine Expert Subcommittee. The complete document can be downloaded from:

http://www.ine.gob.mx/dgioece/con_eco/talleres2006.html

<u>Background info</u>

UMAS are the scheme Mexico has adopted to guarantee sustainable use of wildlife

Management plans are required

Parrots in Mexico are popular pets with some species facing a number of threats

It is important to develop tools to ensure harvest from the wild is done in a sustainable and responsible manner.

Relevant population aspects

- Baseline population size
- Population trends
- Area required by the population
- Nesting habitat requirements
- Population demographics
- Historic and recent impacts affecting the species or the population in the area

2 basic scales can be considered:

- Regional (habitat status, densities, regional risks)
- Local (density and specific productivity of populations)

- Considerations for **Population size** determination:
  - Time frame
  - Effort - It is recommended to use at least 100 point counts (50 point counts is acceptable if counts are made 2 or 3 times during the breeding season)
  - Samplping hours- first three hours of the morning
  - Additional data
  - Method
  - Rpresentativeness of data

- Estimating productivity in a population
  - Ideally, obtain data on productivity, mortality, age at first reproduction, and population growth rate, among others
  - In absence of resources to do this, a bibliographic review could be used to obtain productivity parameters

- Early warning of declining populations :
  - Decline in population size estimates
  - Three consecutive years of drought
  - Three consecutive years of low productivity in the population
  - Increase in the type, number and/or scope of threats to the population

- **Important habitat-related aspects for the conservation and management of a sustainable harvest**
  - a) Total surface of the UMA
  - b) Location and area covered by the various vegetation types in the UMA
  - c) Description of the characteristics of the vegetation types
- Before the harvest, it is necessary to generate reliable information about the habitat and area requirements to determine whether harvest is viable.
- UMAs planning to manage parrot species for a commercial harvest must contain the necessary natural habitat to sustain stable breeding populations. This absolutely requires an assessment of the nests in the area, identifying active nests (and potential nesting sites, even if they were not active when reviewed).

- The sustainable harvest should be determined on the basis of information of the populations and their productivity as well as of optimal habitat available for the species

- It is suggested to use a model known as PBR (Potential Biological Removal) which defines the maximum possible harvest, considering a logistic relation between carrying capacity and population density, where the maximum possible harvest is equal to half of the maximum intrinsic growth rate of a population
- An uncertainty value can be introduced; defined as the Recovery Factor (Fr), which is calculated according to the species‟ risk category.

The formula proposed by Runge *et al*. (2004) is the following:

PBR= ½ rmax Nmin Fr

- where PBR - Potential Biological Removal

  rmax - maximum value of the intrinsic growth rate

  Nmin - minimum population estimate

  Fr - recovery factor.

- The model as modified by the General Directorate for Wildlife in MX incorporates the use of data available to calculate **rmax (obtained from existing bibliography)** and their risk category in the Mexican Endangered Species List (uncertainty value Fr in the model)
- As a safeguard, harvest pressure form the previous year was decided to be included, thus turning the model into:

  (Nmín – Tan-1) PBR = Tan

  – where:

  Nmín = Minimum population estimate

  Tan-1 = Number of individuals harvested in the previous season

  PBR = Percentage of Potential Biological Removal

  Tan = Harvest rate for the season

- Additional comments
  - No harvest of adults, only chicks (at least 5-6 weeks old)
  - Trends in the local population should be assessed through annual monitorings of nests and their populations and take adaptive management measures if required.
  - Activities carried out in UMAs should be assessed regularly and objectively

- Establish strict controls to avoid illegal activities
- Husbandry techniques to handle captive specimens should be improved
- Measures should be taken to detect and prevent the spread of disease
- Promote independent population studies (at different scales – regional and local), to make comparative evaluations of specific studies carried out in UMAs.