



**EXECUTIVE SUMMARY OF THE NATIONAL
ACTION PLAN FOR THE
SPIX'S MACAW CONSERVATION**



The Spix's Macaw, *Cyanopsitta spixii*, Wagler, 1932, is currently one of the most threatened animals in the world. The extinction of the species in the wild is attributed to the historical destruction of its habitat and its intense capture for illegal trade. Today the Spix's Macaw is considered extinct in the wild and only 79 individuals remain in captivity. The last individual found in the wild was identified in 1990. Since its encounter, several conservation programs were developed. Among these are the reintroduction program that released a captive female in 1995, a habitat restoration project and an environmental education project. The reintroduction was widely announced in the media at the time. Despite the effort, the Spix's Macaw has not been seen in the wild since 2000.



Al Wabra Wildlife Preservation

The Chico Mendes Institute for the Conservation of Biodiversity - ICMBio (legally supported by Ordinance no. 316/2009 between the Ministry of Environment and ICMBio), is joining forces with society to define and agree upon strategies to recover the species by means of a national action plan - the National Action Plan (PAN) for the Spix's Macaw Conservation.

TAXONOMY

Order: Psittaciformes

Family: Psittacidae

Genus and species: *Cyanopsitta spixii*

BIOLOGICAL ASPECTS

The Spix's Macaw, is a medium sized parrot measuring 55-60cm in body length and weighing between 270-360g in captivity. It has a long tail and long and narrow wings; the predominant coloration is blue, usually lighter in the belly region of adults; forehead and ear coverts are blueish-gray whereas the rest of the head and the the nape are grayish-blue. Underpart feathers also have a greenish shade. Tail and flight feathers are black. Young are similar to adults, except for the length of the tail, longer in adults, and the color of the iris and culmen, gray in young and black with a white/grayish stripe in adults. The species does not present sexual dimorphism, with males and females being identical.

It was believed that the species occurred only in gallery forests along seasonal creeks on the Southern side of the São Francisco River, where caraibeira trees (*Tabebuia caraiba*, Bignoniaceae) were predominant. However, recent evidence has shown that anthropic changes that occurred on the Northern shore of the São Francisco River, such as a broad scale conversion into agricultural lands and flooding following the construction of Sobradinho dam, have changed the flora structure and displaced the Spix's Macaw away from its original area of occurrence.

The Spix's Macaw diet is comprised of seeds, flowers, fruits, pulp and sap, with seeds being the predominant item. A total of 13 species of plants were identified as part of the diet of the last wild Spix's Macaw, of which the most important were the nuts of *Jatropha mollissima* and *Cnidoscolus phyllacanthus*.

Little is known about the species reproductive biology. Most of the existing information derived from observations of a heterospecific pair, formed by the last wild male Spix's Macaw and a female Blue-winged Macaw (*Primolius maracana*), as well as from anecdotal information provided by the local community and poachers. According to this information, the onset of reproduction was associated with seasonality, coinciding with the rainy season. Clutches consisted of two to three eggs that successfully hatched by the end of January. Nests were made in pre-existing tree cavities.



AREA OF OCCURRENCE

The Spix's Macaw's known historical range encompasses one of the hottest and driest regions of the Caatinga biome in Northeast Brazil. The annual average temperature is 24 C and the annual average precipitation is only 452-473mm. The highest precipitation indices are for the months of December through April. The peak of the dry season is between September and November.

Spix's Macaws have only been confirmed to occur in one locality, the area of Barra Grande/Melancia, municipality of Curaçá, in the back country – border of Bahia and Pernambuco states. However, based on interviews, other locations are thought to be part of its area of occurrence, including Vargem Creek, Macururé Creek, São Francisco River shore and Brígida Creek. The latter is the only confirmed historical site located north of the São Francisco River, in Pernambuco State (Figure 1).

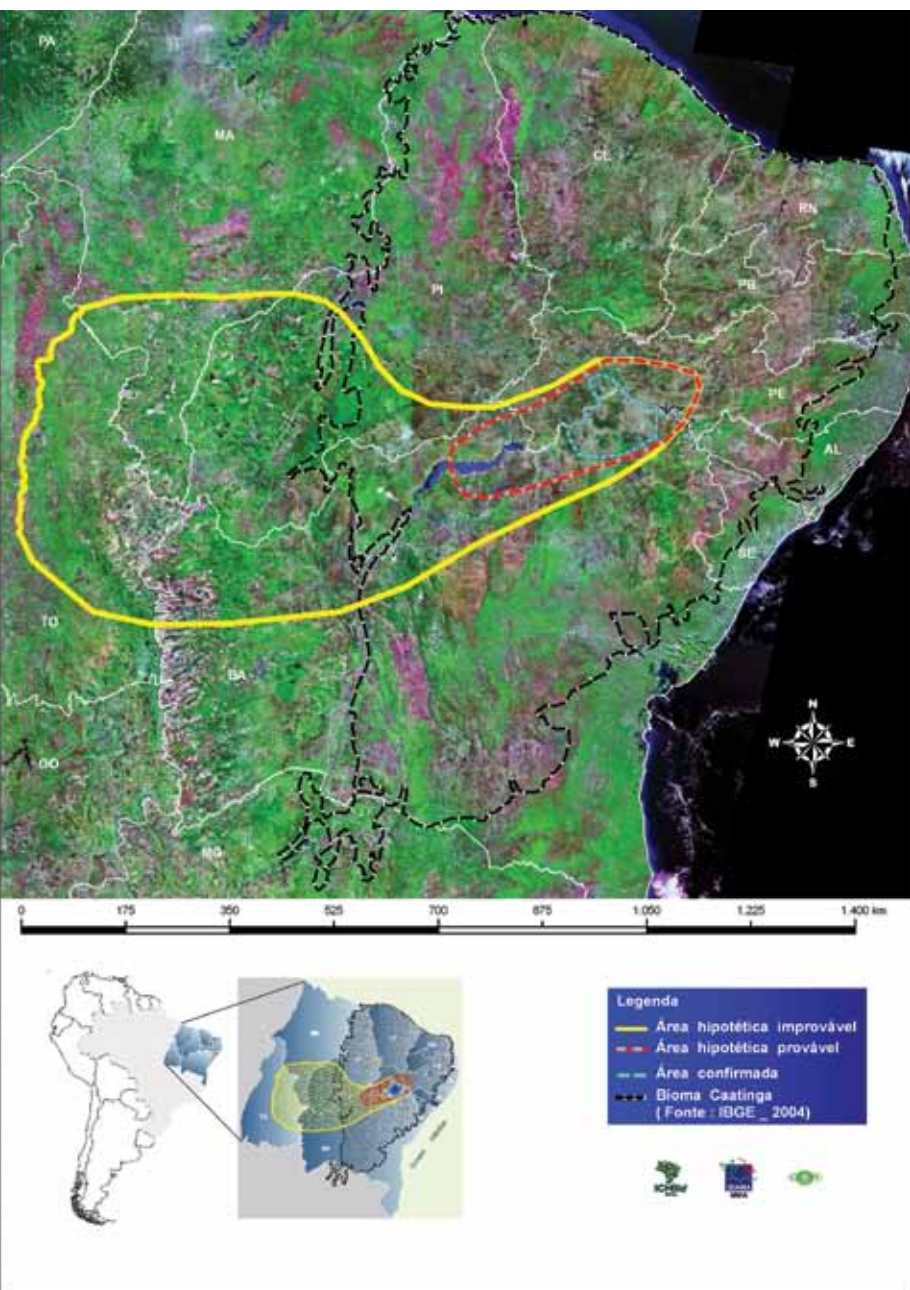


Figure 1 – Area of Occurrence of *Cyanopsitta spixii*

THREATS

The main threats faced by the species include those of natural and anthropic origin.

Among the natural threats are the unpredictability of food and water resources – a condition typical of the Caatinga. Predators, nest site competitors (such as African-related bees), antagonistic species and diseases are other potential natural threats. Resource availability and predators are probably the most critical natural threats when considering a long term species establishment.

Among human derived threats, the main causes of population decline are poaching and capture for illegal trade, habitat loss due to farming, construction of hydroelectric dams, human settlement and mining. Additionally, the desertification process that affects 15% of the Caatinga biome (caused by global climate change), and the construction of power lines and of the São Francisco aqueduct aggravate the impacts of the threats mentioned above.

Despite the threats mentioned above, there is still suitable habitat for the species in the Curaçá area. Considering capture for illegal trade as the main force driving the species to extinction, and not habitat loss, it is possible that currently available habitat could support a population of Spix's Macaws.



HISTORY OF CONSERVATION

The recovery effort for the Spix's Macaw initiated in 1986 upon the discovery of the last known wild population, comprised of only three individuals.

The Permanent Committee for the Recovery of the Spix's Macaw (CPRAA) was created in 1990, making formal the conservation efforts directed towards the species. The conservation efforts started with a continuous conservation and research field project and a captive breeding program. However, ten years after the creation of the CPRAA, internal problems led to the termination of activities and its dissolution in 2002.

In 2005, the Working Group for the Recovery of the Spix's Macaw was legally established, advising on all aspects related to the species conservation.

Between 1991 and 2002 the Spix's Macaw Project developed field activities directed towards studying the last wild individual, searching for remnant populations, conducting management experiments, habitat restoration and bringing environmental awareness to the local community.

EX SITU POPULATION (MANAGEMENT IN CAPTIVITY)

The recovery of the Spix's Macaw relies completely on the success of the reintroduction of captive-reared birds to an adequate site within its historical range.

There are 79 birds in the captive breeding program's studbook, distributed among five breeding facilities (table 1). The captive population is in an initial phase and efforts are directed at increasing the population as quickly as possible whilst still maintaining genetic diversity.

It is estimated that at least 150 captive birds should be included in the captive breeding program's studbook before the reintroduction project can be initiated. It is also estimated that the *ex-situ* population would reach the adequate size in 2020.

Below are some considerations that should be taken into account:

- Pairing: parrots choose their mates. Therefore, it is not always possible to form best genetic pairings. Furthermore, many birds are old, infertile or physically compromised and can not be included in the reproductive population.
- Genetic similarity: the species' low reproductive success may be related to inbreeding depression.
- Proventricular Dilatation Disease (PDD): is a chronic viral disease that compromises the nervous system and there are no treatments for it. The syndrome is, invariably, fatal. It may develop in an acute form, or last for months or years. It is considered endemic to one keeper's facility.



Araçatuba-Azul Project



Al Wabra Wildlife Preservation



TABLE 1 - CAPTIVE BREEDING FACILITIES (KEEPERS)

INSTITUTION	LOCATION	NUMBER OF SPECIMENS
Brazilian Government	São Paulo, Brazil	4
Lymington Foundation	São Paulo, Brazil	1
Loro Park Foundation	Tenerife, Spain	9
Al Wabra Wildlife Preservation	Sharharnia, Qatar	59
Association for the Conservation of Threatened Parrots	Schöneiche, Germany	6

REINTRODUCTION INTO NATURE

The protocols and reintroduction methods for the Spix's Macaw will be defined closer to the beginning of the reintroduction program. The techniques and protocols should be first tested with the Blue-winged Macaw. The Captivity Program aimed at testing these protocols will be established by ordinance of the Chico Mendes Institute for the Conservation of Biodiversity.

INSTITUTO CHICO MENDES' STRATEGY FOR THE SPIX'S MACAW CONSERVATION

The PAN (National Action Plan) for the Spix's Macaw *Cyanopsitta spixii* started within the scope of the Working Group for the Spix's Macaw Recovery, during the group's meetings in 2005 and 2006. In 2009 the first version of an action plan was created, contemplating a species recovery program, biology information and a set of actions.

From the 4 - 6 April 2011 a participative planning workshop was held in Brasilia/DF. The action plan was then updated and adjusted to the new endangered species conservation strategies established by ICMBio. It identified actions to improve the situation of endangered species and their habitat.

At the meeting, the group established the plan's objective, six specific goals and 44 actions to guarantee the achievement of these goals, as well as names to compose the Assessor Group, which is responsible for assisting with the PAN's implementation.

The PAN assumed that the reintroduction strategy, post 2017, is conditioned to two requirements: a) that the captive population should increase and become a viable population and b) that a suitable condition is established in the field for releases and subsequent monitoring.

The proposal from the 2011 workshop became official with the publication of the ICMBio ordinance nº 17 on February 2012, approving the National Action Plan for the Spix's Macaw Conservation (*Cyanopsitta spixii*) – Spix's Macaw PAN. This PAN has the duration of five years (until 2017) and aims the execution of strategies to increase the captive population and recover and preserve the historical habitat of the species so that the reintroduction program can start in 2021. Specific goals to achieve the PAN'S objective will still be defined, as well as the captive program's proposal, in a participative manner. These will be made official through an ICMBio accordance.

The Spix's Macaw Plan will be coordinated by CEMAVE (in accordance to the ICMBio Ordinance nº 78/2009) and its implementation will be monitored by the Advisory Group (in accordance to the Ordinance nº 74 of March 2012).



ACTION PLAN FOR THE SPIX'S MACAW CONSERVATION

GOALS	ACTIONS	ESTIMATED COSTS (R\$)
(1) Public Policies and governmental involvement strengthened until 2017	Create the Strategic Group for Conservation and Management of the spix's macaw	150.000,00
	Contact IBAMA and Bahia's state licensing agency and establish discussions aiming to assure that the analysis, licensing and approval of economic venture projects developed in the areas wherein the species will be reintroduced shall include the need to preserve the <i>Cyanopsitta spixii</i> , as well as proposing mitigation and compensation measures that generate benefits for conservation of the species and its habitat	
	Contact the people responsible for potentially impacting venture projects to be developed (or under development) in the areas wherein the reintroduction shall be carried out and seek for alternatives to mitigate the impacts	
	Contact the people responsible for the enterprise of Mineração Caraíba in order to propose mitigation compensation measures	
	Contact the people responsible for the hydroelectrical plants projects in the area of Curaça, in order to propose mitigation and compensation measures	
	Set forth a Technical Cooperation Plan between MAPA and ICMBio, aiming to accelerate the procedures for transfer of specimens of spix's macaw	
	Manage with the Federal Police, INTERPOL, International Environmental Agencies and CITES Authorities of the concerned countries in order to gather information on possible birds in captivity at unknown places inside and outside the country	
	Set forth reciprocity terms to strengthen the partnerships and institutional involvement by Proper Legal Instrument between ICMBio and the partner institutions of PAN for the spix's macaw	
(2) Captivity population properly managed, with minimum population increase of 3 specimens/year until 2016, aiming to carry out future reintroductions until 2021	Prepare the draft of ICMBio's Ordinance, of the Reproduction Program for Conservation of the spix's macaw	650.000,00
	Carry out the procedures to Make Official the Reproduction Program for Conservation of the Spix's macaw, aiming to prepare, coordinate and implement the conservation strategies in order to keep genetically and demographically viable populations in captivity	
	Set forth criteria to accredit Reproduction Centers participant of the Reproduction Program for Conservation of the Spix's macaw	
	Review the protocols on maintenance and management of animals in captivity and validated during a workshop	
	Carry out a qualification course for managers of the genealogic records book of Spix's macaw and assure that the studbook keepers have proper tools available to guide management of the population of Spix's macaw in captivity	
	Install the Model Species (<i>Primolius maracana</i> - maracanã) in Captivity in the Reproduction Centers of spix's macaw	
	Prepare the internal Genealogic Record Book of the model species (<i>Primolius maracana</i> - maracanã) for the birds included into the recovery program	
	Complete and constantly update the DNA analysis of the entire population in captivity, inside and outside the recovery program, if possible	
	Confirm identification of the birds, verify the kinship level, develop and review the pedigree of the whole known population of the species	
	Prepare viable samples bank to extract DNA (tissue or blood samples), of live cells and sperm for all the birds in the program at different sites, aiming long-term in vitro conservation and inclusion into the program of conservation in captivity of the Frozen Ark and Genome 10K programs	
	Control the health, by means of standard yearly health exams in all the Spix's macaw included into the Reproduction Program for Conservation	
	Monitor global development of the highly pathogenic virus of H5N1 birds influenza and other diseases that might affect the population to assess the risk of infection or request of birds sacrifice by the governmental authorities	
Contact laboratories and research institutions in Brazil to assess feasibility of performing all the laboratorial exams included into the health protocol of the Reproduction Program for Conservation of Spix's macaw		



GOALS	ACTIONS	ESTIMATED COSTS (R\$)
(3) Scientific knowledge required for reintroduction of the species enhanced until 2017	Assess the areas of historical occurrence of the spix's macaw to identify the most adequate reintroduction site(s)	750.000,00
	Carry out expeditions to check information on possible occurrence of new populations of spix's macaw and integrate the results with the former field teams observations, satellite images and/or aerial photographs for subsequent mapping	
	Sample wild psittacideans of several species in the area and carry out research on infectious diseases to identify potential health risks to the reintroduced animals	
	Carry out a Populational Feasibility Study of the spix's macaw and validate in workshop	
(4) Critical habitats for conservation of the species protected and recovered until 2017	Discuss with the Conservation Units Creation Coordination - ICMBio- to prioritize areas of historical registration of the Spix's macaw as conservation units, aiming to protect important nesting, overnight stay and feeding areas to be legally protected	1.800.000,00
	Creation of conservation units aiming to protect important nesting, overnight stay and feeding areas for the Spix's macaw	
	Contact owners of private properties in the area of reintroduction where it is not possible to create conservation units, and discuss possibility of setting conservation agreements for the species	
	Update the inspection agents of the region of occurrence of the species, by means of courses on the species' conservation program, in order to enable integrated actions by engagement of the community	
	Purchase land in the reintroduction site identified to install the Headquarter of the spix's macaw Project; In case of commodatum, establish agreements with the owner(s) that assure long-term cooperation and guarantee security of the enhancements constructed by the project	
(5) Partnerships strengthened and information required for awareness for conservation of the Spix's macaw duly disclosed	Foster use of spix's macaw image as a sort of flag for the environmental education programs	840.000,00
	Periodically disclose information on the Program for Recovery of the spix's macaw and disclose the actions to implement this Action Plan	
	Define means for fundraising in order to implement the actions set forth in this PAN	
	On biannual basis, hold monitoring meeting of the PAN with Advisory Group and stakeholders	
	Create a program of exhibition and other uses for birds, defining criteria and protocols of exhibition and election of the birds to be exposed	
	Implement the exhibition program	
(6) Structure to restart the Spix's macaw Project duly established	Prepare proposal to restart the spix's macaw Project	980.000,00
	Restart the spix's macaw Project at the reintroduction site, encompassing activities of research, habitat recovery, local community engagement and reintroduction experiments	
	Prepare the construction project and make functional the Reproduction and Reintroduction Center <i>in-situ</i> for experimental releases, training with the Reintroduction Model Species and Model Species for Captivity, reproduction of spix's macaw in captivity and eventually reintroductions of spix's macaw (according to guidelines attached to the PAN)	
	Prepare the project and the financing proposal for experimental reintroduction of maracanãs and submit it to Advisory Group for Conservation of the spix's macaw	
	Provide training and interchange with other international programs	
	Carry out new experimental releases using maracanãs created in captivity and wild ones	
	Assess the success of the releases and publish the results	
TOTAL		5.170.000,00



The Spix's Macaw PAN launches a work initiative involving private partners and the Brazilian Government, through the "Projeto Ararinha na Natureza", these partnerships will fund several conservation actions from the plan, such as education and dissemination programs, studies focused on reintroduction and protection of the habitat and structuring a field base.



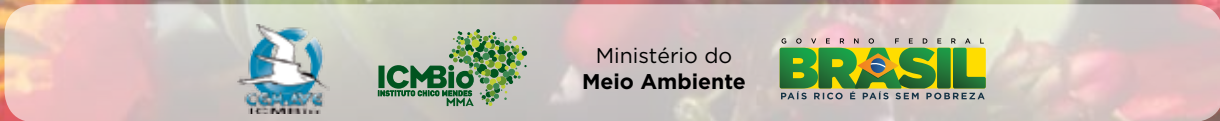
PARTNERS



SUPPORTERS



LEADERS



To know the actions and the developers of the PAN Spix's macaw access:

<http://www.icmbio.gov.br/portal/biodiversidade/fauna-brasileira/plano-de-acao/2752-plano-de-acao-nacional-para-conservacao-da-ararinha-azul.html>

Brazil, May, 2012