



Conservation Leadership Programme

1. **Title:** Conservation of the Grey-Breasted Parakeet, Brazil; ID 02110312
2. **Location:** Country - Brazil (States of Ceará, Pernambuco and Rio Grande do Norte)
3. **Institution:** AQUASIS
4. **Aim:** Determine the present range of the Grey-Breasted Parakeet to devise long-term conservation strategies.
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Section 1:

Summary

The Grey-breasted Parakeet is a Critically Endangered Psittacid, endemic to the Northeast region of Brazil. This species used to occur in many areas of northeast Brazil but due to habitat loss and the wildlife trade it is presently found in only two localities. This project aims to update the knowledge of the present range of the species, in order to devise long-term conservation strategies and contribute to the official Conservation Action Plan for the species. More than 4.000 km were survey, and more than a hundred (100) interviews were conducted to determine the present geographic distribution of the species. With previously information of Aquasis expeditions and with this CLP project, The lack of knowledge about the actual range of Grey-breasted Parakeet was clarified and updated in the official Conservation Action Plan, helping to elucidate information about the local extinction of this species in many parts of its historical distribution in the last 50 years. Another significant outcome of the search expeditions realized during this project, was the discovery clues that led us to find another small population of Grey-breasted Parakeets at an isolated mountain range in Ceará.

Introduction

The Grey-breasted Parakeet (*Pyrrhura griseipectus*, Figure 1) is a Critically Endangered Psittacid, endemic to the Northeast region of Brazil. The taxonomic and conservation status of this bird was only recently understood better by scientists, allowing for its inclusion on internationally recognized endangered species lists (e.g., BirdLife, IUCN).

The species originally inhabited moist forests on the slopes and upper portions of mountains (Figure 2) and the transition zone between moist and dry forests. These Atlantic Forest enclaves occur at higher elevations and are surrounded by the semi-arid *Caatinga* biome that is located north of the Rio São Francisco. The impacts of deforestation, combined with illegal hunting and poaching by wildlife traffickers has caused an unknown number of local extinctions and what are thought to be the last remaining wild populations of the species are restricted to two geographically proximate localities, the Baturité Mountains and Quixadá Inselbergs, located in the northeastern State of Ceará.

This troubled past, a significant lack of information about many avian species distributions in this part of Brazil and the current reality of just two known and severely reduced populations of Grey-breasted Parakeets reinforces the importance of realizing focused expeditions to search for possible remnant or even recently established populations of the species in areas where it is most likely to still occur. Such efforts are also necessary to facilitate the establishment of a long-term conservation strategy for the species and its habitats. All of the information collected during this study will be used as a subsidy for the official National Action Plan of ICMBio for conservation of the species in Brazil.



Figure 1. Flock of the Grey-breasted Parakeet in the Baturité Mountains, Brazil.



Figure 2. Habitat of the Grey-breasted Parakeet in the Baturité Mountains, Brazil.

Based on some limited knowledge of the species' historical distribution, three localities were selected to perform search expeditions for possible extant populations of Grey-breasted Parakeets and collect additional historical information whenever possible: Serra Negra in the State of Pernambuco (Figure 3), Serra dos Martins in the State of Rio Grande do Norte (Figure 4) and Serra da Ibiapaba in the State of Ceará (Figure 5). Two of these locations – Serra da Ibiapaba and Serra Negra – were visited previously by an AQUASIS search team in 2007 and 2008, respectively. Although no Grey-breasted Parakeet populations were confirmed during these expeditions, the information collected from interviews with local people strongly suggested that the species has been observed as recently as the 1990s in both of these places, so we decided to revisit the areas to conduct more extensive searches.

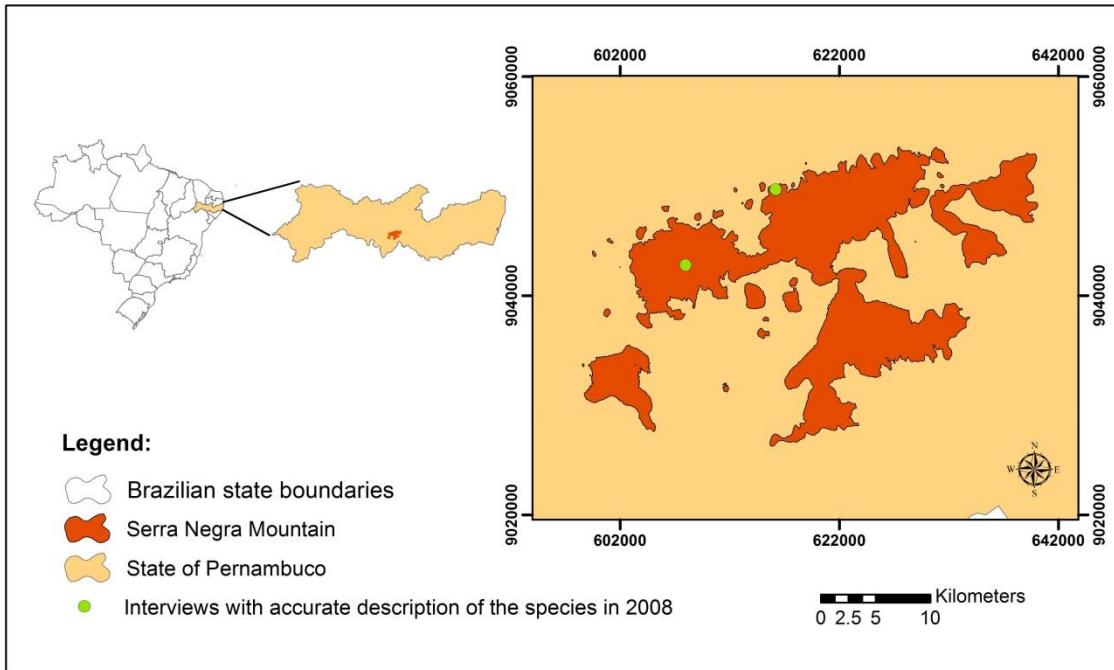


Figure 3. Map showing the location of Serra Negra and interview locations in the State of Pernambuco, northeast Brazil.

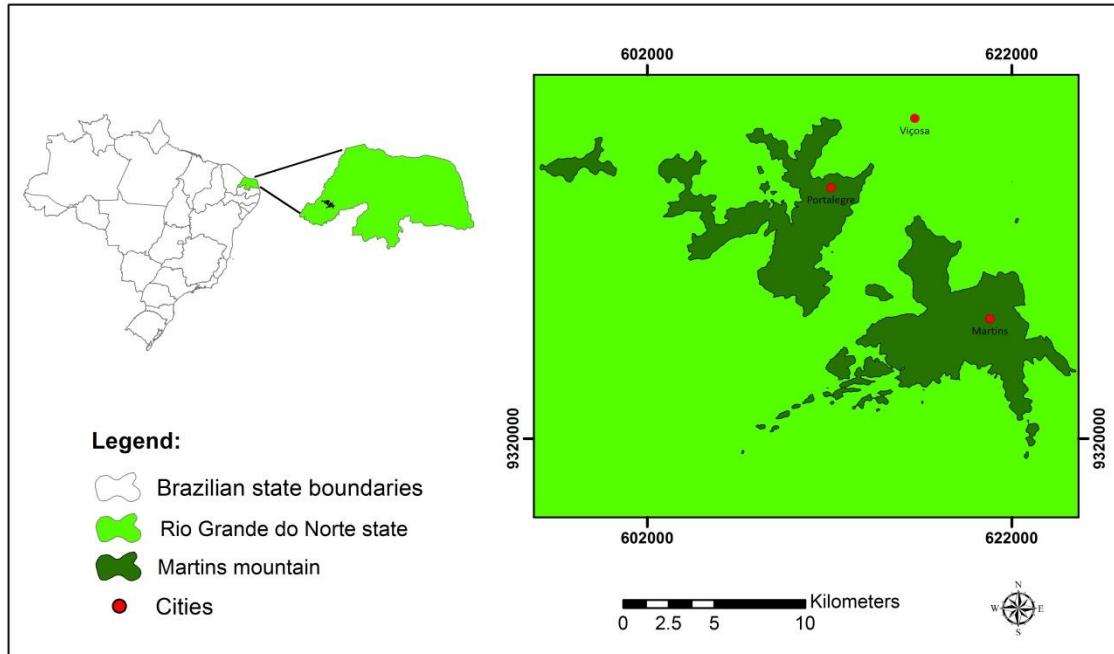


Figure 4. Map showing the location of the Serra dos Martins and interview locations in the State of Rio Grande do Norte, northeast Brazil.

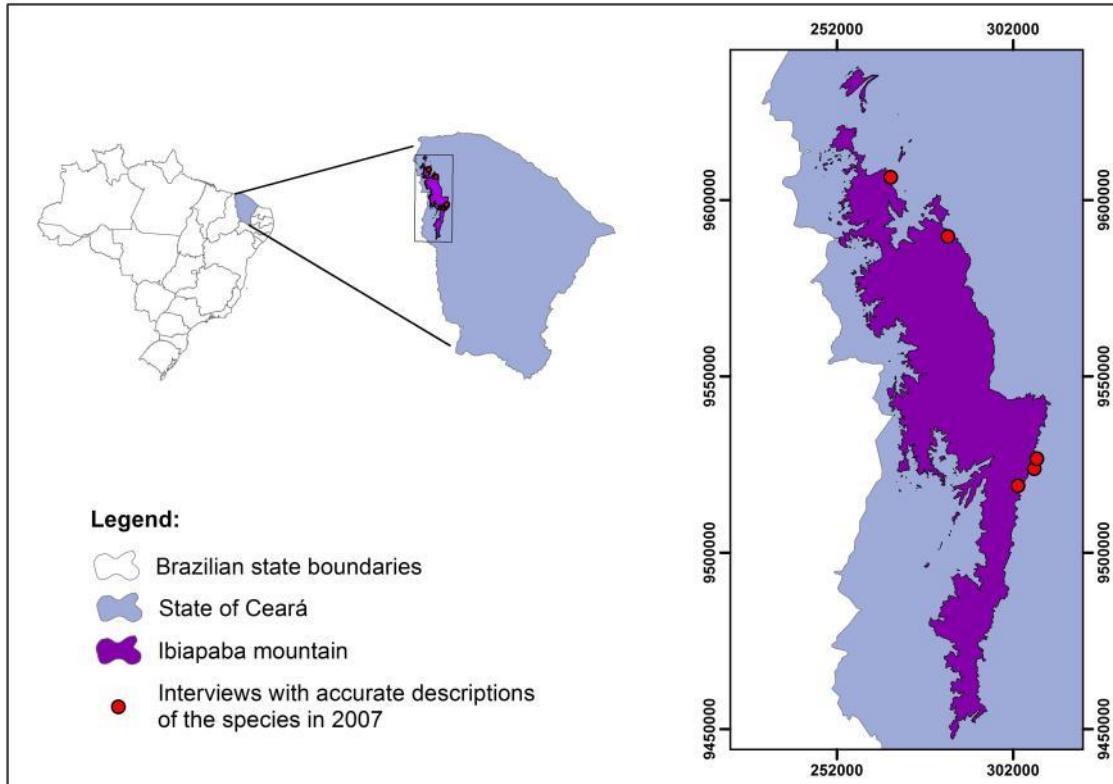


Figure 5. Map showing the location of the Serra da Ibiapaba and interview locations in the State of Ceará, northeast Brazil.

The last material evidence of Grey-breasted Parakeets in Serra Negra was preserved in 1978 by Galileu Coelho of the Federal University of Pernambuco, who collected 3 individual specimens and reported that there was a continuous presence of Grey-breasted Parakeets on the Serra Negra plateau. The last material evidence of the focal species in Serra da Ibiapaba was registered in the year 1910 by another Brazilian ornithologist, Emilie Snethlage, who collected 2 individual specimens. Although we are unaware of the existence of any material evidence of Grey-breasted Parakeets occurring in Serra de Martins, this area was selected as a key location for our search expeditions due our assessment of its high potential for supporting the species occurrence based on such factors as available habitat and proximity to other search areas deemed among our top priorities.

CLP Project Team



Name: Fabio de Paiva Nunes

Nationality: Brazilian

Age: 36

Education: Bachelor in Biology

Current occupation and employer: Aquasis Bird Conservation Program. Fabio has more than 5 years of experience in the conservation sector and is the Project Leader of the CLP Team and the Grey-breasted Parakeet Conservation Project.

Team Role: Field research coordinator

Name: Ilyene Tenório Lopes

Nationality: Brazilian

Age: 27

Education: Bachelor in Ecology

Current occupation and employer: Ilyene is currently finishing a Master's degree in ecology. She worked as volunteer for the Grey-breasted Parakeet Conservation Project in 2011 - 2013 and has been working with the Project team as a member of Aquasis Bird Conservation Program since 2013.

Team Role: Etnobiological interviews and GIS.



Name: Bruno Lindsey de Almeida

Nationality: Brazilian

Age: 24

Education: High School Diploma

Current occupation and employer: Bruno is employed as a Field Assistant with the Grey-breasted Parakeet Conservation Project. Bruno started studying for a degree in chemistry, but is now considering switching his focus to biology. Bruno was born and raised in the Serra de Baturité and speaks fluent English.

Team Role: Field surveys and logistics.

Name: João Marcelo Holderbaum

Nationality: Brazilian

Age: 35

Education: Master in Zoology

Current occupation and employer: Marcelo is a freelance ornithologist and bird guide, he also works with several environmental consultancies in the region and is a long time friend and contributor to Aquasis conservation objectives.

Team Role: Field surveys.





Name: Cristiano Alves da Silva
Nationality: Brazilian
Age: 35
Education: Geographer, GIS Specialist
Current occupation and employer: Cristiano works in Brazilian Department of Mineralogy and is starting a Master's degree in geology. Cristiano has been involved in many projects with Aquasis and the Associação Caatinga and has a solid, practical background in conservation.
Team Role: GIS and mapping.

Section 2:

Aim and objectives

The aim of this project was to determine the present range of the Grey-Breasted Parakeet in order to devise better long-term conservation strategies for the species and its habitat, and contribute to the official federal Conservation Action Plan for the species.

Objective 1. Conduct interviews and active searches in the Serra da Ibiapaba (Ceará), Serra Negra (Pernambuco) and Serra dos Pintos (Rio Grande do Norte);

Objective 2. Determine the present range of the Grey-breasted Parakeet based on the results obtained in Objective 1;

Objective 3. Devise conservation strategies for the species in all of its known geographic range;

Objective 4. Contribute the findings of this project in the official federal Conservation Action Plan for the species.

Methodology

Selection of the study areas

Based on some very limited knowledge of the Grey-breasted Parakeet's historical distribution and habitat, including information about the known wild populations and museum

collections, three localities were selected to perform search expeditions: Serra Negra in the State of Pernambuco (Figure 3), Serra dos Martins in the State of Rio Grande do Norte (Figure 4) and Serra da Ibiapaba in the State of Ceará (Figure 5).

Using a combination of elevation maps and satellite images for each locality, remnants of humid forest were identified and the points at which to conduct field surveys were selected. The principle field activity at each location entailed a series of point count surveys in which the observer remain stopped for 10 minutes looking and listening for signs of the species activity. If no signs of the species were registered during this time a sequence of playbacks of the species vocalizing was played. Point counts and playbacks were conducted from strategic locations both next to and within each forest remnant.

Following the completion of pre-selected survey points at each location, the search team used any remaining time to explore other areas close to the survey points that also presented ecological, climatic and/or topographic characteristics similar to those of the two known populations of Grey-breasted Parakeets.

Interviews

Semi-structured interviews (Appendix I) were conducted with local residents living in rural and urban communities near moist forest remnants. This type of interview was chosen to allow greater liberty to the interviewee to answer questions freely without having to decide between pre-established answers, as in a structured interview.

To verify the knowledge and accuracy of a particular person's observations, questions about other bird and mammal species were also asked. Additionally, 15 photographs of birds were shown to the interviewees for them to identify the species. These pictures included both birds that are known to occur and not occur in the region, thus serving as a good indicator of the intimacy of each interviewee's knowledge about local fauna

The photos presented to interview subjects included the Grey-breasted Parakeet and other bird species known to be illegally hunted and/or captured for the pet trade. Only interviewees determined to have an acceptable level of knowledge about the local fauna were considered reliable sources of information. A total of twenty reliable Interviews were realized by the end of a particular field trip to each of the study sites. Whenever there was evidence for the occurrence of Grey-breasted Parakeets presented by one or more local people during the course of an interview, the team also surveyed the localities indicated.

Maps

In order to create accurate maps of the species' potential areas of occurrence, SRTM (Shuttle Radar Topography Mission) images were obtained through the Embrapa website. These images were imported to the program ArcGIS 10.1 and converted using the Spatial Analyst Contour tool. Based on this archive, we identified and highlighted all areas above 600 meters elevation in the states of Ceará, Rio Grande do Norte, Paraíba and Pernambuco.

A minimum elevation of 600 meters was selected because, above that elevation in this region of Brazil, the temperature becomes much cooler, the average humidity increases significantly and the vegetation is predominantly forest, thus these areas are most likely to present suitable habitat for the focal species. Estimations of the size of the study areas were made using the calculate geometry tool in ArcGIS 10.1.

Outputs and Results

Our team travelled more than 4.000 km, in three different states, by vehicle or on foot with the goal of determining the present geographic distribution of Grey-breasted Parakeets. More than a hundred (100) interviews were conducted in local communities close to the principle search areas. The results of our CLP Team's search expeditions in each of the three study areas are detailed below.

Serra Negra

The expedition to Serra Negra, in the state of Pernambuco Brazil (Figure 3) was realized from 18th to 24th August, 2012. This area encompasses 35.000 hectares of mountainous terrain above 600 meters altitude. Only 600 hectares of the Serra Negra are protected according to law, and all of this area occurs with the Serra Negra Biological Reserve, created in 1982 to protect the western portion of the mountain's plateau.

With support from ICMBio (Figure 6) we were able to assemble two field teams and sample a 20 km² area (Figure 7), including the point count/playback (Figure 8 B) and interview locations (Figure 8 C).



Figure 6. CLP team and ICMBio employees, responsible for managing the Serra Negra Biological Reserve, during search efforts for Grey-breasted Parakeets in the area

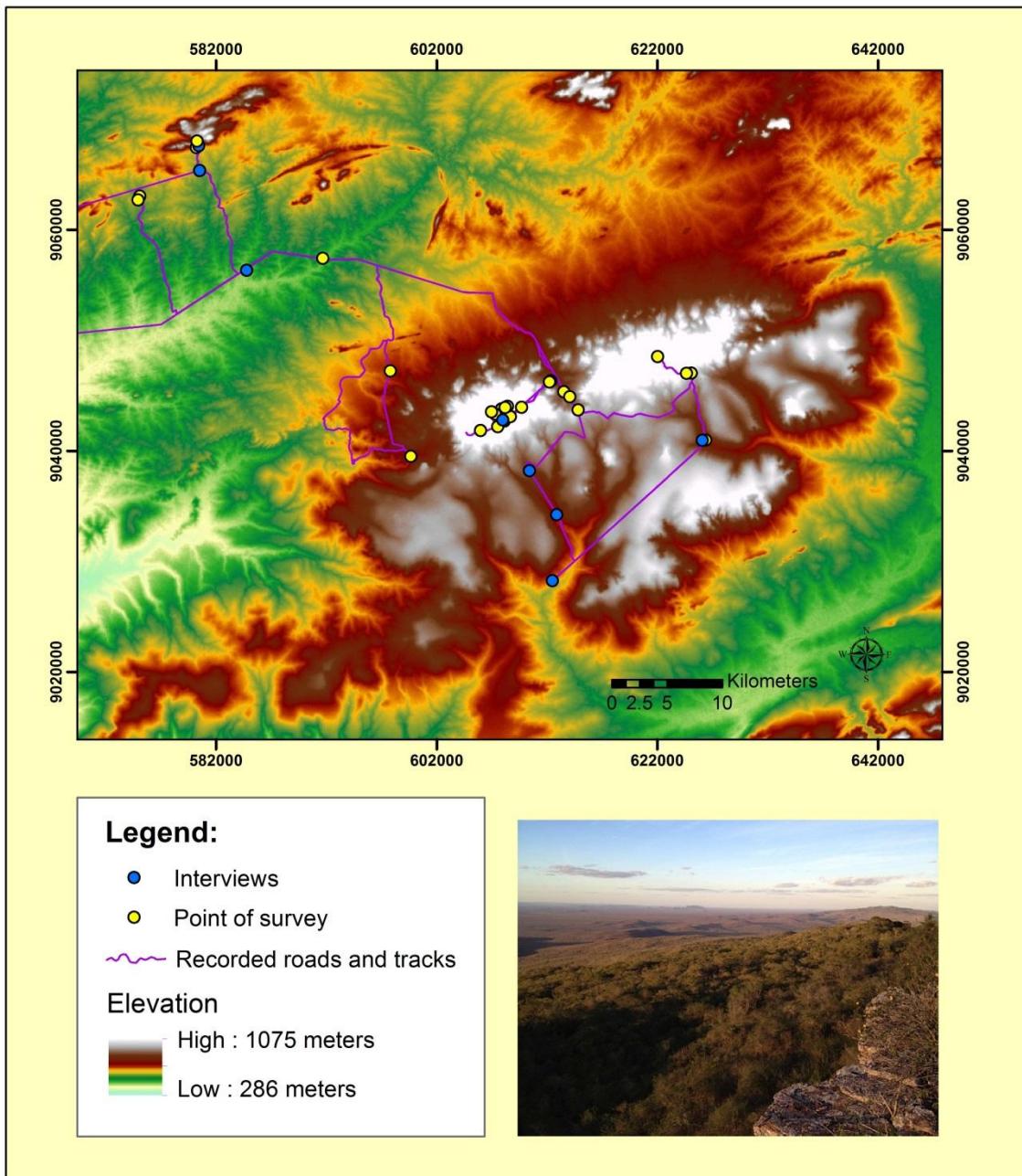


Figure 7. Elevation map of the terrain in Serra Negra, indicating survey areas and interview locations .

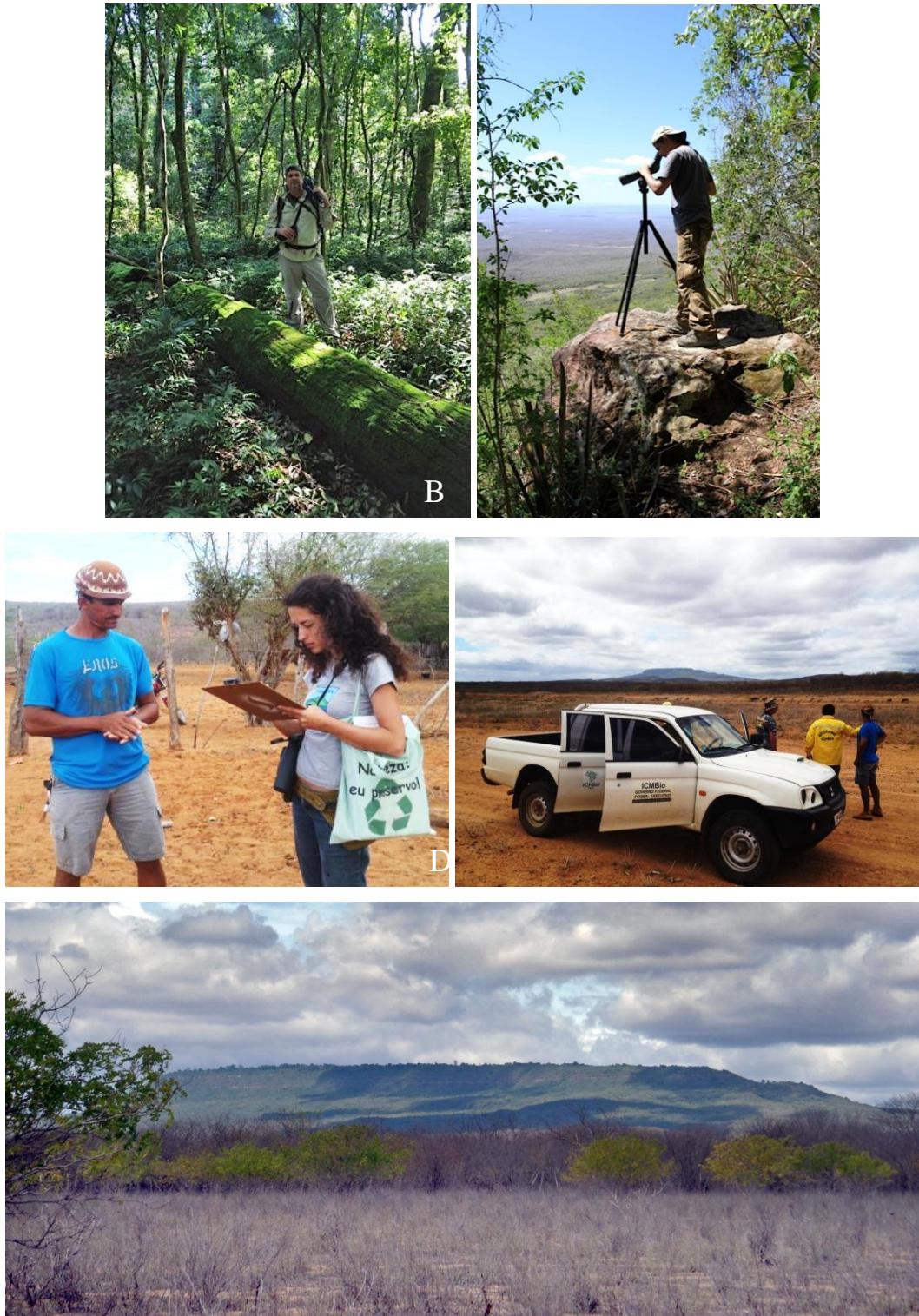


Figure 8. A) Example of humid forest habitat in Serra Negra. B) Conducting a point count survey on one of the mountain slopes. C) Interviewing a local farmer who provided a good description of the behavior and morphology of the focal species. D) Example of a degraded *Caatinga* habitat in the lowlands surrounding Serra Negra and an area undergoing severe desertification.

Of the 20 people interviewed, only 6 were able to give a reliable description of the focal species, which is not surprising given that the majority of these eyewitness accounts happened a long time ago, in most cases more than 20 years ago.

Despite the extensive fieldwork realized in 2008 and 2013 (Figure 7) in the area of Serra Negra, our search teams did not make any direct observations or acquire any new evidence to suggest that Grey-breasted Parakeets persist at this locality.

It is difficult to infer what were the exact conditions that enabled the occurrence of Grey-breasted Parakeets or what may have caused the drastic decline in their population in this region in the past. The most plausible explanation probably entails a combination of factors: human persecution (Figure 10), habitat destruction (Figure 8D), regional climate change, lack of resources (Figure 11) and direct competition with other Psittacid species (Figure 9).



Figure 9. Blue-winged Macaws (*Primolius maracana*) in Serra Negra use the same sort of tree cavities that are preferred by Grey-breasted Parakeets.



Figure 10. The CLP Team discovered a hunting camp with a variety of mammal bones and feathers from threatened bird species, like Jacucacas, during a field trip in 2012.



Figure 11. A) A house, typical of the region, built with clay. B) A farmer preparing cactus for cattle feed during the dry season, an indication that some basic resources are lacking in the region.

Serra de Martins

Between the 15th and 21st of October, 2013 our CLP team conducted a field trip to search for Grey-breasted Parakeets in the Serra de Martins. This area includes 10.367 ha of potentially suitable habitat, for Grey-breasted Parakeets, above 600m, but with a maximum elevation not exceeding 750m. Climatic conditions at this altitude are pleasant, with annual average temperatures between 24° and 27° C, while temperatures in the surrounding lowland depression are between 32 ° and 37 ° C. For this reason, the area is mostly exploited for its tourism potential by people from two small local cities, Martins and Portalegre, seeking temporary refuge from the intense heat.

According to the response of our interview subjects, the flat terrain on the top of this mountain ridge (Figure 12), is favored for agro pastoral type farming practices. We learned that the Serra dos Martins has undergone several agronomic cycles, the last being a cashew tree monoculture. The higher elevation humid forest that once dominated the plateau was completely converted into a cashew plantation and the lack of any conservation units or environmental monitoring in this area has ultimately led to a complete alteration of the landscape (Figures 14 and 15).

Our site visit also reinforced an aspect of the region that is quite evident there, the extreme poverty of the local population, which is highly dependent on agriculture for their most basic survival. The slopes and lowlands surrounding the the Serra dos Martins have been extremely impacted by 50 years of cultivating cotton, corn, beans and grazing livestock. Intense agricultural activities, combined with a history of irresponsible land use practices, have reduced any remaining areas of forest habitat to small, isolated fragments.

An analysis of satellite images and interviews with residents indicate that there are only three small remnants of humid forest in the region, 2 ha of the *Pedra Talhada* forest, located in the city of Martins ([Figure 1](#)), the 4 ha *Mata do Clezinho*, also in Martins ([Figure 5 A](#)), and the 3ha *Mata da Bica* in the city of Portalegre city ([Figure 5 B](#)). These remnants of humid forest habitat were also identified as refuges for several other species of birds and mammals, which our interviews indicate have also been greatly impacted by severe hunting pressure. Of the 20 interview subjects identified as knowledgeable about the local avifauna, 18 expressed some level of personal involvement in the practice of hunting and capturing wild animals. One of these subjects even admitted to hunting on a weekly basis.

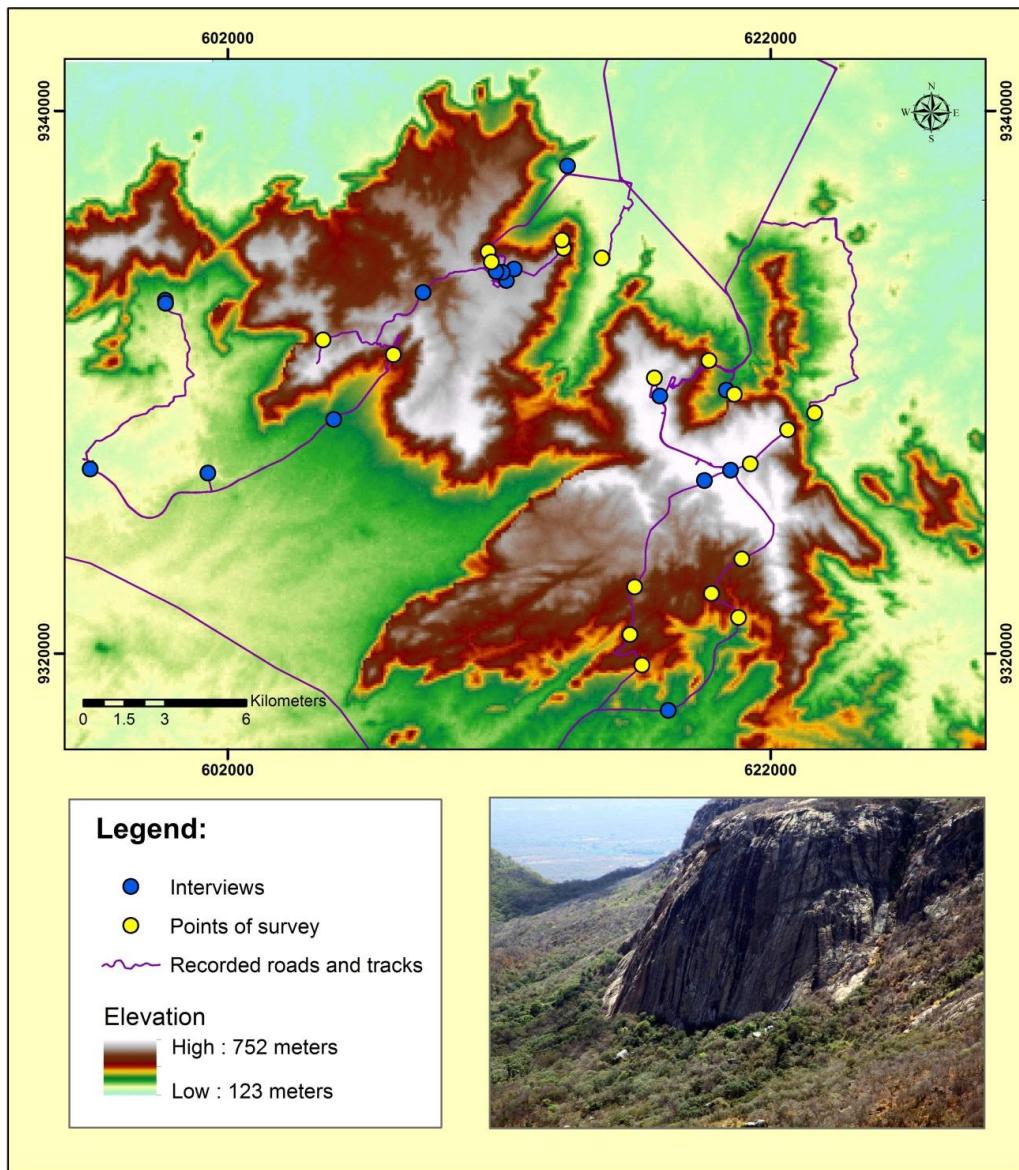


Figure 12. Elevation map of the area and locations where point count surveys for Grey-breasted Parakeets and interviews with local residents were conducted in the Serra dos Martins site

Despite our team's intense point count survey campaign in all of the areas with some remaining humid forest habitat and interviews with local residents of the Serra deMartins, no recent records of the Grey-breasted Parakeet at this locality could be confirmed. The most obvious reason for the absence of the species, there must be attributed to the devastation of its required habitat, the humid forests that once covered these hills. Reports by some of the older residents indicate that the forest habitat of the Martins Mountains was also moist and leafy at one time, quite different from the dry forest remnants that are found there today.

Considering all of the factors involved here: an intensive field survey effort, ethnobiological interviews, thorough exploration of all the remaining forest fragments and our team's personal knowledge and experience with the basic biology and preferred habitat of the species through our project activities in the Baturité Mountains, there is no evidence to suggest that Grey-breasted Parakeets still occur in the Martins Mountains. In this particular case, we can conclude that habitat loss has been the main factor responsible for the local extinction of the species.



Figure 13. A) One of our point count locations, on the mountain slope and B) conducting an Interview with a local farmer.



Figure 14. Plateau area of the Serra de Martins, showing the green vegetation of cashew trees on top and the impact of deforestation and the dry Caatinga vegetation on the slope below.



Figure 15. Current state of some different landscapes in the region of the Serra de Martins: A) Regenerated area after a fire. B) Garbage dump in an open area. C) Example of a typical human occupation and D) A highly degraded area suffering the effects of desertification.



A



B

Figure 16. The last fragments of forest in the region: **A)** *Mata do Clezinho*, in Martins – RN and; **B)** *Mata da Bica*, in Portalegre- RN.

Serra da Ibiapaba

A field trip to search for Grey-breasted Parakeets in the Serra da Ibiapaba, located on the border between the states of Piauí and Ceará, was conducted by our CLP team from the 14th to the 22nd of November, 2013. The Serra da Ibiapaba is a sedimentary plateau, classified as a *cuesta*, characterized by a steep, cliff-like slope facing east (i.e., the Ceará side) and a gradual inclination on the west side (Figure 17). The original moist forest vegetation cover (Figure 18) is highly fragmented today, with remaining patches of forest occurring mainly along the slopes and in some isolated private areas.

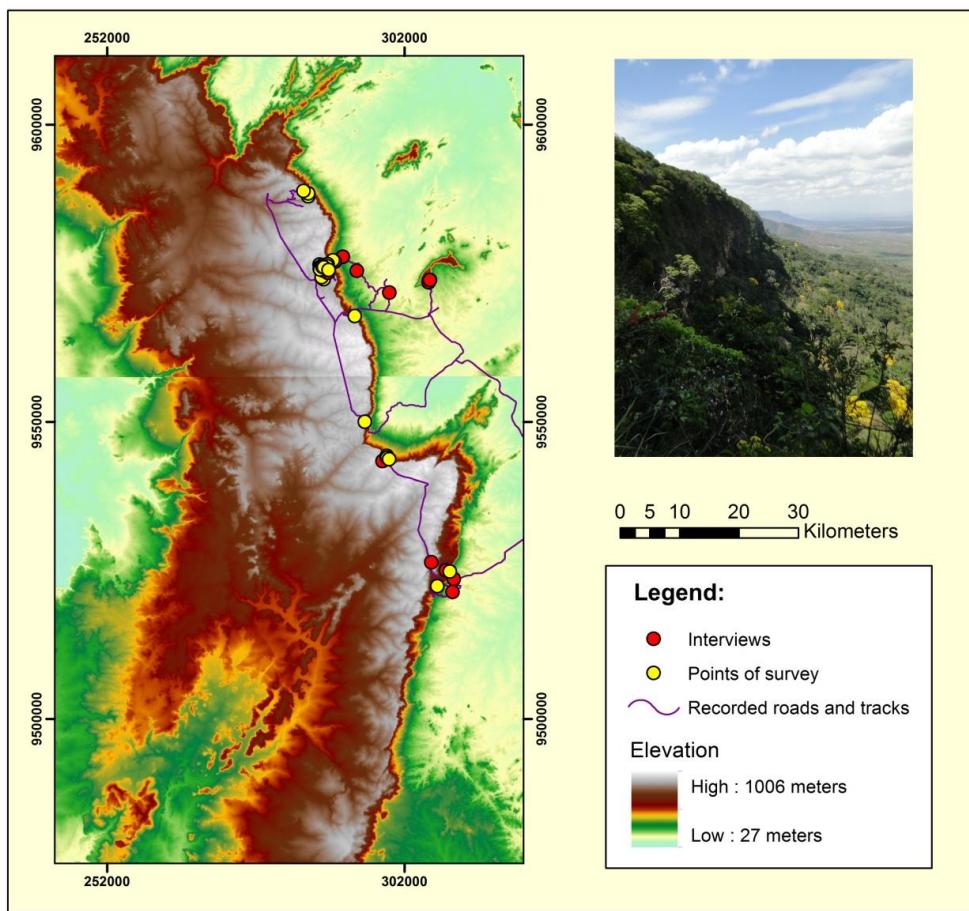


Figure 17. Elevation map of the area and locations where point count surveys for Grey-breasted Parakeets and interviews with local residents were conducted in the Serra da Ibiapaba site.

There are two official historical records of the Grey-breasted for this region. In 1910, the German ornithologist Emilie Snethlage (1868-1929) visited Ceará, where she obtained two female Grey-breasted Parakeet specimens, eventually publishing this information in 1926.

Snethlage did not reveal the exact origin of these specimens in her publication, but they were deposited in the Emilio Goeldi Museum (Pará) and catalogued as having originated from the municipality of Ipú, where she is known to have worked extensively. The second known historical record was made in 1885 by the naturalist Antonio Bezerra (1841-1921), who observed Grey-breasted Parakeets in the municipality of Tianguá (Ceará). This record consists of Bezerra's description of a conure: "the head is covered in purple, white marks surround their ears, the rest of the body is dark green and under the wings, the feathers reflect a pure blue", precisely like the plumage of the Grey-breasted Parakeet. While this report has limited value, it is also the only indication of the presence of the focal species in Tianguá.

Fortunately, there has been a 563 ha protected area in the hills of Ibiapaba, the Ubajara National Park, since 1973. This area is fenced in and secured by armed guards (Figure 18), which greatly inhibits the realization of activities that are harmful to wildlife, such as hunting and logging. In 2002, a decree increased the area of the park to 6,288 ha, which was a great victory as the region's remaining forests have become increasingly fragmented. But unfortunately, since the time of this decree, nothing has been done to enforce the new limits of the park, with remains totally unprotected.

In 2007, an AQUASIS team made two expeditions to search for Grey-breasted Parakeets in the Ibiapaba Mountains, but neither of these expeditions resulted in any evidence that the species is still present in this region. However, due to the large geographical expanse of Ibiapaba, our CLP Team determined that it would be worthwhile to return to the area in 2013 to survey localities that were not visited by the team from AQUASIS, among them the Ubajara National Park, which now includes one of the largest remaining forest fragments in the region.

The CLP Team surveyed approximately 240 Km of roads and trails in the area of Ibiapaba, focusing mainly on searching for evidence in the vicinity of humid forest remnants and cliffs, which are the preferred habitats of the species. The team also conducted interviews, but only one interviewee provided a correct diagnosis of the focal species. This respondent, known as Edimar, a 73 year old and current resident of *Araticum*, showed us the location of his last sighting, about 30 years ago, in a place called *Torrão*, which is currently part of the Ubajara National Park.

As in the other locations surveyed during this project, we found many similar contrasts between the reality of developing a tourist destination in higher elevation areas of the

mountains and the daily difficulties of basic survival faced by local residents in the surrounding lowlands.

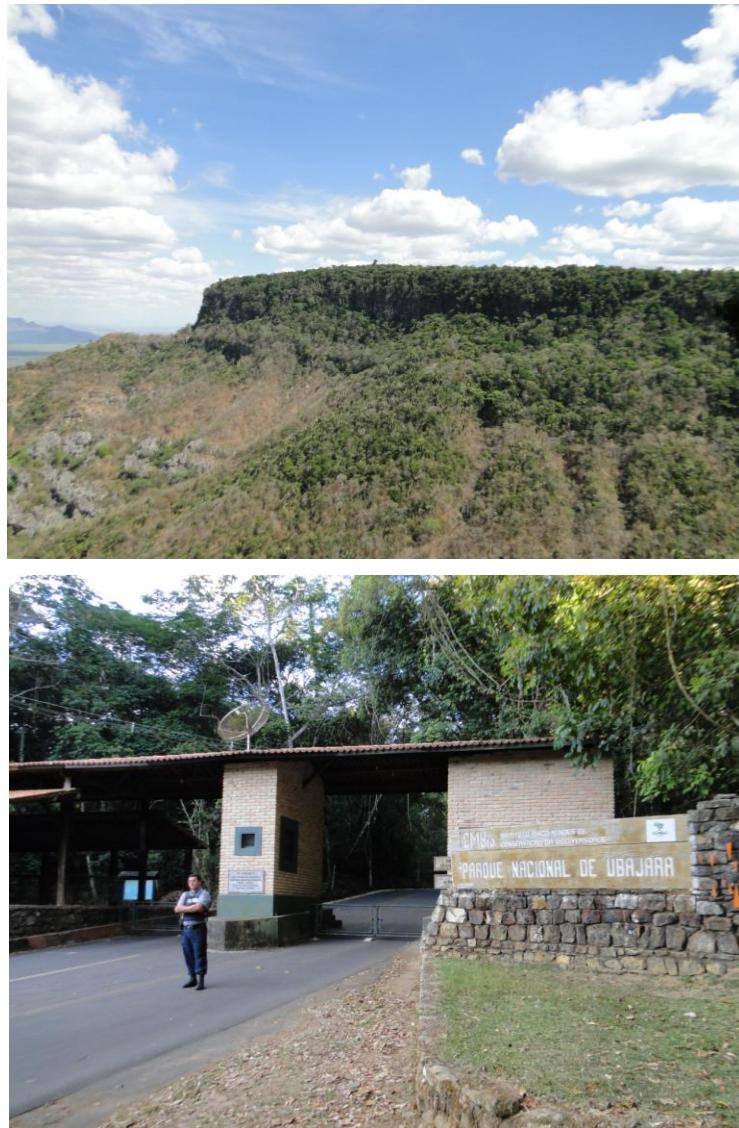


Figure 18. A) Humid forest vegetation cover and **B)** entrance to the Ubajara National Park.

Our field surveys in the municipalities of *Ipú*, *Ibiapina*, *São Benedito*, *Ibiapina*, *Guaraciaba do Norte*, *Ubajara* and *Tianguá* did not result in any concrete evidence for the presence of Grey-breasted Parakeets in the Serra da Ibiapaba. Despite the lack of knowledge among local residents regarding the Grey breasted Parakeet, the apparent quality and the extent of habitat that would be available to the focal species if it were present, is still intriguing.

Additionally, our team was able to identify many fruits in the area that also occur in the Baturite Mountains and are known to be part of the Grey-breasted Parakeet's diet. In this case, it is very difficult to say what factor(s) have contributed the most to local extinction, or at the very least a drastic population reduction, of the focal species. However, it is known that the practice of poaching wildlife in this region is among the worst levels known in the state of Ceará. That reputation, combined with the absence of other indicators, like the Yellow-faced Siskin (*Sporagra yarrellii*), suggests that the most probable explanation for the absence of Grey-breasted Parakeets in the Ibiapaba Mountains is poaching.

Achievements and Impacts

Ultimately, we were able to generate a summary map (Figure 19) and accompanying table (Table 1) incorporating all of the available information regarding the actual range of the Grey-breasted Parakeet determined by the AQUASIS team expeditions in 2007, 2008 and information collected during the present study conducted by the CLP Team in 2012 and 2013.

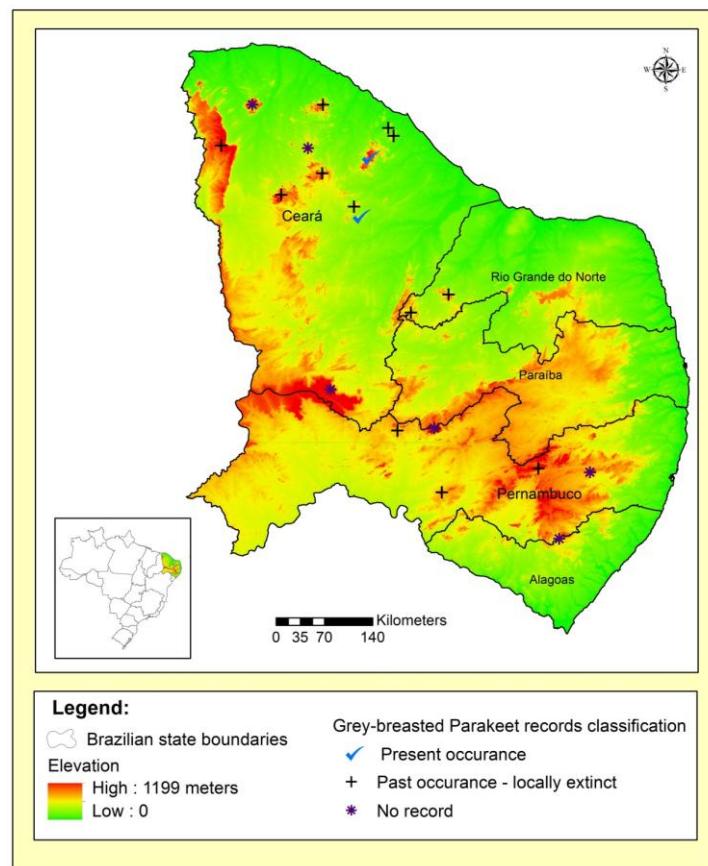


Figure 19. Range map of the Grey-breasted Parakeet.

Table 1. Areas surveyed by the AQUASIS team from 2007 - 2013 and last approximate times for which there is any known evidence for the presence of Grey-breasted Parakeets there.

State	Locality	Municipality	Last evidence
Ceará	Serra de Baturité*	Guaramiranga Pacoti Aratuba Mulungu	2013
Ceará	Serras de Quixadá*	Quixadá	2013
Pernambuco	Serra Negra*	Floresta	1990s
Ceará	Serra da Ibiapaba*	Ipu Tianguá Ubajara	1990s
Ceará	Serra de Uruburetama	Uruburetama	1990s
Ceará	Serra do Machado	Itatira	1980s
Ceará	Serra do Céu	Itatira	1980s
Ceará	Serra Redonda	Canindé	1970s
Ceará	Serra de Maranguape	Maranguape	1970s
Ceará	Serra da Aratanha	Pacatuba Guaiúba	1970s
Rio Grande do Norte	Serra do Martins	Martins Portalegre	1960s
Rio Grande do Norte	Serra de São Miguel	São Miguel	1950s
Pernambuco	Serra Verde	Catolé	1950s
Paraíba	Extremo oeste /RN	-	1950s
Pernambuco	Brejo da Madre de Deus	Brejo da Madre de Deus	1950s
Ceará	Serra Verde	Irauçuba	None
Ceará	Serra da Meruoca	Sobral	None
Ceará	Chapada do Araripe	Crato	None
Pernambuco	Serra do Triunfo	Triunfo	None
Pernambuco	Brejo dos Cavalos	Caruaru	None
Alagoas	Pedra Talhada	Pedra Talhada	None

* material evidence (skin)

Following the realization of these expeditions and the compilation of our data, it is clear that the effort, time and monetary resources expended in searching for new areas of occurrence of the focal species since 2007 has been significant. While we cannot completely rule out the possibility of new unknown populations of Grey-breasted Parakeets being discovered in the northeast region of Brazil, if any such populations do in fact exist, they are likely to be very small, very isolated, and therefore, barely detectable. Given these factors, the CLP Team is recommending that future conservation actions should be concentrated on the known populations of the species, where there is still much work to be done and all of the activities, efforts, resources, and time spent can be directly invested in protecting the focal species with tangible results and preventing its extinction.

The results of this project were presented and discussed at the most recent meeting to update the National Action Plan for the Grey-breasted Parakeet (Figure 20) and will be published in the next version, which should be released in the second semester of 2014.



Figure 20. Strategic Working Group meeting to update the National Action Plan for the Grey-breasted Parakeet at the Centro Nacional de Pesquisa e Conservação de Aves Silvestres (CEMAVE – ICMBio), in Cabedelo – PB.

Another significant outcome of the search expeditions realized during this project, was the discovery of new clues that led us to find another small, allopatric population of Grey-breasted Parakeets at an isolated mountain range in Ceará. This population was discovered in 2014, after the CLP project activities were completed, and represents the third remaining, of fifteen previously existing populations, of this Critically Endangered species.

Conclusion

In spite of all the effort expended by our CLP team in conducting field surveys for Grey-breasted Parakeets in Serra Negra, Serra dos Martins and Serra da Ibiapaba, no recent records or valid evidence for the presence of Grey-breasted Parakeets (*Pyrrhura griseipectus*) at these localities was acquired.

Several factors have been suggested as potential causes of population decline and subsequent local extinction of the focal species in these study areas, but our visits to these localities indicate that habitat loss and poaching have been the principle factors involved.

Among the three areas we visited during this project, the Serra da Ibiapaba presented the best remaining habitat and climatic conditions for Grey-breasted Parakeets. Thus, we propose that Ubajara National Park may the best site for a possible program to reintroduce the species to former parts of its distribution. Nonetheless, it should be noted that reintroduction alone will not be enough to re-establish a wild population there because the threat of capturing reintroduced animals remains very real. Therefore, it will be essential to realize a joint effort with environmental officials that includes enforcement of the law and an environmental education campaign in the region to maximize the chances of a successful Grey-breasted Parakeets release program.

Problems encountered and lessons learnt

The goals of this project were successfully achieved. Thanks to these efforts, the lack of knowledge about the actual range of Grey-breasted Parakeet was clarified and able to be updated in the official Conservation Action Plan for this species. This CLP project also helped to elucidate much information about the local extinction of this species in many parts of its likely historical distribution, demonstrating that the principle threats to the species have occurred mostly during the last 50 years.

Acquiring information from surveys with local residents was crucial to the success of this project. The CLP Team interviewed, contacted, and consulted a large number of people before and after the field expeditions in order to put all the information together. The main problem we encountered in trying to interview so many people was mostly related to their availability and schedules. Another problems was to reconcile the best periods during which to realize the search expeditions and the availability of local partners to facilitate the surveys. Although we experienced some delays in this project, with great patience and adaptability, we were able to overcome these obstacles and realize a high quality investigation that represents an important contribution to conservation in the region.

The methodology used here was based largely on the previous work by Aquasis, since since this CLP project was designed to complement earlier work and fill in the information gaps identified in the first National Action Plan for the species and due to the emergence of new information suggesting the possibility of the species' existence in historical parts of its distribution. Our methodology involved the use of interviews to find clues about the current or historical occurrence of the species and identify potential search areas. Searches were performed in areas appointed by local or identified by similarity of habitat, with the help of satellite images. This approach was facilitated by the fact that Grey-breasted Parakeets are very different from other local parrots and their general behavior, overall appearance and coloration, formation of flocks, vocalizations and habitat preferences are very a very specific, so it is unlikely to go unnoticed by local residents wherever it is present.

The biggest lesson the CLP Team learned during the realization of this project was to always try and learn more and stay focused on our goals. Even when new opportunities were presented during this project, there was never enough time or resources to do everything we was felt necessary to complete this picture.

In the future

The information generated by this project make part of a set of goals established for this species in the National Action Plan. From now, a book will be published by the Brazilian government setting targets for conservation of this species (PAN AVES DA CAATINGA). Knowledge of current and past occurrence of this species provides help to set priorities of *in situ* conservation of the remaining populations, and the possibility of reintroduction in historical

areas, according to the capacity of these environments. Therefore, many researches and actions should occur triggered by this project. One of them is to monitor this new population of grey-breasted parakeet found in Ibaretama, to involve this isolated group in the strategies for this species.

Appendices

Appendix I – Translation from Portuguese of the interview conducted with local residents in the study areas.

Part 1:

Interview #:

Date:

Name:

Occupation:

Locality:

How many different types of parakeets do you recognize?

How are they?

Part 2: (description and diagnosis of the focal species)

Local name(s) for the focal species:

Does it still occur here?

When was the last time that you saw it?

Where did you see it?

How many individual birds were there?

What were they doing?

What time of day was it?

Have you ever seen a parakeet nest?

Can you describe what it looked like?

In what type of tree was the nest located?

Do you know of any nests in the vicinity now?

Do you know of any locations in the vicinity where the bird might be right now?

What do the parakeets eat?

How big are the flocks of parakeets that you've seen recently?

How big were the flocks of parakeets that you saw in the past?

Why do you think these flocks are smaller nowadays?

Do you know anyone with a caged bird?

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