



# REPORT

**PROJECT FOR INDEMNIFICATION FOR**  
**DAMAGE TO CORN PLANTINGS BY**  
**LEAR'S MACAWS /**  
**PROJETO DE RESSARCIMENTO DE**  
**MILHO (HARVESTS - 2014)**



**SUB-PROJECT OF EVALUATION OF DAMAGES AND ESTIMATES**  
**OF HARM DONE TO THE CORN FIELDS**

## **1. PROJECT**

The objective of the Project for Compensation for Damages Provoked by Lear's Macaws to Corn Fields / Projeto de Ressarcimento de Milho looks to lessen, to the minimum extent possible, the negative effects of systematic attacks by Lear's macaws in diverse rural communities located in the municipalities of the Ecoregion of the Raso da Catarina, Bahia State/Brazil. At the same time it is also the objective to reduce or impede the formation of a negative image among the rural population and these native birds in light of the progressive incidence of damages to the farmers which has contributed to the image of the birds as a pest to their fields.

In this way, **The Sub-project of Evaluation of Damages and Estimates of Harm Done to the Fields**, developed in partnership with Parrots International, Lymington Foundation, Nutrópica, The Parrot Society UK, Loro Parque Fundación, Emerald Feathers, American Federation of Aviculture, The Parrot Fund/Amigos de las Aves USA, and ECO, carried out direct measurement of damages and consequent estimated of harm to the attacked fields and at the same time carried out activities destined to promote environmental awareness with the farmers of the rural communities affected by the attacks.

Unfortunately, the high level of human pressure on the natural resources in the region has heavily contributed to conflicts between the local populations and native fauna, especially the Lear's Macaw. Thus in spite of efforts to mitigate the serious problem, it has worsened. The situation which has become more critical because of the high growth rate of population of Lear's Macaws in recent years, and is contrary to the supply of native vegetable resources which have become more and more restricted due to the destruction of the Caatinga native vegetation.



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This bad situation points up the importance and urgency of the development of effective actions to increase the supply of food resources for the native fauna of the region. To the contrary what is seen is a definite trend of increase in conflicts each year. Moreover, it is necessary that the inhabitants of these areas become highly aware of the importance of sustainable use of the native vegetation and a life style living in harmony with the environment in the semi-arid climate in a way that contributes to the conservation of the Caatinga Biome.

**# Institutions Involved**

- **Parrots International**  
Responsible for funding the Project
  
- **Lymington Foundation**  
Responsible for funding the Project
  
- **Nutrópica**  
Responsible for funding the Project
  
- **The Parrot Society UK**  
Responsible for funding the Project
  
- **Loro Parque Fundación**  
Responsible for funding the Project
  
- **American Federation of Aviculture**  
Responsible for funding the Project
  
- **The Parrot Fund/Amigos de las Aves USA**  
Responsible for funding the Project
  
- **Emerald Feathers**  
Responsible for funding the Project
  
- **ECO – Environmental Conservation Organization**  
Responsible for implementation of field activities



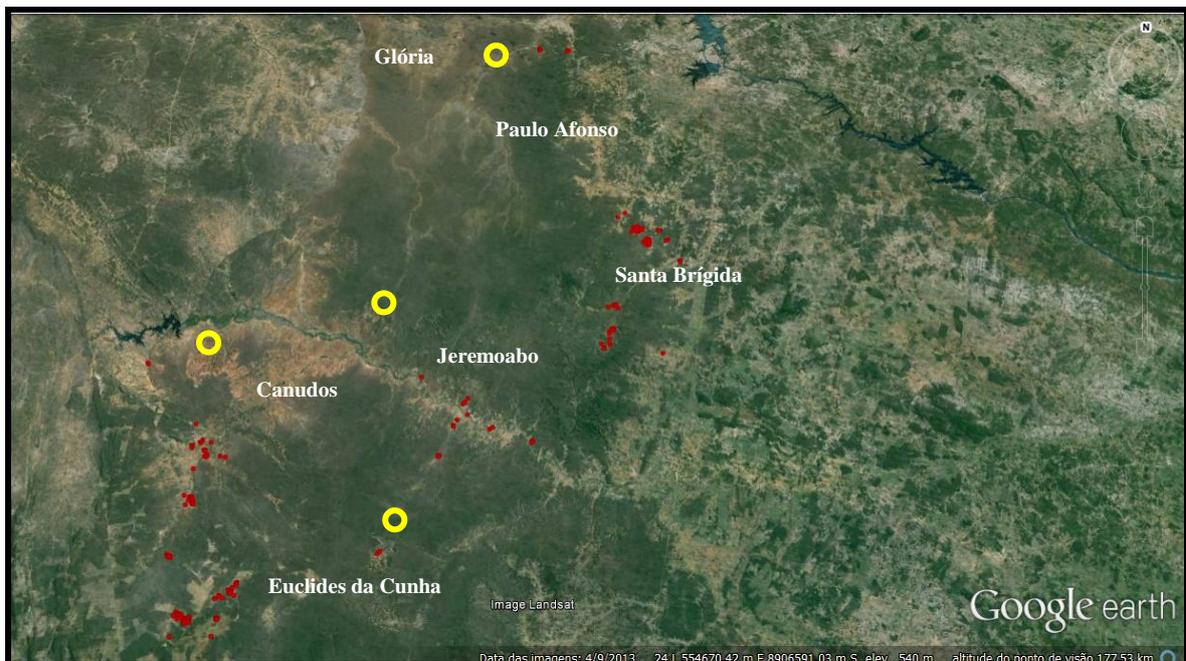
## # Methods

The survey of the rural properties victimized by attacks of Lear's Macaws were made through visits to rural communities with a history of attacks on corn fields and were made along the months of July/2014 to February/2015 in villages of the municipalities of Canudos, Euclides da Cunha, Glória, Jeremoabo, Paulo Afonso and Santa Brígida.

The properties in which were identified corn plantings victimized by Macaw attacks for the 2014 harvests, had their damaged plantings geo-referenced using GPS navigation model GPSmap 60 CSx - Garmin, with the planted areas determined through use of AutoCad software. In addition, information pertaining to the property owner of the area or person responsible for the planting was gathered for the purpose of forming a specific data base for the Project.

The damages caused by the attacks were estimated by evaluating the estimated potential production and the observed intensity of the attack in each planted area. In accordance with the calculated damages, a conversion was made to sacks of grain corn. In addition, meetings were held with the farmers and neighbors in the rural communities victimized by the attacks to instruct the population about the activities of the Project as well as to attract the largest number of community members and invite them to participate actively in conservation of the species in their habitat as well as the Caatinga itself.

## # Map of the Area Embraced by the Project



**Figure 1** – Distribution of the Nesting/Roosting Sites (yellow circles) and Farms Victimized (red marks) by Lear's Macaws' Attacks (Image: Google Earth).



Thus, the total area embraced by the Project corresponded to **8,146** square kilometers, however considering only the area covered by the rural properties victimized by Lear's Macaw attacks, this area was **6,204** square kilometers (**Figure 1**).

## **2. TECHNICAL TEAM**

- # General Co-ordination – **Kilma Manso** – **ECO**
- # Support Team – **Wbaneide Andrade** – **ECO**  
– **Dorivaldo Alves** – **ECO**  
– **José Carlos Ribeiro** – **ECO**

## **3. BENEFICIARIES**

Evaluation of harm and quantification of damages by Lear's Macaws benefitted a total of **192 rural properties** (**total amount of estimated damages: 1,280 corn sacks**), located in twenty three rural villages in the municipalities of Canudos, Euclides da Cunha, Glória, Jeremoabo, Paulo Afonso and Santa Brígida; as described below.

### **# Canudos**

Among the villages that had rural properties victimized by attacks, Rasinho showed the largest quantity of attacks on areas of cornfields, though Rosário showed the largest amount of attacked area as well as, the biggest amount of corn sacks to be replaced (**Table 1**).

**Rural villages evaluated:**

- Barriguda;
- Novo Riso;
- Rasinho;
- Rio do Suturno;
- Rosário; and,
- Vassouras.

**Rural villages attacked:**

- Barriguda;
- Rasinho;
- Rio do Suturno; and,
- Rosário.

**Rural properties attacked:** **54**

**Number of sacks to be replaced:** **220 sacks (60 kg).**



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**Table 1** – Rural Properties Victimized by Attacks of Lear’s Macaws – Canudos/Bahia

| Village        | Number of Properties | Area Attacked |            | Sacks (damage) |            |
|----------------|----------------------|---------------|------------|----------------|------------|
|                |                      | ha            | %          | Quant.         | %          |
| Barriguda      | 02                   | 2.40          | 5.4        | 04             | 1.8        |
| Rasinho        | 21                   | 14.00         | 31.0       | 60             | 27.3       |
| Rio do Suturno | 11                   | 9.40          | 20.8       | 41             | 18.6       |
| Rosário        | 20                   | 19.32         | 42.8       | 115            | 52.3       |
| <b>Total</b>   | <b>54</b>            | <b>45.12</b>  | <b>100</b> | <b>220</b>     | <b>100</b> |

**Average Damage / Area = 4.9 sacks / ha**

**# Euclides da Cunha**

Among the villages that had rural properties victimized by attacks, Assentamento Veneza showed again the largest quantity of attacks on areas of cornfields (**Table 2**).

**Rural villages evaluated:**

- Assentamento Varzinha;
- Assentamento Veneza; and,
- Serra Branca.

**Rural villages attacked:**

- Assentamento Varzinha;
- Assentamento Veneza; and,
- Serra Branca.

**Rural properties attacked: 45**

**Number of sacks to be replaced: 390 sacks (60 kg).**

**Table 2** – Rural Properties Victimized by Attacks of Lear’s Macaws – Euclides da Cunha/Bahia

| Village       | Number of Properties | Area Attacked |            | Sacks (damage) |            |
|---------------|----------------------|---------------|------------|----------------|------------|
|               |                      | ha            | %          | Quant.         | %          |
| Ass. Varzinha | 15                   | 22.49         | 15.9       | 103            | 26.4       |
| Ass. Veneza   | 24                   | 107.18        | 75.7       | 245            | 62.8       |
| Serra Branca  | 06                   | 11.83         | 8.4        | 42             | 10.8       |
| <b>Total</b>  | <b>45</b>            | <b>141.50</b> | <b>100</b> | <b>390</b>     | <b>100</b> |

**Average Damage / Area = 2.8 sacks / ha**



### **# Glória**

Among the villages that had rural properties victimized by attacks, Serrota showed the largest quantity of attacks on areas of cornfields (**Table 3**).

**Rural village evaluated:** - Alagoinha;  
- Brejo do Burgo; and,  
- Serrota.

**Rural village attacked:** - Alagoinha; and,  
- Serrota.

**Rural properties attacked:** 8

**Number of sacks to be replaced:** 50 sacks (60 kg).

**Table 3 – Rural Properties Victimized by Attacks of Lear’s Macaws – Glória/Bahia**

| Village      | Number of Properties | Area Attacked |            | Sacks (damage) |            |
|--------------|----------------------|---------------|------------|----------------|------------|
|              |                      | ha            | %          | Quant.         | %          |
| Alagoinha    | 03                   | 7.57          | 45,1       | 36             | 72.0       |
| Serrota      | 05                   | 9.20          | 54.9       | 14             | 28.0       |
| <b>Total</b> | <b>08</b>            | <b>16.77</b>  | <b>100</b> | <b>50</b>      | <b>100</b> |

**Average Damage / Area = 3.0 sacks / ha**

### **# Jeremoabo**

Among the villages that had rural properties victimized by attacks, Água Branca showed the largest quantity of attacks on areas of cornfields (**Table 4**).

**Rural villages evaluated:** - Água Branca;  
- Araticum;  
- Assentamento Matinha;  
- Baixa do Anjo;  
- Bananeira;  
- Barreirinha;  
- Barriguda;  
- Bom Jardim;  
- Brejinho;  
- Brejo Grande;  
- Caiçara;  
- Calaço;  
- Candeias;



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- Coelho;
- Imbuzeiro;
- Lages;
- Logradouro;
- Malhada Vermelha;
- Pau D'água; and,
- Rompe Gibão.

- Rural villages attacked:**
- Água Branca;
  - Araticum;
  - Assentamento Matinha;
  - Bananeira;
  - Barreirinha;
  - Barriguda;
  - Imbuzeiro; and,
  - Pau D'água.

**Rural properties attacked:** 43

**Number of sacks to be replaced:** 312 sacks (60 kg).

**Table 4 – Rural Properties Victimized by Attacks of Lear's Macaws – Jeremoabo/Bahia**

| Village      | Number of Properties | Area Attacked |            | Sacks (damage) |            |
|--------------|----------------------|---------------|------------|----------------|------------|
|              |                      | ha            | %          | Quant.         | %          |
| Água Branca  | 12                   | 14.90         | 35.0       | 89             | 28.5       |
| Araticum     | 01                   | 4.13          | 9.7        | 06             | 1.9        |
| Ass. Matinha | 06                   | 8.08          | 18.9       | 55             | 17.6       |
| Bananeira    | 03                   | 3.91          | 9.2        | 27             | 8.8        |
| Barreirinha  | 02                   | 1.40          | 3.3        | 15             | 4.8        |
| Barriguda    | 03                   | 2.66          | 6.2        | 36             | 11.5       |
| Imbuzeiro    | 09                   | 2.75          | 6.5        | 36             | 11.5       |
| Pau D'água   | 07                   | 4.76          | 11.2       | 48             | 15.4       |
| <b>Total</b> | <b>43</b>            | <b>42.59</b>  | <b>100</b> | <b>312</b>     | <b>100</b> |

**Average Damage / Area = 7.3 sacks / ha**

**# Paulo Afonso**

This municipality just have again two properties which were victimized by attacks, probably due to the large distance from the main Lear's nesting/roosting sites (Table 5).

- Rural village evaluated:**
- Baixa Funda; and,
  - Várzea.



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**Rural village attacked:** - Baixa Funda.

**Rural properties attacked:** 2

**Number of sacks to be replaced:** 14 sacks (60 kg).

**Table 5** – Rural Properties Victimized by Attacks of Lear’s Macaws – Paulo Afonso/Bahia

| Village      | Number of Properties | Area Attacked |            | Sacks (damage) |            |
|--------------|----------------------|---------------|------------|----------------|------------|
|              |                      | ha            | %          | Quant.         | %          |
| Baixa Funda  | 02                   | 4.32          | 100.0      | 14             | 100.0      |
| <b>Total</b> | <b>02</b>            | <b>4.32</b>   | <b>100</b> | <b>14</b>      | <b>100</b> |

**Average Damage / Area = 3.2 sacks / ha**

### # Santa Brígida

Among the villages that had rural properties victimized by attacks, Angico showed the largest quantity of attacks on areas of cornfields (**Table 6**).

**Rural villages evaluated:**

- Algodões;
- Angico;
- Baixa do Mocê;
- Baixa Funda;
- Baixa Verde;
- Bandeira;
- Barriguda;
- Buri;
- Curituba;
- Macambira;
- Reserva; and,
- Serra das Drenhas.

**Rural villages attacked:**

- Angico;
- Bandeira;
- Buri;
- Macambira; and,
- Reserva.

**Rural properties attacked:** 40

**Number of sacks to be replaced:** 294 sacks (60 kg).



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**Table 6** – Rural Properties Victimized by Attacks of Lear’s Macaws – Santa Brígida/Bahia

| Village      | Number of Properties | Area Attacked |            | Sacks (damage) |            |
|--------------|----------------------|---------------|------------|----------------|------------|
|              |                      | ha            | %          | Quant.         | %          |
| Angico       | 21                   | 37.33         | 51.8       | 168            | 57.1       |
| Bandeira     | 03                   | 1.87          | 2.6        | 10             | 3.4        |
| Buri         | 01                   | 4.00          | 5.6        | 5              | 1.7        |
| Macambira    | 12                   | 27.93         | 38.7       | 100            | 34.1       |
| Reserva      | 03                   | 0.91          | 1.3        | 11             | 3.7        |
| <b>Total</b> | <b>40</b>            | <b>72.04</b>  | <b>100</b> | <b>294</b>     | <b>100</b> |

**Average Damage / Area = 4.1 sacks / ha**

**Observation 1:** At Santa Brígida was reported, in the year of 2014, another incident against a Lear’s Macaw, in which the macaw was shot, resulting in serious injuries to the bird’s wing. This fact shows that is mandatory to intensify the indemnification of harm done to the cornfields at that municipality, and mainly, the activities of environmental education to avoid new conflicts and deaths of macaws.

**Observation 2:** The very small general index of average damage / area (**4.2 sacks/ha**) is the result of the extremely low productivity seen in the majority of properties surveyed because of the low rainfall in the region.

#### **4. GOALS REACHED**

- Corn Plantations subject of attacks were identified, quantified, geo-referenced and measured;
- Damages suffered by the plantings were evaluated and quantified;
- Losses suffered by the farmers were estimated;
- The rural populations in the areas of largest incidence of attacks are more sensitized to the critical survival situation of the Lear’s Macaw will have a higher involvement in conservation of the species and the Caatinga itself.



## **5. FINAL COMMENTS**

- On various properties was still reported by the own farmers, that the only effective means to scare away the birds was the continuous presence of persons on the planting shouting and gesticulating on their approach. It avoids, or at least, reduces so much the damages suffered on the cornfields by the Lear's Macaws attacks;
- The surveys for damages must be done in distinct periods for each area in the region always taking into account the occurrence of rain in each area, in that surveys done after the fact become very imprecise; after the attack, the farmers must use the fields to replant or use what is left (leaves, stalks, cobs) for other purposes such as cattle feed. It is mandatory that survey activity be performed in harmony with the cultivation cycles in each region which are directly related to occurrence of rain which is distinct for each municipality. In addition, it is important that the evaluation of damages be done exactly in the period when the attacks are taking place (generally during production and growth of cobs);
- Leaves of licuri palms to serve as food for cattle it is an aspect which denotes the very high importance of this palm in the Brazilian Semi-arid Region, because in addition to serve as a primary food supply for many wildlife species, especially for the Lear's Macaw, it's also used as a forage reserve for domestic livestock in the severe dry periods. A further indication of the importance of replanting licuri palm seedlings across the region, to put in consideration that it represents in the chaotic situation of drought that hit the region, practically the only alternative food for native fauna (fruits, flowers and leaves) and domestic fauna - cattle and goats (leaves), because all the other plant species, whether native or cultivated, have died or lost their leaves as a survival strategy to face hard droughts;
- Some farmers become upset because they need to wait for the finishing of the surveys of damages of all corn plantings at the Lear's macaws fieldrange (which lasts many months since the cultivation cycles and, of course, the attacks to corn plantings occur through some months), then the first farmers whom are victimized by the attacks used to spend a long time until the reimbursement of the corn. Then, in order to avoid this problem it'd be important if the reimbursement of corn was done twice per year – one to the first farms attacked by macaws, and another to the last ones;
- As agreed among the Project's first partners, the corn replacement will be made through vouchers corresponding in value to the total sacks due to each farmer. These vouchers will be issued in agreement with the local retailers in the municipality where the sacks of corn will be acquired. The beneficiaries will then only have to go to the local retailer in their municipality armed with their vouchers to receive their corn or exchange the vouchers for other agriculture products;



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- The current price of the sack of corn (60 kg) is **R\$ 37.00 (US\$ 12.0)** – Rate: 1: 3.08).

Recife/PE, April 10<sup>th</sup>, 2015.

**KILMA MANSO**  
*General Co-ordinator*

**PARTNERSHIP**



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## **ATTACHMENT I**



**Figure 2** – A) Interviewing a farmer about the attacks on his corn planting; B) Carrying out a corn field's survey with the farmer; C) Lear's macaw eating a corn cob perched on a tree; D) Collecting vestiges of Lear's Macaws attacks on the corn fields in order to estimate the level of harm done to the planting; E) Georeferencing and getting information on the attacked corn field in order to calculate its area by using a GIS software and feed the Project's Databank; and F) Lear's macaw shot and found in a corn field.

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