



REPORT

**PROJECT FOR INDEMNIFICATION FOR
DAMAGE TO CORN PLANTINGS BY
LEAR'S MACAWS /
PROJETO DE RESSARCIMENTO DE
MILHO (HARVESTS - 2017)**



1. PROJECT

The Project for Compensation for Damages Provoked by Lear's Macaws to Corn Fields / Projeto de Ressarcimento de Milho intends to lessen, to the minimum extent possible, the negative effects of systematic attacks by Lear's macaws in cornfields in diverse rural communities located in 7 municipalities of the Ecoregion of the Raso da Catarina, Bahia State/Brazil. Alongside this it objectives to reduce 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.

Thus in spite of efforts to mitigate this serious issue of conflicts, it has worsened, because the high growth rate of population of Lear's Macaws in last years, and in contrary, to the supply of native vegetable resources (have become even more restricted due to the progressive destruction of the Caatinga native vegetation). Mainly in those years after a severe drought , when the farmers use to cut the Caatinga vegetation in order to feed their livestock.

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. 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.

In this way, **The Project for Compensation for Damages Provoked by Lear's Macaws to Corn Fields**, developed in partnership with Parrots International, Lymington Foundation, Nutrópica, The Parrot Society UK, Loro Parque Fundación, Emerald Feathers, The Parrot Fund/Amigos de las Aves USA, and ECO, carried out direct measurement of damages and consequent estimated of



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harm to the attacked fields and at the same time carried out activities destined to promote environmental awareness with the farmers and children in the rural communities affected by the attacks.

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
- **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 September/2017 to February/2018 in rural villages of the municipalities of Canudos, Euclides da Cunha, Glória, Jeremoabo, Paulo Afonso and Santa Brígida. And the delivery of vouchers were made through meetings in the rural communities where the rural properties victimized by attacks are located and were made along the months of December/2017 to April/2018.

The properties in which were identified corn plantings victimized by Macaw attacks for the 2017 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 feeding the specific data base of the



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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. Then, the corn replacement will be made through vouchers corresponding in value to the total sacks due to each farmer. These vouchers were issued in agreement with the local retailers in the municipality where the sacks of corn will be acquired. The beneficiaries 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. After the surveys of damages in all rural communities of each city it was made the correspondent delivery of vouchers to the farmers as a way to replace his/her damages in a properly time and to avoid that they need to wait for the finishing of surveys in all areas.

As during the field surveys as during the delivery of corn vouchers lectures were given in basic schools in rural villages and meetings were held with the farmers and neighbors in farmers associations in order to explain and discuss the conflict situation between the Lear's Macaw and the farmers due to the predation of corn plantations, as well as to instruct the population about the activities of the Project. These activities intend to sensitize the population on the critical survival situation of the Lear's Macaw as well as to get a higher involvement of the people and attract the largest number of the local communities members in the conservation efforts of the Lear's Macaw and the Caatinga itself.

Map of the Area Embraced by the Project

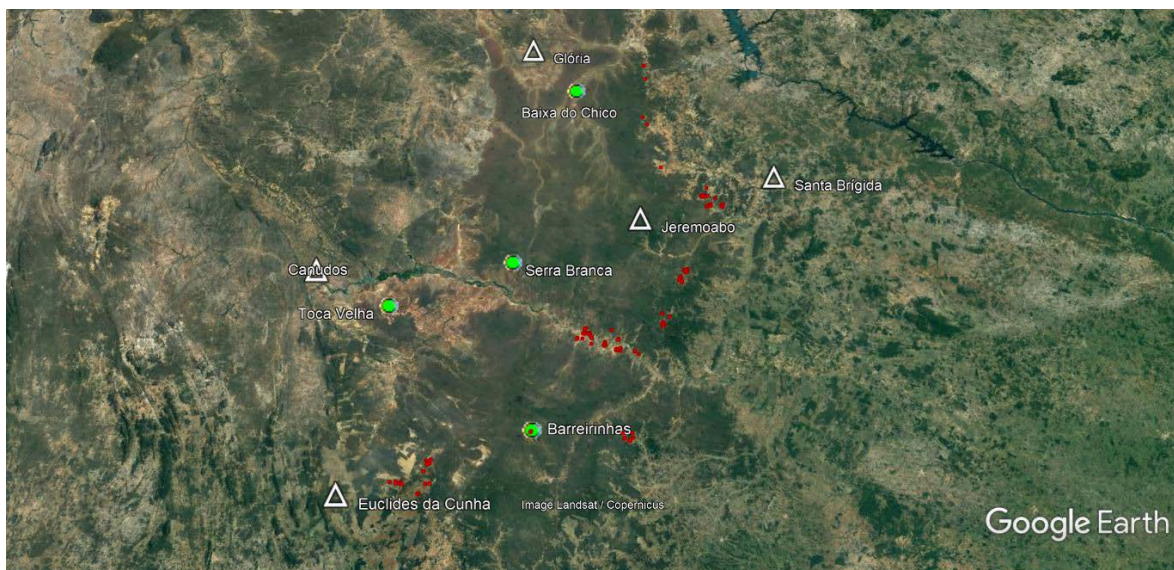


Figure 1 – Distribution of the Nesting/Roosting Sites (green circles), the Nearest Cities (white triangles), and Farms Victimized (red marks) by Lear's Macaws' Attacks (Image: Google Earth).

Thus, the total area embraced by the Project corresponded to **6,426** square kilometers, however considering only the area covered by the rural properties victimized by Lear's Macaw attacks, this area was **5,318** square kilometers (**Figure 1**).



2. TECHNICAL TEAM

- # General Co-ordination – **Kilma Manso** – **ECO**
- # Support Team
- **Débora L. Freire** – **ECO**
 - **Wbaneide Andrade** – **ECO**
 - **Afonso Adriano** – **ECO**
 - **Jairo dos Santos** – **ECO**
 - **José Carlos Ribeiro** – **ECO**
 - **Josivaldo dos Santos** – **ECO**

3. SCHEDULE OF ACTIVITIES

Field Surveys

1. 30/September to 04/October – 2017 → Rural communities from Jeremoabo and Santa Brígida;
2. 11/October to 16/October – 2017 → Rural communities from Santa Brígida;
3. 25/October to 29/October – 2017 → Rural communities from Paulo Afonso, Glória and Santa Brígida;
4. 01/November to 06/November – 2017 → Rural communities from Jeremoabo, Euclides da Cunha and Canudos;
5. 23/November to 30/November – 2017 → Rural communities from Jeremoabo;
6. 28/January to 02/February – 2018 → Rural communities from Jeremoabo.

Delivery of lectures to farmers and students from rural communities

1. 27/September – 2017 → Rural communities/schools from Santa Brígida;
2. 14 – 15/October – 2017 → Rural communities/schools from Santa Brígida;
3. 26 - 27/October – 2017 → Rural communities/schools from Paulo Afonso, Glória and Santa Brígida;
4. 03 – 05/November – 2017 → Rural communities/schools from Euclides da Cunha and Canudos;
5. 26 – 28/November – 2017 → Rural communities/schools from Jeremoabo;
6. 10 – 12/December – 2017 → Rural communities/schools from Euclides da Cunha;
7. 21 – 22/January – 2018 → Rural communities/schools from Santa Brígida and Jeremoabo;
8. 28/January – 06/February – 2018 → Rural communities/schools from Jeremoabo, Santa Brígida, Paulo Afonso and Glória;
9. 01 – 03/April – 2018 → Rural communities from Jeremoabo;
10. 20 - 21/April – 2018 → Rural communities from Jeremoabo.



Delivery of vouchers to farmers

1. 10/December to 12/December – 2017 → Rural communities from Euclides da Cunha;
2. 20/January to 22/January – 2018 → Rural communities from Santa Brígida and Jeremoabo;
3. 03/February to 05/February – 2018 → Rural communities from Santa Brígida, Paulo Afonso and Glória;
4. 30/March to 03/April – 2018 → Rural communities from Jeremoabo;
5. 19/April to 22/April – 2018 → Rural communities from Jeremoabo.

4. BENEFICIARIES

Evaluation of harm and quantification of damages by Lear's Macaws benefitted a total of **132 rural properties** (**total amount of estimated damages: 816 corn sacks**), located in twenty seven rural villages in the municipalities of Euclides da Cunha, Glória, Jeremoabo, Paulo Afonso and Santa Brígida; as described below.

Canudos

There wasn't a single rural property victimized by Lear's macaws attacks due to the extreme dry weather what lead to the loss of all cornfield there since the very beginning of cultivation.

Rural villages evaluated:

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

Rural villages attacked: - None.

Rural properties attacked: 0

Number of sacks to be replaced: 0 sack (60 kg).



Euclides da Cunha

Among the villages that had rural properties victimized by attacks, Assentamento Varzinha showed the largest quantity of attacks on areas of cornfields (**Table 1**).

Rural villages evaluated:

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

Rural villages attacked:

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

Rural properties attacked: 19

Number of sacks to be replaced: 201 sacks (60 kg).

Table 1 – 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	09	15.82	29.0	97	48.3
Ass. Veneza	06	27.66	50.7	72	35.8
Serra Branca	04	11.08	20.3	32	15.9
Total	19	54.56	100	201	100

Average Damage / Area = 3.7 sacks / ha



Glória

Again, only the Serrota village had rural properties (seven) victimized by attacks on cornfields (**Table 2**).

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

Rural village attacked: - Serrota.

Rural properties attacked: 7

Number of sacks to be replaced: 55 sacks (60 kg).

Table 2 – Rural Properties Victimized by Attacks of Lear’s Macaws – Glória/Bahia

Village	Number of Properties	Area Attacked		Sacks (damage)	
		ha	%	Quant.	%
Serrota	07	9.32	100	55	100.0
Total	07	9.32	100	55	100

Average Damage / Area = 5.9 sacks / ha



Jeremoabo

This city presents the highest number of villages that had rural properties victimized by attacks (15), among these villages Água Branca showed again the largest quantity of attacks on areas of cornfields (**Table 3**).

Rural villages evaluated:

- Água Branca;
- Assentamento Chuquê;
- Baixa dos Quelés;
- Barreirinha;
- Bom Jardim;
- Brejo Grande;
- Calação;
- Cirica;
- Lages;
- Malhada Vermelha;
- Rangel;
- Serafina;
- Tabuleiro;
- Tanque de Cima;
- Araticum;
- Assentamento Matinha;
- Bananeira;
- Barriguda;
- Brejinho de Cima;
- Caiçara;
- Candeias;
- Coelho;
- Logradouro;
- Pau D'água;
- Rompe Gibão;
- Serra da Onça;
- Tamboril;
- Umbuzeiro.

Rural villages attacked:

- Água Branca;
- Baixa dos Quelés;
- Barreirinha;
- Brejinho de Cima;
- Cirica;
- Serafina;
- Tabuleiro;
- Umbuzeiro.
- Assentamento Chuquê;
- Bananeira;
- Barriguda;
- Brejo Grande;
- Pau D'água;
- Serra da Onça;
- Tamboril;

Rural properties attacked: 75

Number of sacks to be replaced: 394 sacks (60 kg).

Table 3 – Rural Properties Victimized by Attacks of Lear's Macaws – Jeremoabo/Bahia

Village	Number of Properties	Area Attacked		Sacks (damage)	
		ha	%	Quant.	%
Água Branca	15	19.06	29.5	120	30.5
Ass. Chuquê	01	0.44	0.7	04	1.0
Baixa dos Quelés	10	3.02	4.7	27	6.9
Bananeira	01	3.54	5.5	10	2.5
Barreirinha	02	1.40	2.2	14	3.5



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Barriguda	03	4.29	6.6	26	6.6
Brejinho de Cima	01	3.28	5.1	20	5.1
Brejo Grande	06	7.10	11.0	31	7.9
Cirica	07	4.74	7.3	26	6.6
Pau D'água	09	4.35	6.7	47	11.9
Serafina	06	2.96	4.6	23	5.8
Serra da Onça	04	4.68	7.3	11	2.8
Tabuleiro	08	5.03	7.8	28	7.1
Tamboril	01	0.41	0.6	04	1.0
Umbuzeiro	01	0.25	0.4	03	0.8
Total	75	64.55	100	394	100

Average Damage / Area = 6.1 sacks / ha



Paulo Afonso

This municipality just have four properties which were victimized by attacks, probably due to the distance from the Lear's nesting/roosting sites (**Table 4**).

Rural village evaluated:

- Baixa Funda;
- Juá;
- Papagaio; and,
- Várzea.

Rural village attacked:

- Juá;
- Papagaio; and,
- Várzea.

Rural properties attacked: 4

Number of sacks to be replaced: 16 sacks (60 kg).

Table 4 – Rural Properties Victimized by Attacks of Lear's Macaws – Paulo Afonso/Bahia

Village	Number of Properties	Area Attacked		Sacks (damage)	
		ha	%	Quant.	%
Juá	01	0.46	14.3	05	31.2
Papagaio	01	0.71	22.1	02	12.5
Várzea	02	2.04	63.6	09	56.3
Total	04	3.21	100	16	100

Average Damage / Area = 5.0 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 5**).

Rural villages evaluated:

- Algodões;
- Angico;
- Baixa do Mocó;
- Baixa Larga;
- Baixa Verde;
- Bandeira;
- Barriguda;
- Buri;
- Cumbuca;
- Macambira;
- Reserva; and,
- Serra das Drenhas.

Rural villages attacked:

- Angico;
- Baixa Larga;
- Bandeira;
- Cumbuca; and,
- Macambira.

Rural properties attacked: 27

Number of sacks to be replaced: 150 sacks (60 kg).

Table 5 – Rural Properties Victimized by Attacks of Lear’s Macaws – Santa Brígida/Bahia

Village	Number of Properties	Area Attacked		Sacks (damage)	
		ha	%	Quant.	%
Angico	10	7.71	25.3	68	45.3
Baixa Larga	01	2.20	7.2	10	6.7
Bandeira	01	0.84	2.8	10	6.7
Cumbuca	06	7.73	25.3	25	16.6
Macambira	09	11.99	39.4	37	24.7
Total	27	30.47	100	150	100

Average Damage / Area = 4.9 sacks / ha



5. 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;
- Lectures about the conflict situation between macaws and farmers were delivered in basic schools and in farmers associations in Lear's Macaw field range;
- The rural populations in the areas of largest incidence of attacks are more sensitized to the critical survival situation of the Lear's Macaw, so they surely will have a higher involvement in conservation of the species and the Caatinga itself.

6. COMPOSITION OF FUNDS

TABLE OF FUNDS		
INSTITUTION	FUNDS	CURRENCY (R\$)
Parrots International & Emerald Feathers	US \$ 3,990.00	12,688.20
Lymington Fundation	R\$ 3,000.00	3,000.00
Nutrópica – Animal Nutrition	R\$ 5,000.00	5,000.00
Parrots Society UK	GBP 2,500.00	10,250.00
Loro Parque Fundación	US \$ 5,104.00	15,618.24
The Parrots Fund / Amigos de las Aves	US \$ 1,000.00	3,200.00
GENERAL TOTAL	≈ US \$ 15,800	49,756.44

7. COMPOSITION OF COSTS

ACTIVITIES	AMOUNT (US\$)
Census work / Lectures in 6 municipalities - lodging, meals, fuel (3 persons - 37 days)	4,260
Grain Corn – 816 sacks @ R\$ 36.2 per sack	9,530
Distribution of Vouchers / Lectures in 5 municipalities - fuel, lodging and meals (2 persons – 18 days)	1,585
TOTAL COST – US \$	15,375.00



8. FINAL COMMENTS

- In spite of the year of 2017 was referred as one of the best, in terms of rainfall, the very small general index of average damage/area (**5.1 sacks/ha**) is the result of the extremely low productivity seen in the majority of properties surveyed because of the bad quality of the seeds they used in most of the corn plantations. On various properties was reported by the own farmers, that the seeds they used for cultivation were distributed by the Local Government Agencies (probably very old) or sold in local markets (probably seeds the sellers got from transgenic plants what leads to very reduced production as they decrease very much the potential level of production – it's a strategy of the transgenic seed's companies to force the farmers to acquire seeds from them every cultivation cycle). Since the bad seeds (old or from a previous transgenic cultivation) don't present any special difference just when their planting fields started the cob production they realized how reduced they were, which resulted in really bad results in their cornfields production;
- The surveys for damages were mostly in the periods when the attacks are taking place (generally during growth of cobs), being performed in harmony with the cultivation cycles in each region (directly related to occurrence of rain which is distinct for each municipality). Thus, the evaluation of damages was done in distinct periods for each municipality always in accordance on the occurrence of rain, what lead us to perform the field surveys twice in the communities from Jeremoabo city as there were two cultivation cycles;
- To avoid farmers becoming upset because they need to wait for termination of damage surveys of all corn plantings in the Lear's field range (which lasts many months since the cultivation cycles and, of course, the attacks to corn plantings occur during some months), the first farmers who are victimized by the attacks spend a long time until the reimbursement of the corn. To avoid this problem we adopted reimbursement of corn (delivery of vouchers) as soon as surveys in all rural communities in each city were finished;
- In Jeremoabo (at the Rangel Community) it was reported, in 2017, another incident against a Lear's Macaw, in which the macaw was shot, resulting in its death. There was no historic of Lear's predation in that community, this fact shows that is mandatory to intensify the activities of environmental education to avoid new conflicts and deaths of macaws in all rural communities since the harm done to the cornfields isn't the only motivation for people shooting the macaws (unfortunately hunting looks to become is a threat again);
- The current price of the sack of corn (60 kg) was **R\$ 36.20 (US\$ 11.70)** – Rate: 1: 3.10).



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Recife/PE, June 25th, 2018.

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General Co-ordinator

PARTNERSHIP



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ATTACHMENT I



Figure 2 – **A**) Carrying out a corn field's survey (collecting vestiges of Lear's Macaws attacks in order to estimate the level of harm done to the planting) with the farmer; **B**) Interviewing farmers about the attacks on their corn plantings; **C**) Delivering lecture to farmers about the Project; **D**); Delivering lecture to students about the Lear's macaw conservation; **E**) Meeting with farmers which corn fields were predated by Lear's macaws in order to delivery their vouchers for reimburse the correspondent losses; and, **F**) Delivering vouchers to a farmer for reimburse the losses due to Lear's macaw attacks on her corn planting.

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