



NDF WORKSHOP CASE STUDIES
WG 6 – Birds
CASE STUDY 2
Amazona auropalliata
Country – **NICARAGUA**
Original language – Spanish

PROPOSAL FOR MAKING AN NDF BASED ON A PSITTACIDAE RECOVERY PROGRAM FOR NICARAGUA: THE *AMAZONA AUROPALLIATA* CASE

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I. BACKGROUND INFORMATION ON THE TAXA

1. BIOLOGICAL DATA

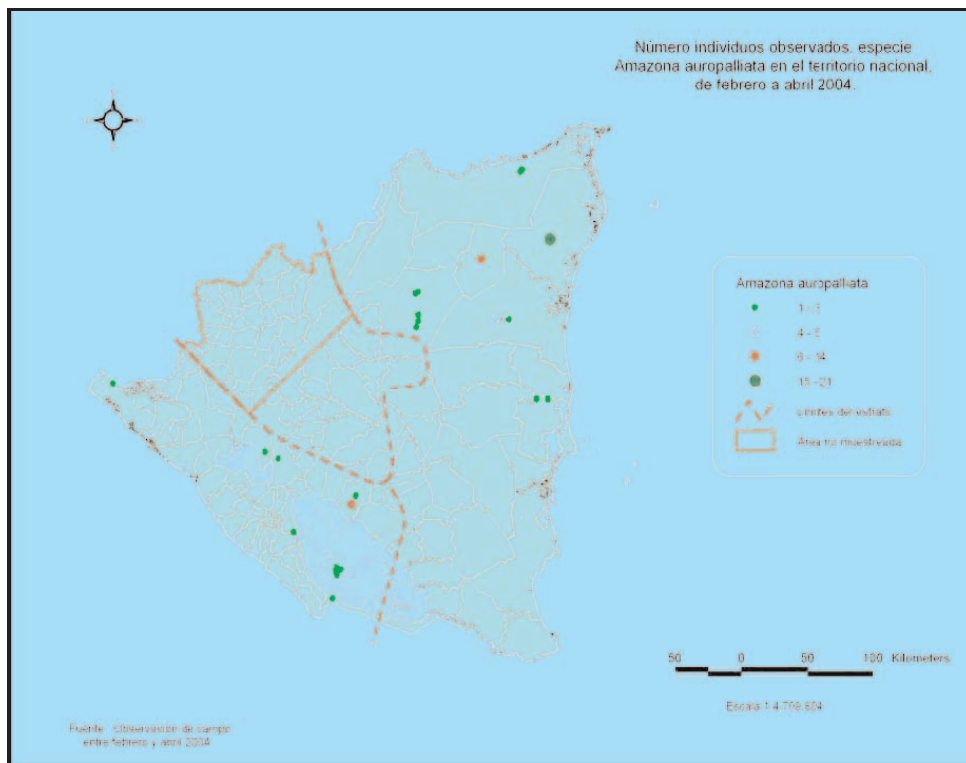
1.1 Scientific and common names

Amazona auropalliata (Lesson, 1842). Its common name within its distribution range is *lora nuca amarilla* (Yellow Nape Amazon). Registered scientific synonyms are: *Amazona ochrocephala auropalliata* and *Amazona auropalliata auropalliata*. Although it is mainly a species from the Pacific basin, subspecies are found in the Caribbean basin, such as *A. auropalliata parvipes*, which occurs from Colón, Honduras, passing through the southeastern lands including la Moskitia in Nicaragua, to the south down to the northern boundary of Bluefields (Monroe and Howell, 1966; Forshaw, 1977; Low, 1992;). Another known subspecies is *A. auropalliata caribaea* that lives in Bay Islands (Islas de la bahía), Honduras (Lousada, 1989; Lousada and Howell, 1996).

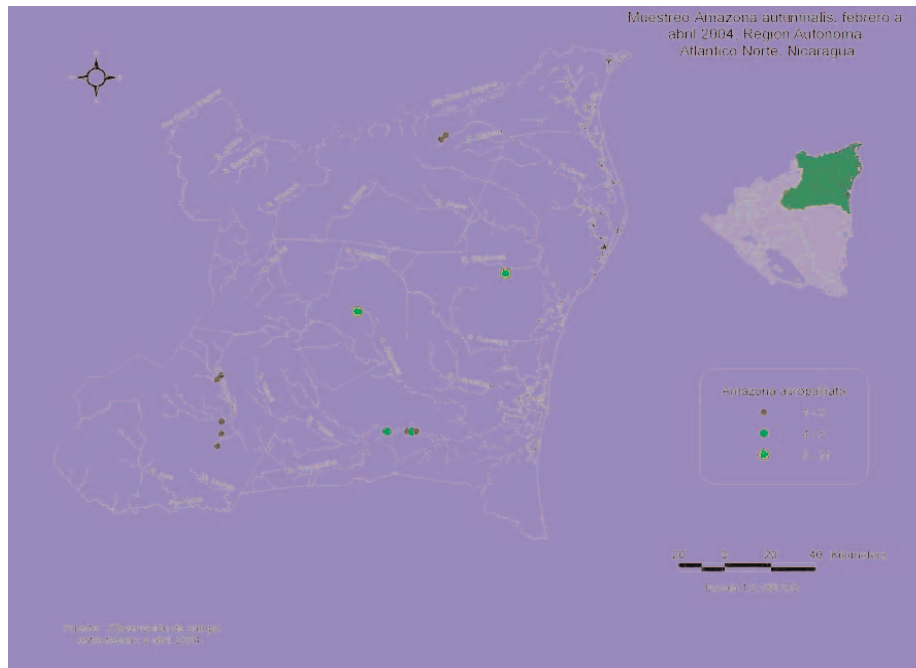
1.2 Distribution

This Mesoamerican species occurs from southeastern Mexico to north-western Costa Rica, covering the territories of Guatemala, Honduras, El Salvador and Nicaragua. Its distribution range is closely related to deforestation processes that involve a loss by reduction and fragmentation. Formerly, it could be found throughout Nicaragua; neverthe-

less, as a result of the above-mentioned, there are many small and isolated populations especially in the Pacific region. It abounds in the Caribbean, mainly in remote areas where large wooded masses of broadleaf forest and pine forests are found. In the southern Caribbean, however, it is not so abundant (see map 1). In some Pacific areas the species is going through an ongoing process of extinction, whereas in protected areas with a good protection management it is plainly recovering. Sound populations can be found in the Pacific, in the Madera volcano on Ometepe Island, in Cosigüina peninsula, in Chinandega, as well as near the eastern coast of Cocibolca Lake close to Puerto Díaz. In the northern Caribbean, where the species is more abundant large populations are commonly found in the vicinity of the confluence of the lowland and humid land broadleaf forests with pine forests, and riparian or gallery forests, as well as in pine forests, especially those which are distant from the villages. In-detail distribution in the northern Caribbean can be observed in Map 2.



Map 1. Distribution of the Yellow Nape Amazon as per national count data



Map 2. Distribution of the Yellow Nape Amazon in Nicaragua's northern Caribbean as per data by Lezama *et al* (2004).

1.3 Biological characteristics of the species

1.3.1 *General Biological and life history characteristics*

It is a life-long monogamous species, although some researchers suggest divorces may exist, particularly among young couples. Based on observations performed in national zoos and in the wild, brood size rarely exceeds two chicks. Chick survival under natural conditions is not known with certainty. However, it has been observed in some pilot areas that in the absence of poaching all the chicks from the brood manage to become fledgling. First year and subsequent year survival is uncertain. In the Pacific area, natural mortality is associated to extreme weather conditions such as high temperatures throughout incubation month (January to February), in addition to natural enemies. Both in the Pacific and in the Caribbean, limiting factors for the population growth rate are nest poaching and natural enemies like predators and nest-tree competitors.

1.3.2 *Habitat types*

The yellow Nape Amazon is a typical inhabitant of close and open dense forests. Sometimes, it can live in open areas like scrub habitats and orchards when found in large populations. In the Caribbean it

does not occur in high and dense forests, but in open forests, seasonal swamp forests and pine forests. It prefers forests with enough nest-trees, regardless of tree density and height.

1.3.3 *Role of the species in its ecosystem*

It is an herbivorous species *par excellence* that can occasionally contribute to seed dispersal. Its little effectiveness as disperser relies on its strong habit of triturating the food prior ingestion. Nevertheless, regarding fruits and large seeds the Yellow Nape Amazon proves to be a good disperser. It is also a good pollinator because it enjoys feeding on fresh flowers in summer. It usually has levels of interspecific competition for food with large size herbivores, such as toucans and other psittacide birds; and because of its reproduction process it competes for natural cavities in trees from mid-size to mature trees in the forest. In this Country, I have found owls of undetermined species as well as honey bees (*Apis spp.*) using usual nests of Yellow Nape Amazons for a season. The natural enemies of this parrot bring about mortality during the early stages of its life cycle. Mid-size reptiles like lizards (*Ctenosaura similis*) prey on eggs during the first egg-laying weeks, whereas small mammals prey on nests, eating from few-day-old chicks to fully feathered individuals. The Pizote or white-nose coati (*Nasua narica*) has been identified as one of the mammals that eat two-or-more-week-old chicks.

1.4 Population

1.4.1 *Global population size*

National inventories have been prepared since 1994. National and local abundance estimators suggest a sharp decrease in the population. In 1995, the estimated figure was 2.3 individuals/km² nationwide, whereas in 1999 it shifted to 1.1 individuals/km². In the last inventory performed in 2004, the figure was smaller than 0.45 individuals/km². On a local basis, in the Pacific region the species appears in low-number populations. In the Isthmus of Rivas, near San Juan del Sur, a recent abundance estimator was of 0.025 individuals/ha. In localities where large and sound populations are found the number may come to 0.25 individuals/ha. In the Caribbean, populations are larger and may come to 0.45 individuals/ha locally.

1.4.2 *Current population trend*

increasing decreasing stable unknown

1.5 Conservation status

1.5.1 *Global conservation status* (according to IUCN Red List, see www.iucnredlist.org):

- | | |
|---|--|
| <input type="checkbox"/> Critically Endangered (CR) | <input type="checkbox"/> Near Threatened (NT) |
| <input type="checkbox"/> Endangered (EN) | <input checked="" type="checkbox"/> Least Concern (LC) |
| <input type="checkbox"/> Vulnerable (VU) | <input type="checkbox"/> Data Deficient (DD) |

Note: Just like all the species of the Psittacidae family, it is protected in the Country by the nation-wide indefinite prohibition law (ley de veda). Although it is listed in Appendix I of CITES, there is still a significant issue to be taken into consideration. Protection currently provided for the Psittacidae family and for the species could have a positive impact in the middle and long term, so that the sustainable use of the species can become an option. Its management should include proposals such as the plan described in the paper, and should also be enriched by other experiences in the region, for instance, the management experience of the Blue Fronted Amazon parrot (*Amazona aestiva*) in Argentina by the wildlife authorities (www.ambiente.gov.ar). The aim of this management plan (PRP) or of another plan devised by researchers or relevant authorities must be to guarantee that wild populations are able to stand a removal quota for commercial purposes under conditions of sustainability and full community involvement.

1.5.2 *Conservation status in Nicaragua*

From 1993 to 2002, it was within the list of species under a national partial prohibition. In the same period, it was included in the IUCN Red List- Nicaragua. From January 2008 to date, the species has been under the protection of a national indefinite prohibition.

1.5.3 *Main threats in Nicaragua*

- No threats
- Habitat loss or degradation (human induced)
- Impact of invasive alien species (directly affecting the species)
- Direct exploitation (hunting, harvest)
- Accidental mortality (e.g. bycatch)
- Persecution (e.g. pest control)
- Pollution (affecting species and /or habitat)
- Others _____
- Unknown

2. SPECIES MANAGEMENT WITHIN THE COUNTRY FOR WHICH STUDY CASE IS BEING PRESENTED

2.1 Management measures

2.1.1 *Species management history*

From the late 1990s to 2005, Nicaragua was one of the main legal exporters of psittacide birds removed from the wild within its distribution range. The Yellow Nape Amazon parrot accounted for up to 25% in average of exported birds. However, worldwide, during that period Nicaragua exported, on average, between 600 and 800 parrots of the species a year as a part of a quota system. From 1993 to 2000, up to 74% of the total number of Yellow Nape Amazon parrots in international trade came from Nicaragua. In 2005, due to national administrative and legal measures and to the shift of the species to Appendix II of CITES the quota was cancelled. The largest economic benefits of its trade remained in the hands of exporters. Certainly, impacts such as a decrease in wild populations became obvious over the years (see item 1.4.1).

It is worth-mentioning that Nicaragua used to have a quota system in which the quota was assigned on a year basis to 12 private companies. These companies, grouped in an association, were given the quota without other procedures than submitting their fiscal records and operation plans. Public bidding processes were omitted as well as any other exploitation mechanisms that enabled the communities living in breeding areas of the species to be benefited. The annual quota was assigned to the association which divided the quota equitably among the qualified companies. Annual allocation was estimated on the basis of data from national monitoring which started in 1994. Prior to that year allocations were totally arbitrary. Estimation consisted in taking 5% of the lower limit of the abundance estimator obtained by distance methods (Distance), (Buckland, et al. 1993).

2.1.2 *Purpose of the management plan*

The paper I am presenting includes a proposal which was in once presented to the Government of Nicaragua as part of the results of the third national monitoring of psittacide birds based on the fact that the Yellow Nape Amazon was the most important species because of pressures exerted on it and on its habitat. The main purpose of this plan is to contribute to detect more efficient approaches to manage and preserve the Yellow Nape Amazon parrot, which does not exclude the other psittacide birds existing in the Country. The results justified the increase and improvement of the management performed up to that moment, without excluding sustainable alternatives for exploitation.

In that time, in the Country it was possible to adapt its management to more sustainable options.

2.1.3 *General elements of the management plan*

The proposal is presented as “Programas de Recuperación de Poblaciones de Psitácidos” (Programs for the Recovery of Psittacide Populations) (PRP Spanish acronym). It consists in areas with abundant habitat in terms of extension and quality (food availability and nesting sites with linking areas between large fragments) that allow the recovery of the populations through methods such as ranching and a broad community involvement together with habitat management. Based on the way it is defined, the PRP long term aim would be first the recovery of populations, mainly parrots, cockatoos, and macaws (genera *Amazona* and *Ara* respectively) and their habitat. There are many areas with a potential for implementing the PRP. The secondary aim is to benefit local communities and businessmen so as to meet the precept of enjoying the benefits of our natural resources in a wide and participative fashion. The benefit is understood as the participation in the exploitation with commercial purposes of chicks obtained within the PRP limits and which are allowed to be commercialized in accordance with national regulations and CITES.

People interested in implementing PRP shall prepare a diagnosis that allows the verification of a series of ecological indicators on habitat and populations of concern. As for habitat, variables of tree density, forest mean height, number of plant formations, flora diversity, dominance and heterogeneity, in addition to abundance and distribution of flora recognized as food source for psittacide birds should be considered. Along with habitat status a detailed study on availability of nest-trees, tree species, nest height from the ground, and nest estate (active, abandoned or destroyed) will be developed. Another set of habitat variables must allow measuring effects of fragmentation on psittacide populations, it is about estimating most important fragmentation metrics, including average size of fragments, average distance between them, and the level of connectivity with adjoining wooded masses, which may be protected areas.

Above-mentioned parameters are essential to consider safe quota estimations. As for psittacide populations, the diagnosis must assure the most accurate *abundance* estimation, the determination of *breeding population* (sexually mature couples), *available nests* vs. *active nests* and vs. hatched nests (egg hatching and presence of young pigeons at least in the first week after incubation is completed). As nearly as practicable, it is suggested to extend the diagnosis to other structural parameters considered essential for establishing short term quotas,

which can be very useful for estimating population trends. Among them sex and age distribution, dispersion and dynamic parameters like survival-mortality, annual recruitment, birth, growth rate (r) and main natural mortality factors, without diminishing the other standards that may be included.

Comparative evaluation

After the habitat and population diagnoses have been completed, results obtained will be evaluated using criteria based on the ecological indicators related to space and habitat which, in turn, extrapolate natural preserved areas recognized as with non-existent human disturbance or with little human disturbance. These would be control-type data aiming to compare the data obtained from proposed PRP diagnoses.

Socioeconomic and institutional assessment

Based on the evaluation performed according to the indicators set forth in the previous paragraph and on other socioeconomic, administrative and legal considerations, the plan will proceed to the PRP implementation phase. However, it is worth mentioning what would be expected as optimal in socioeconomic terms for a good implementation of a PRP.

Basically, it is about having communities living in their own territories or in territories under legal possession with a low standard of living or below the poverty line as per official life standard indicators. This community environment must be off the boundaries of protected areas where biodiversity exploitation is not allowed. They can be situated in buffer zones. It is not necessary that the area to be affected by the PRP has an implemented management plan, many times the plan exists but there is no implementation. In the actuality of Nicaragua and of other countries in Central America, the optimal conditions for the execution of a PRP, from the socioeconomic perspective, are in the lands and communities of the Caribbean ethnic groups.

PRP MODALITIES

Short term implementation

It refers to a PRP in which habitat and population conditions are good so that an experimental one year lasting chick harvest of at least 5% of hatched and living chicks at the first week of life can be established. Under this modality, feasibility of artificial nests for amazons or other genera with a known low reproductive index such as the Brown-hooded Parrot (*Gypopsitta haematottis*) will be evaluated in the first harvest year. Besides, in this modality, measures will be implemented to

establish agreements on community participation in the management and conservation of populations, habitat enrichment, and psittacide population care.

Middle term implementation (5 years)

In this case, the results and evaluation of the diagnosis indicators suggest that a set of management techniques must be implemented: such as artificial nests, controlled harvesting, registration and organization of collectors, chick marking, breeding stocks that allow a population increase of 10% to 20% of nesting couples in the specified term, annual survival and recruitment. At the end of the period, evaluators will be able to present their findings based on the ecological indicators. Depending on said findings a preventive exploitation of 5% of the chicks born in a year and surviving at the first week of life will be approved, or an extension of PRP management-improvement time will be given.

Long term implementation (15 years)

It is carried out in areas in which the state of populations and habitat, as well as institutional arrangements with communities, show scarce viability for recovery and sustainable management so that PRP management should take longer before choosing a management form. This type of PRPs must be closely followed up by authorities. The ideal scenario would be that the Nicaraguan Government developed a legal framework prepared in accordance with the existing regulations. Having a wildlife law would be very convenient because it would give a very particular basis to wild life supervisors.

PRP Certification

In any modality, relevant authorities will be able to authorize the certification of the program or part of its processes (diagnoses, management techniques, exploitation techniques, etc.) as long as the people in charge of the PRP request so. Certification is advisable to be performed through evaluation of peers or experts detached from the PRPs along with the counterparts in charge of the PRP and government representatives (Ministry of Environment and Natural Resources (MARENA), or the corresponding territorial body. This way, the commission thus formed will perform the evaluation of the same project from three different perspectives. Accreditation will be presented as part of the final results of the evaluation (external peer, person in charge of the PRP, and national authority). Once it is completed, a code will be assigned to identify each exploited specimen. This code should be printed on metal rings which will be attached by the per-

son in charge of the PRP on the tarsus of each specimen to be commercialized.

The national authority, MARENA, will be fully empowered to prepare the regulations that establish conditions or rules for each PRP, so that sanctions for noncompliance, rule breaking, misdemeanors, or other fraudulent actions will be addressed in a timely manner with the aim of not damaging the nature, the objectives and the philosophy of PRPs.

2.1.4 *Restoration or mitigation measures*

Prevention of forest fires and strict control of the uses of forests which are the habitat of psittacide birds, including the Yellow Nape Amazon.

2.2. Monitoring system

2.2.1 *Methods used to monitor harvest*

Nest recognition and nest marking, estimation of chicken and fledgling survival/mortality up to the first six months of life, productivity and recruitment estimation, assessment of food availability, nest availability and natural enemies. An exploitation percentage would be determined according to productivity. The basic model assumes the use of one pigeon of each nest (regardless of the existence of more than two chicks). Should there only be one chick it will not be used. When there is more information available on the habitat and carrying capacity (K) the percentage of individuals to be used will be estimated through modeling.

2.2.2 *Confidence in monitoring*

Provided it is measured in time and space as per the recommendation and under the supervision of experts it will be highly reliable.

2.3 Legal framework and law enforcement

For several years, from the 1960s to the early 2000s, the species was listed in Appendix II of CITES. In 2002, it was moved to Appendix I on the initiative of Costa Rica and the other Central American countries. In a national level, the species was unprotected until the 1970s. In general, wild animal hunting in private areas was prohibited. There was not any other restriction from the legal perspective. From the 1970s to the early 1980s harvesting of the species was allowed obeying only administrative criteria (certain people were authorized). Harvest and trade were authorized by means of a commercial license.

In the 1980s, the Government banned hunting and trade of the species through a presidential decree. Between 1992 and 1993, its trade was reopened through the system of quotas and commercial

participation depicted in section 2.1.1. Trade restrictions, especially concerning domestic trade, were stressed as from 1996 with the enactment of the General Law on Environment (Law 217), which set forth clearer and more specific concepts on exploitation, wild fauna and biodiversity.

From 2004 to 2005, export trade was closed due to the information obtained from the last national monitoring, which indicated a population decrease to levels below the ones authorized and agreed by national authorities. In 2005, the Law on Environmental Crimes (law 559) was passed. It establishes the concepts of environmental crimes such as the violation of prohibition laws and breach to the regulations of Protected Areas Laws. As from January 2008, all psittacide birds are protected by a national prohibition established through Ministerial Resolution 003-2008.

3 UTILIZATION AND TRADE IN THE COUNTRY FOR WHICH THE STUDY CASE IS BEING PRESENTED

3.1 Type of use (origin) and destination (purpose)

In accordance with the national law (nation-wide indefinite prohibition) neither trade nor exploitation of psittacide birds are allowed. As a result of the cancellation of export permits issued by CITES in 2005, there is no exploitation quota for captive-bred animals and much less for animals captured in the wild. These animals are used as pets. They are removed from the wild in their nests few days after hatching. The Yellow Nape Amazon is the most wanted species because of its talkative ability and its ability to learn tricks. Apparently, breeding captivity of the species is made by private people and at the National Zoo, which is administered by law through a concession. Specimens reproduced in the Zoo and by private collectors are destined for the same collections.

3.2 Exploitation (harvest)

3.2.1 *Harvest regime*

There is neither legal nor official harvesting since 2005.

3.2.2 *Harvest management or control*

There is no legal or official system of quotas or permits.

3.3 Legal and illegal trade levels

Based on information on seizures, it can be estimated that between 600 and 1200 animals are moved annually through illegal traffic. Forty per-

cent of these animals is accounted by the Red-lore parrot (*Amazona autumnalis*) and the White-fronted parrot (*Amazona albifrons*). The rest is conformed by lesser species like Aratingas and Brotogeris and sometimes Naped parrots and macaws (*Ara*). Birds leave the Country by routes and spots which are difficult to control by the authority, many times these are the same routes used by drug trafficking. In the northern Pacific towards El Salvador and Honduras, close to Golfo de Fonseca the chicks are transported in boats among fishing products. They are also transported by land between Nicaragua and Honduras. It is known that hundreds of psittacide birds are removed from the Moskitia Hondureña in order to be commercialized in Jamaica, Nicaragua (Waspam), and neighboring islands where there is a lot of tourist activity. Domestic trade feeds on illegal traffic; although it is covered up there is a non-estimated amount of birds offered in market places and other popular places in major cities of the Country. The genera Aratinga and Brotogeris are the most common in the domestic market.

II. NON-DETRIMENT FINDING PROCEDURE (NDFs)

Provide detailed information on the procedure used to make the NODF for the species evaluated.

Is the methodology used based on the IUCN checklist for NDFs?
 YES No

1. CRITERIA, PARAMETERS AND/OR INDICATORS USED

It is worth-stressing that although it is a proposal, as mentioned in section 2.1.3, the criteria are based on structural parameters of the population (abundance distribution, productivity), and on dynamic parameters such as mortality, survival, recruitment, growth rate. The other parameters are related to habitat: availability of nest trees, food sources, fragmentation, and carrying capacity (individuals/ha).

2. MAIN DATA SOURCES, INCLUDING FIELD EVALUATIONS, OR SAMPLING METHODOLOGIES AND ANALYSIS USED

Two types of data sources with different timing were identified One is the national monitoring of psittacide birds performed in three past periods: 1994-95, 1999 and 2004 (Lezama *et al.*, 2004). The other would be prior evaluations of pilot areas with potential for being PRP (see section 2.2). A prior design would be developed and discussed with national authorities and related committees of CITES.

3. EVALUATION OF DATA QUALITY AND QUANTITY USED FOR THE EVALUATION

National monitoring has been accepted by the scientific community of Nicaragua, government authorities, and former exporters of psittacide birds.

4. MAIN PROBLEMS, DIFFICULTIES, AND CHALLENGES ON THE ELABORATION OF NON-DETRIMENTAL FINDINGS

It is not applicable in this case because it is a proposal.

5. RECOMMENDATION

It must be taken into consideration that on the subject of biodiversity there are restrictions in the actual enforcement of law in Nicaragua. Currently, the national system of prohibitions (sistema de vedas nacional) (Ministerial Resolution 003-2008) establishes a nation-wide indefinite prohibition for 14 out of the 16 psittacide species recorded in the bird lists (Martínez-Sánchez *et al.*, 2007). Possibly, the omission of both missing species is due to factors relating to the practical management of the list. Although these laws must be reviewed on an annual basis it is likely that reaching the level of legal bird trade within a hypothetical PRP will not be so feasible. In this case, the PRP would be implemented with purposes of habitat and psittacide population recovery.

There are institutional weaknesses in terms of logistics which relate to the low budgets assigned for fulfilling *in situ* supervision tasks. These restrictions are present everywhere and get stronger as the institutions that watch the state of the environment and natural resources extend the range of responsibilities. It must be understood that the implementation of PRPs would overload the budgets of the agencies in charge of protected areas and biodiversity.

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