



CONSERVATION OF THE RED-FRONTED MACAW IN THE CAINE RIVER, BOLIVIA FINAL REPORT

This project has implemented a portfolio of activities and measures that have greatly contributed to the conservation of the Red-Fronted Macaw (*Ara rubrogenys*), an endangered species endemic to a small area on the east Andean slope of south-central Bolivia. Interventions have been countering the multidimensional causes of the species' exposure to persecution. This was achieved by involving various stakeholders, including key community-based entities and the local municipality, and by enhancing ecosystem management at the community and municipal level in a way that reduces the threat to the species while improving the chances of better livelihoods and conserved ecosystems in the area. The following is a discussion of results achieved through the project:

1) Scientific monitoring of the Red-Fronted Macaw and its local habitat in order to have a complete understanding of the species and its population in the area:

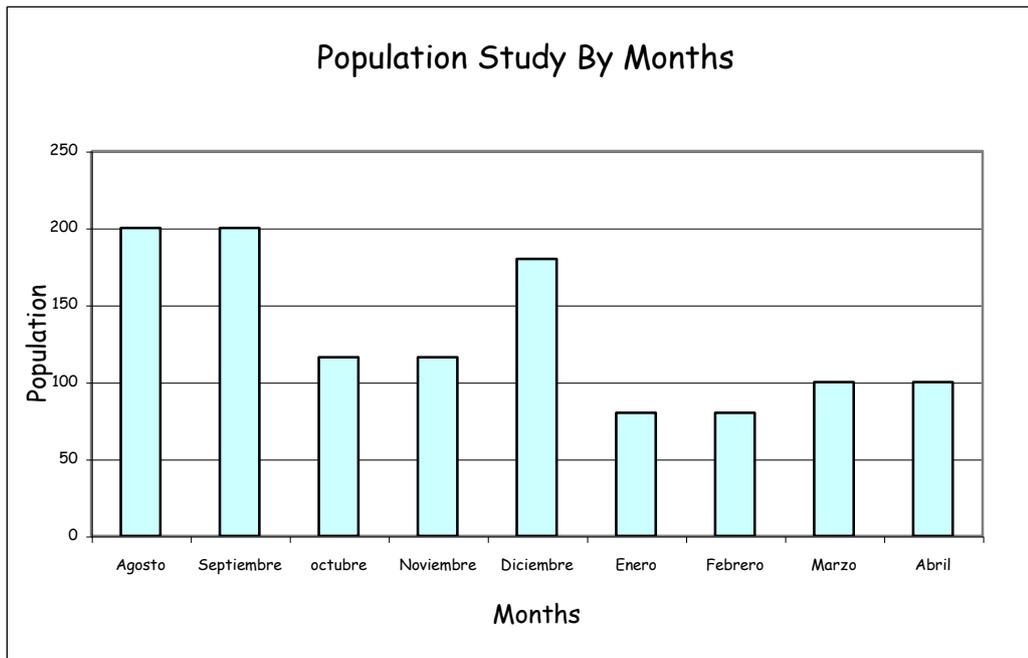
Key results include: a population census, behaviour studies to see patterns in relation to damage inflicted by the bird on different local crops, and reproduction behaviour. In the behavioural study, the Red-Fronted Macaw was found to have two distinct migratory periods during the year: the dry season between June and October, when more Red-Fronted Macaws are present and eat the locally harvested peanuts, and the rainy season which also coincides with the Macaw's reproductive cycle which is between the months of November through May. During this time period the Macaws have a tendency to migrate to other parts of Bolivia such as the Pilcomayo and Mizque Rivers, where they find other sources of food including fruits from the Soto, Kulki and Algarrobo trees and a certain plant species that only exists in the area during the rainy season.

Through the reproductive behaviour study, it was found that the Red-Fronted Macaws do not always have successful reproduction. The older pairs have more successful periods of reproduction than the younger pairs with more eggs found in their nests.

To do a more integrated study of the Red-Fronted Macaw population, FHI plans to sign an agreement with Armonia, a Santa Cruz-based conservation agency who works in the Pilcomayo and Mizque areas. When the Red-Fronted Macaws seasonally migrate to Armonia's work areas, we would have access to their information while they would have access to our information when the



macaws migrate to our work areas. This information would provide a more complete picture of the behaviour patterns of the Red-Fronted Macaw. FHI already has a coordination agreement with Armonia to share information and work together, but a more detailed study is needed to better understand seasonal migration patterns.



2) Production and dissemination of training and educational materials and workshops that encourage the protection of the Macaw (pamphlets, hats) among farmers, local schools, community and municipal leaders:

Different educational materials were produced during the project life of activity to promote the conservation of the Red-Fronted Macaw. Educational posters were produced in coordination with Armonia—a conservation group based in Santa Cruz, Bolivia. The posters have information about areas of concentration of the Red-Fronted Macaws in Bolivia, what they eat and their present condition in Bolivia.

Hats, T-shirts and vests were made for the Red-Fronted Macaw conservation promoters. These promoters will soon be placed in charge of running tours of the Red-Fronted Macaw's habitat in coordination with SERNAP (*Servicio Nacional de Areas Protegidas—Bolivian National Park Service*), which has recently expressed more interest in the Macaw conservation effort. SERNAP has very limited resources and normally hires park guards from local communities that often have very little education (often not exceeding the 5th grade). Through this Rufford Small Grant, support was given to this



government agency through educating their park guards as well as other promoters. Educational folders were also produced to be more widely distributed in Bolivia. Finally, a 3-minute promotional video was produced to help promote the protection of the species with the general public. Please see images of these items in the annexes.

3) Training of community youth promoters from local communities in environmental issues and conservation of the Macaw:

Training of community youth promoters took place on a monthly basis covering various environmental topics but with a strong focus on the Red-Fronted Macaw. The young promoters have been selected based upon demonstrated interest and ability to influence behaviour change in their communities. As mentioned previously, these youths are being trained to lead tourists on observation trips of the Red-Fronted Macaw in the Caine River area. They will receive certification from SERNAP and also a local University once the training is complete.

4) Training of farmers in innovative methods to protect their peanut crops from the Macaw:

Farmers from the Caine River area consider the Red-fronted Macaw a pest because it feeds on their peanut crop. Studies conducted by FHI have shown that the species actually does little damage to the peanut crop, while domestic animals such as pigs, donkeys and dogs that also eat the peanut crop actually cause more damage. The Red-Fronted Macaw emits loud squawking sounds which alert the farmers to their presence in their crops while other animals are typically quieter. This implies that farmers are unable to notice their presence and thus do not realize that the domestic animals are actually more problematic than the Red-Fronted Macaw. This information is being disseminated to the farmers in the area through training events and the distribution of educational materials, as well as through home visits to explain in more detail important information about the Red-Fronted Macaw and related environmental education topics.

5) Reforestation—planting 6,000 native trees, mainly *Soto* (whose seeds are eaten by the Macaw), *Molle*, and *Jacaranda* between November—February (just before and during the rainy season), in order to expand the natural habitat of the Red-Fronted Macaw as well as contribute to soil protection, water retention, and the stabilization of altered areas:

Reforestation activities took place during the Bolivian rainy-season, in which some 7,500 native trees were planted in the area. Local communities actively participated in this important activity because they are realizing that they are



gradually losing their forests due to the expansion of the agricultural frontier and other man-made problems such as the need for more wood for housing and cooking. In turn, deforestation causes more problems with the soil due to increased wind and water erosion. Other endemic species in the area will also benefit from these reforestation activities and the restoration of the natural habitat of the Red-Fronted Macaw.

School children participated in the reforestation activities around their school, an event that served as a hands-on environmental education lesson for the children.

Other Activities

1) Environmental Education in schools: Through the Conservation of the Red-Fronted Macaw project local communities were supported through various environmental education activities to awaken interest in the local environment and the need to protect their natural resources. School children participated in writing brief essays and stories about the Red-Fronted Macaw.

2) Work with Youth: The project facilitated talks with youth in high school emphasising the importance of staying in school and finishing their studies, encouraging them to do a better job than the older generation in terms of conserving the natural resources that they possess in their communities.

3) Presentations and Participation in Congresses and other meetings: Veronica Pasquieri, the project's biologist, participated in the 1st Bolivian Congress on Ecology presenting a brief summary of the project entitled, "Study and Conservation of the Red-Fronted Macaw (*Ara rubrogenys*) in the Caine River", to help raise awareness of what is being done to protect this specie in Bolivia.

4) Women's Group: Strong support was given to a women's group in the Caine River area in the elaboration of traditional artisan work and the production of marmalade jellies from local crops such as guayava, lemon and sweet potato. Women were taught about the importance of protecting the Red-Fronted Macaw and encouraged to use the picture of the Macaw with the marketing and sales of their products, in order to help raise awareness of the need to protect this species. Women were very interested in the recycling of plastic bags to produce carrier bags for their harvest, thus promoting the conservation of the Macaws' habitat through proper waste management.

5) Coordination with Armonia: A formal agreement was achieved with the conservation institution Armonia to standardize the methodology employed for the scientific study of the species and to coordinate other conservation activities. Armonia operates in adjacent areas to FHI work-areas and in order



to have complete information about the seasonal migration of the Red-Fronted Macaw it is important to coordinate activities and work together.

6) Coordination with SERNAP: Work in coordination with SERNAP to train their staff in conservation of the Red-Fronted Macaw as well as coordinate the work of youth promoters for purposes of eco-tourism of the Macaw's habitat.

7) Tree Nursery Established: A tree nursery was created in the area as part of a longer-term conservation plan. The nursery is currently being managed by a forestry specialist whose salary is financed through the Rufford Small Grant. Currently, the tree nursery is producing 20,000 saplings of native varieties including soto, kulki, algarrobo, tipa, tara and jacaranda. These saplings will be planted when the rainy season commences in November of 2006. For the future, FHI hopes to transfer responsibility for the tree nursery to the community and to SERNAP in order to promote sustainability and ensure that native trees will continue to be produced for reforestation in the Caine River area.

8) Network to Fight Illegal Wildlife Trafficking: In the last Workshop Against Illegal Wildlife Trafficking, which was sponsored by the Bolivian Network against the Traffic of Wild Animals (REBOCTAS), steps were taken to move forward in creating a network to fight illegal wildlife trafficking. FHI participated in the workshop and is part of the newly formed network.

Lessons Learned and Conclusions

The capacity of poor communities in rural Bolivia to attain food security as well as general development goals depends heavily on how well their natural resource base is managed. The predominantly Quechua Caine River communities are located in the Toro Toro Municipality, which is one of the most deprived municipalities in the country with over 97% of the population living in poverty and 86% living in extreme poverty.¹ Given the high levels of poverty, it is not surprising that local inhabitants resort to poaching the Red-Fronted Macaw to generate extra income or killing it to protect their crops from the bird, which is perceived as a pest by the local farmers. Thus, whilst the project's principal aim has been to protect the Red-Fronted Macaw, this aim will only be achieved if certain objectives are reached. These include a change in attitudes of local people and actors and the establishment of a plan of action in ecosystem management at the community and municipal levels, in a way that would reduce the threat to the species while improving the chances of better livelihoods and conserved ecosystems in the Caine River area. The project has been successful in reaching and surpassing initially proposed goals but it has become evident that much more needs to be done in the conservation of the Red-Fronted Macaw. Key actors in the community need

¹ Instituto Nacional de Estadística (INE)/ UNDP (2005), *Atlas Estadístico de Municipios de Bolivia 2005*, P.442.



to receive more training and support and there needs to be a detailed plan developed for the long-term goal of restoring the Red-Fronted Macaw's natural habitat through reforestation activities. Despite scientific studies that have been conducted to date, there is still limited information about the behaviour and reproductive patterns of the Red-Fronted Macaw. More scientific study needs to be undertaken to better understand the Red-Fronted Macaw.