

Laney Rickman Reserve

Blue-throated Macaw Nestbox Report – July 2022



The Laney Rickman Reserve Nestbox Program has successfully fledged 8 Critically Endangered Blue-throated Macaw chicks for the 2021-2022 breeding season. We were able to place 100 nestboxes of which twenty-five were located in new areas within the reserve. With a growing number of nestboxes we are providing more options for Blue-throated Macaws to nest and decrease the competition of limited natural cavities for many macaw species. The highlights of this breeding season include 14 Blue-throated Macaw breeding attempts and 10 nestboxes occupied. Since the beginning of the program in 2005, 113 chicks have fledged to increase the population of the species.

Laney Rickman Reserve 2021-2022 conservation program was supported by:



A grant from the
Neotropical
Migratory Bird
Conservation
Act



**Pat Palmer
Foundation**



Project photos can be downloaded from:

<https://www.flickr.com/photos/128583429@N05/sets/72157691397221540>

Laney Rickman Blue-throated Macaw Reserve

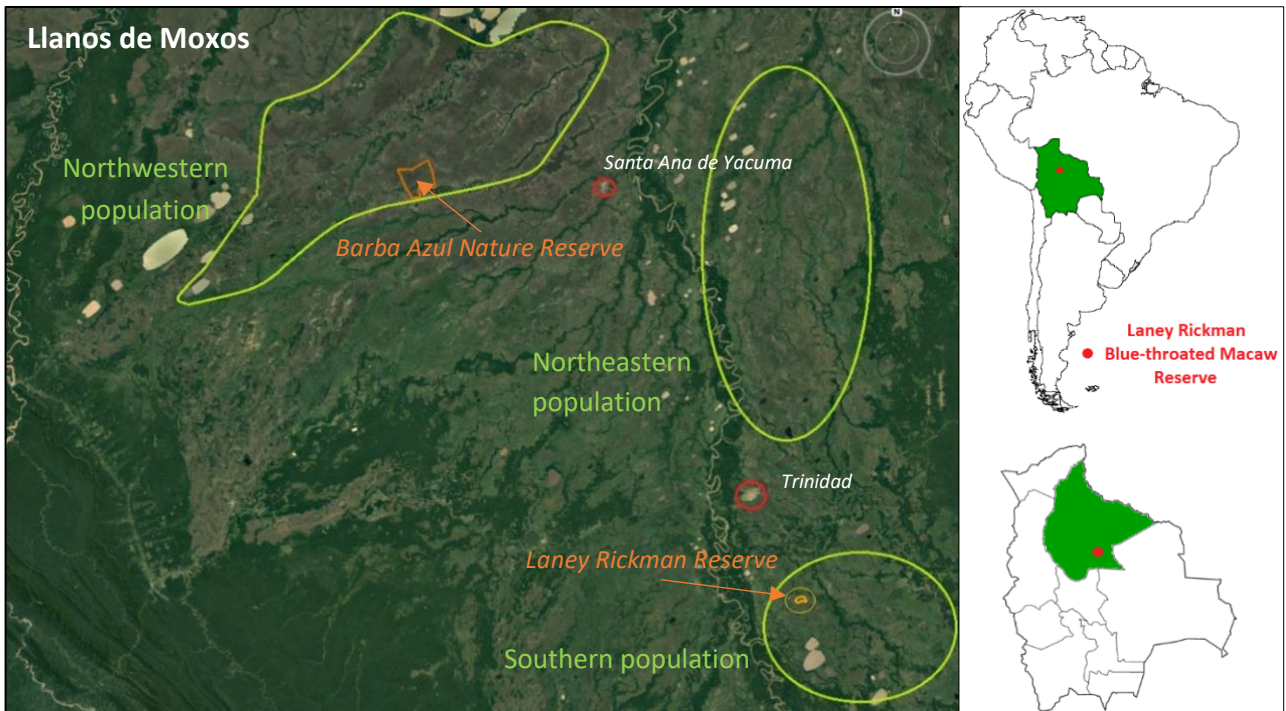


Figure 1 & 2. The Laney Rickman Blue-throated Macaw Reserve (1422 ha/3,514 ac) was established in 2018 and is located in the Southern Llanos de Moxos ecoregion, 42 kilometers south of Trinidad and 213 kilometers south of the Barba Azul Nature Reserve (11,000 ha, established in 2008). Armonía protects vital Blue-throated Macaw habitat in two isolated subpopulations (estimated Blue-throated Macaw subpopulation range indicated in light green circles).



Laney Rickman Reserve Program Summary

To ensure the continuing development and improvement of the Blue-throated Macaw Nestbox Program our goals for the coming season 2022-2023 are:

1. **Continue the protection of key Blue-throated Macaw habitat**
As the Laney Rickman Blue-throated Macaw Reserve is extending, Armonía will continue to protect breeding and foraging habitat for the southern Blue-throated Macaw subpopulation.
2. **Improve the Laney Rickman Reserve Nestbox Program**
Through the long-term support from Bird Endowment's Nidos Adoptivos program, we will continue monitoring, assessing, and improving the artificial nestbox strategy to increase the Blue-throated Macaw population.
3. **Extend the area of Blue-throated Macaw breeding sites**
Armonía will extend the nestbox program within recently acquired areas and beyond the borders of the current Laney Rickman Reserve reaching the record number of 125 nestboxes placed for the 2022-2023 breeding season.
4. **Declare the Laney Rickman Reserve a Private Natural Heritage Reserve (RPPN)**
To secure national recognition for Blue-throated Macaw breeding habitat protection, Armonía aims to have at least 50% of the reserve declared as a RPPN. A Laney Rickman Reserve management plan will be developed zoning the different management areas.



5. **Restore native breeding habitat**

Thanks to the support of Bird Endowment's "*Raise the Canopy for the Blues*" campaign and Pat Palmer Foundation, we will begin the first stage of the habitat restoration project to recuperate degraded forest areas and improve foraging and breeding habitat for the Blue-throated Macaw.

6. **Maintain and increase impenetrable firebreaks throughout the reserve**

To reduce wildfire risks, we will conduct our yearly firebreak system maintenance in time for the dry season.

7. **Establish Visitor/Research Centre**

With the support from Rainforest Trust, we will construct a visitor/research station. We are still seeking additional support of US \$10,000 to include an educational lobby area.



8. **Create wildlife friendly fencing around the reserve's perimeter**

We will continue the installment of perimeter fencing of the extended areas of the Laney Rickman Reserve. The fencing consists of non-barbed wire at the top and bottom of the fence to prevent harming passing wildlife.

9. **Sustainably manage tallgrass palm savanna through ecofriendly ranching**

To comply with national requirements and as part of the sustainability program for the reserve, Armonía currently manages 230 head of cattle utilizing best practices ranching techniques adapted to the local environment.

10. **Study southern subpopulation Blue-throated Macaw local movement**

We know little about the extent / range of the southern Blue-throated Macaw subpopulation. To better understand the local macaw movement, we aim to track 4 Blue-throated Macaws from the Laney Rickman Reserve (US\$ 30,000).

Laney Rickman Reserve Nestbox Program (2021-2022 breeding season)

Results 2021-2022 Breeding Season

As Blue-throated Macaw Nestbox program support continues to increase, we were able to set up a total of 100 nestboxes, increasing from 75 placed the prior breeding season. In October, nestboxes are built to replace worn boxes to be ready for the breeding season. This year 10 nestboxes were occupied by Blue-throated Macaw pairs in a total of 14 breeding attempts (two nestboxes with a second breeding attempt and one with a third). Eight occupied nest boxes were located within the Laney Rickman Reserve, and the remaining two were in La Cantina ranch (fig. 3). Four nestboxes had no previous Blue-throated Macaw use in past breeding seasons. A total of 39 eggs were laid, 11 chicks hatched, and 8 chicks successfully fledged (table 1 & 2; annex 1; annex 2). The 2021-2022 breeding season was the second longest breeding season, lasting 204 days from December 10 until July 1 (207 days during the 2019-2020 breeding season). This year, a record of 5 eggs were laid in one single attempt in nestbox PBA81 sponsored by Kansas City Zoo (KC2). Two chicks successfully fledged from that unusual number of eggs.

This season, we increased our monitoring efforts setting up camera traps to each nest occupied by Blue-throated Macaws. We have been able to register different behaviors previously unknown in the area, such as violent conflict with other species to defend their nests as well as newly identified predators. As we increase our understanding, we are learning the different factors that can affect the success of breeding pairs using our nestboxes. These lessons are added to our long-term management plan.



Banded Blue-throated Macaw from nestbox PBA16 sponsored by Alicia McLaughlin (TM1). BTMs are banded as they begin to grow feathers. This is the only time when rangers handle the chicks as they need to carefully place the closed band over the small foot. Teodoro Camacho

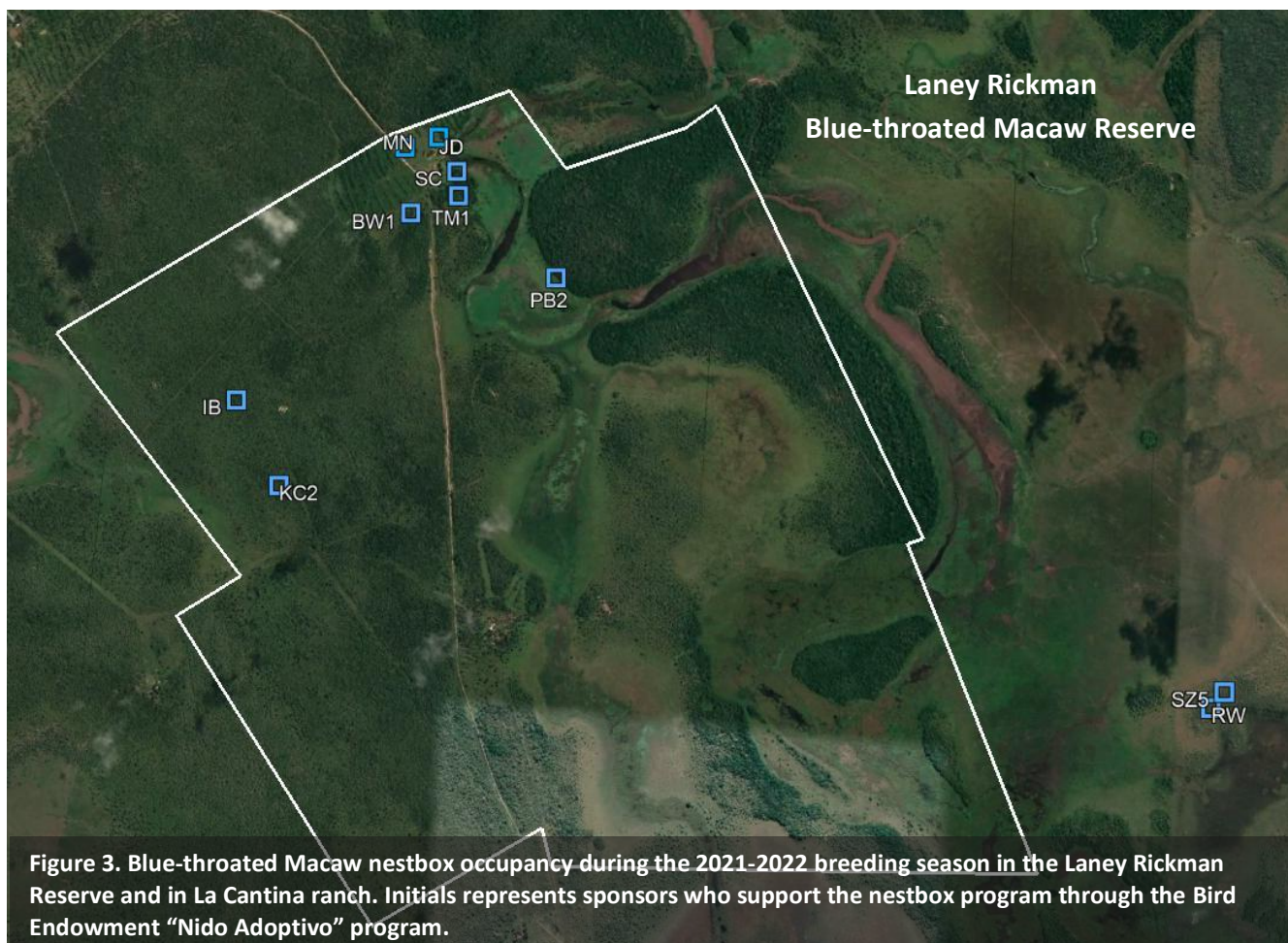
Table 1. Summary of nestbox usage by different species in the reproductive period of 2021-2022. A total of 13 nestboxes were used at three different locations (11 in Laney Rickman and 2 in neighboring La Cantina ranch). A total of 3 nestboxes were used for a second and third breeding attempt by Blue-throated Macaws of which 1 was successful in the second attempt.

Nestbox usage 2021-2022		
Species	Scientific name	# Occupied nest boxes
Blue-throated Macaw	<i>Ara glaucogularis</i>	10*
Aratinga	<i>Aratinga sp</i>	1
Chestnut-fronted Macaw	<i>Ara severus</i>	2
Black-bellied Whistling Duck	<i>Dendrocygna autumnalis</i>	2

*2 nestboxes with two breeding attempts and 1 with three attempts

Table 2. Summary of nestboxes used by the Blue-throated Macaw during the 2021-2022 breeding season. A total of 10 nest boxes were occupied, 39 eggs laid, 11 chicks hatched, and 8 chicks fledged. LR stands for Laney Rickman Reserve; LC stands for La Cantina. For more detailed information see annex 1 & 2.

Sponsor (code)	Location	# Eggs	# Chicks	# Fledglings
MN Companion Bird Association (MN)	LR	3	2	2
Jennifer Darden (JD)	LR	3	3	2
Susanne Cochran (SC)	LR	8	0	0
Alicia McLaughlin (TM1)	LR	4	2	2
Lewis "Buddy" Waskey (BW1)	LR	4	0	0
EARTH Ltd @Southwick's Zoo (SZ5)	LC	3	1	0
Georgia Hayes, Chyla May and Michelle Carollo (RW)	LC	3	1	0
Kansas City Zoo (KC2)	LR	5	2	2
Amanda Hoffman in honor of Itty Bitty (IB)	LR	3	0	0
Pet Bird Association Virginia (PB2)	LR	6	0	0
Total		39	11	8



Long-term results Armonía's nestbox program

The Blue-throated Macaw Nestbox Program is one of Armonía's longest projects to ensure the survival of the Critically Endangered Blue-throated Macaw. After 17 years of dedicated work, a total of 113 chicks have successfully fledged from our artificial nestboxes out of 86 breeding attempts so far. Throughout the years there are countless lessons learned that have contributed to great improvements of nestbox design, methods and monitoring. Every year the efforts to gather as much information and data as possible increase to make decisions based on everything we can learn each year.

Following the trend from previous years, the competition with the more common Blue-and-Yellow Macaw has drastically decreased since changing the design of the nestboxes. We can be certain that this is no longer an issue as the Nest Occupancy rates from the last nine years (since the nestbox design changed) show a steady increase for Blue-throated Macaws in contrast with a decrease for their competitors. As we have other metrics of success for our program, this year we have observed a slight decrease of Blue-throated Macaw fledglings even though there was an overall Nest Occupancy increase. This might be explained by the number of eggs that were abandoned, infertile and predated, since chick mortality rates remain near the nine-year average.

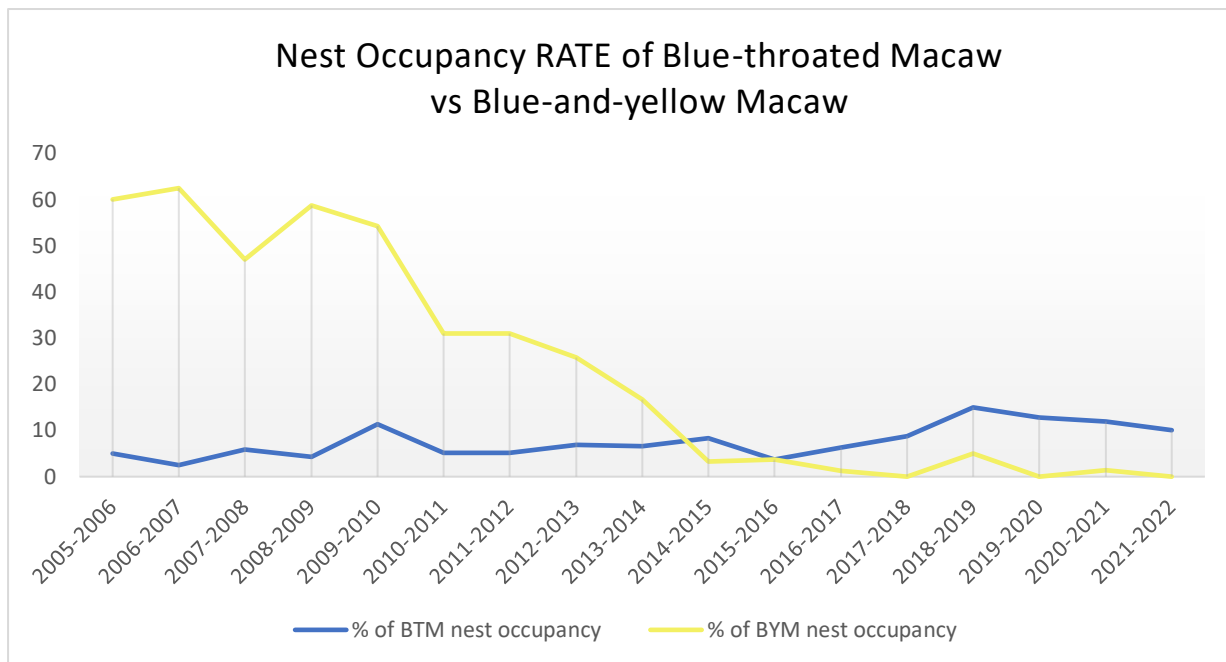


Figure 4. Nestbox occupancy rate of Blue-throated Macaw vs Blue-and-yellow Macaw presented over the 17 years of Armonía’s nest box program. Changes in entrance size between 2013 and 2015, favorably impacted the competition between these large macaws.

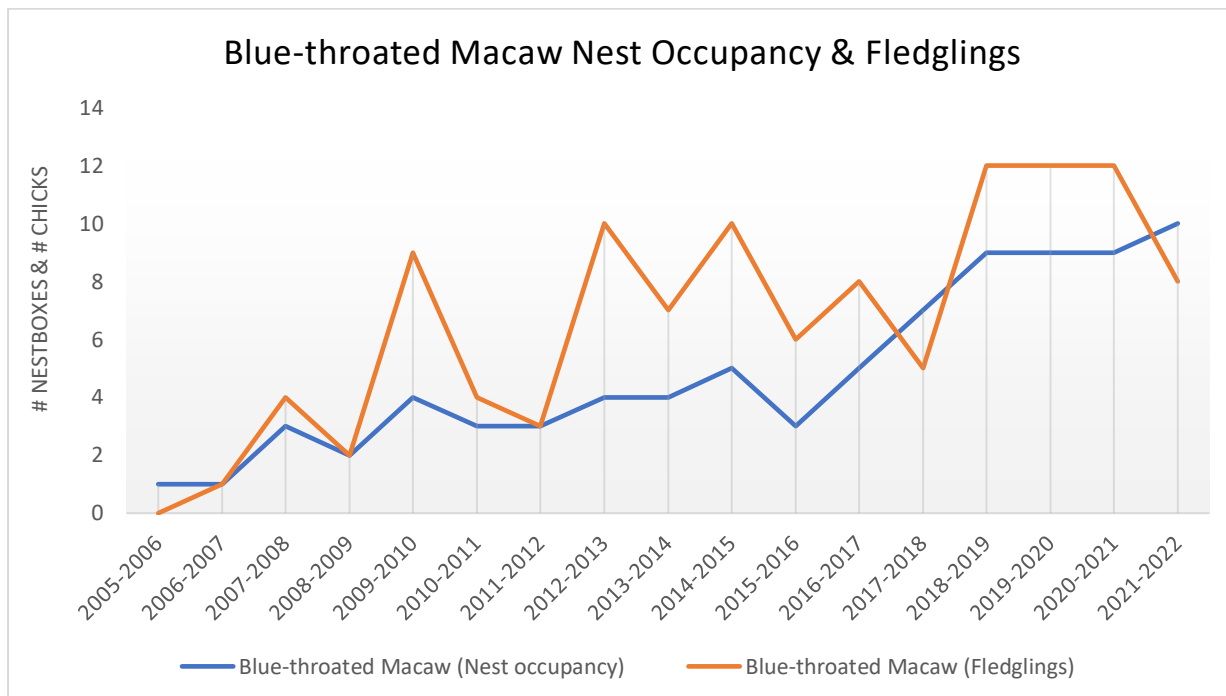


Figure 5. Nestbox breeding attempts of the Blue-throated Macaw and number of fledglings presented over the 17 years of Armonía’s nestbox program. The cumulative number of successful Blue-throated Macaw fledglings from Armonía’s Nestbox Program reached 113 during the 2021 – 2022 breeding season.

As there are many factors that we are not able to control, including egg fertility and abandonment rates we have the task to decrease predation every year. Our camera trap system to monitor active nests as much as possible this year has provided great information and insights on predation risks and nest vulnerabilities. We cannot fully explain yet the factors that have increased predation, however some personal and camera recordings are shedding some light.

For the first time we have recorded Capuchin monkeys as Blue-throated Macaw egg predators, as they can easily move around high branches to reach nestboxes. We need to make sure that nestboxes are placed in trees in areas inaccessible by monkey and close branches. As well for the first time, we have records of other bird species predating eggs or attacking nests to take over the nestbox. We were able to observe how Blue-throated Macaws defended their nest causing great damage to a Black-bellied Whistling Duck and, in another nest, how this duck invaded a nestbox until Blue-throated Macaws abandoned their nest leaving eggs behind. While this type of competition is difficult to control, we continue the task to increase nesting options for many local species that need them too.





HELP SAVE BLUE-THROATED MACAWS FROM EXTINCTION Become a “Friend of Laney Rickman Blue-throated Macaw Reserve”

Blue-throated Macaw Conservation at Work

The Laney Rickman Blue-throated Macaw Reserve is a very important place for the conservation of the endemic and critically endangered Blue-throated Macaw and many of Bolivia's Beni Savanna species. But making sure the area is well protected requires support from people like you who understand the value of nature and wild places.

Centuries of human disturbance in the area had removed the large trees that historically would have offered safe nest cavities. In 2005 Armonía started a Blue-throated Macaw nest box program. Up to 2020, more than 90 Blue-throated Macaws have successfully fledged from Armonía nest boxes. In 2018, Armonía was able to purchase the most important breeding site now called the Laney Rickman Blue-throated Macaw Reserve, in recognition of Laney's dedication to saving the Blue-throated Macaws. Over 1,680 acres (681 ha) of savanna and tropical forest in northern Bolivia is now protected.

Your impact as a Friend of Laney Rickman Blue-throated Macaw Reserve

The most important breeding site for the southern subpopulation is now protected forever. But conservation goals are not met by just buying land, as this emblematic species can suffer from threats like poaching, uncontrolled fires and invading cattle negatively affecting the habitat. Your support will go directly to protecting this species and its crucial habitat by restoring this endangered ecosystem through the nest box program, fire prevention, parkguard patrols, and habitat restoration.

How to become Friend of Laney Rickman Blue-throated Macaw Reserve

A “Friend of Laney Rickman Blue-throated Macaw Reserve” is a group of individuals who have committed to assisting our protection efforts. They receive two reports a year, including our financial report and next year's management budget. Friends will be informed of the conservation details and encouraged to help with ideas, suggestions, contacts and references.

To become a Friend of Laney Rickman Blue-throated Macaw Reserve, we request a yearly donation of US\$ 2,000. Please contact Bennett Hennessey, director of development (abhennessey@armonia-bo.org) for previous reports, questions and if you are interested in becoming a Friend of Laney Rickman Blue-throated Macaw

Reserve. Your donation can be made through Bird Endowment
Armonía donation page: **WWW.BIRDENDOWMENT.ORG**

Annex 1: Summary of nestboxes occupancy

Table 3. Summary of the 13 occupied nestboxes out of 100 set this breeding season in the Laney Rickman Reserve, Nuevo Berlin and La Cantina ranch. The sponsor code column contains the initials of the sponsor (person or institution) that sponsored the nest during this breeding season. The nest code column is a fixed code that identifies each nest and remains permanent across the breeding seasons. The column “historic BTM use” indicates the number of times the nest was occupied by Blue-throated Macaws (BTM) in the past. Nest type indicates the form of nestbox (square, hexagonal or octagonal), and tree species indicated to which type of tree the nestbox was located. A total of 10 nestboxes were used by Blue-throated Macaws of which nestbox PBA 11, PBA 16 were occupied twice and PBA 89 three times. BTM results: 39 eggs, 11 hatched and 8 chicks fledged.

#	Nest code	Sponsor	Historic BTM use	Species	Nest type	Tree species	# (egg, chick)	Dates (first egg, chick and fledging)
1	PBA 1	MN	(2018-2019)	Blue-throated Macaw	Square	<i>Attalea princeps (palm)</i>	Eggs: 3 Chicks: 2 Fledged: 2	Eggs: 28 FEB 2022 Chick 1: 25 MAR 2022 Chick 2: 1 APR 2022 Fledged: 1 JUL 2022
2	PBA 5	JD	-	Blue-throated Macaw	Square	<i>Acrocomia aculeata (palm)</i>	Eggs: 3 Chicks: 3 Fledged: 2	Eggs 2: 10 DIC 2021 Eggs 3: 14 DIC 2021 Chicks 3: 6 JAN 2022 Fledged: 29 MAR 2022
3	PBA10	FC1	-	<i>Ara severus</i>	Square	Japunaqui tree	Eggs: 2 Chicks: 2 Fledged: 2	Eggs: 29 DIC 2021 Chicks: 29 JAN 2022 Fledged: 29 MAR 2022
4	PBA11	SC	(2018-2019) (2020-2021)	Blue-throated Macaw	Square	<i>Acrocomia aculeata (palm)</i>	Eggs: 2 (Predated)	Eggs: 6 JAN 2022
4	PBA11	SC	(2018-2019) (2020-2021)	Blue-throated Macaw	Square	<i>Acrocomia aculeata (palm)</i>	Eggs: 3 (Predated)	Eggs: 14 FEB 2022
5	PBA 12	Bau	(2015-2016) (2016-2017) (2017-2018)	<i>Ara severus</i>	Square	<i>Acrocomia aculeata (palm)</i>	Eggs: 1 (predated)	Eggs: 16 JAN 2022
6	PBA 16	TM1	-	Blue-throated Macaw	Square	<i>Acrocomia aculeata (palm)</i>	Eggs: 2 (predated and abandoned)	Eggs: 29 DEC 2021
6	PBA 16	TM1	-	Blue-throated Macaw	Square	<i>Acrocomia aculeata (palm)</i>	Eggs: 2 Chicks: 2	Chicks: 26 MAR 2022 Fledged 1: 7 JUN 2022 Fledged 2: 11 JUN 2022
7	PBA21	BW1	(2016-2017) (2017-2018) (2019-2020) (2020-2021)	Blue-throated Macaw	Square	<i>Acrocomia aculeata (palm)</i>	Eggs: 4 (predated)	Egg 1&2: 14 DEC 2021 Egg 3: 20 DEC 2021 Egg 4: 29 DEC 2021
8	PBA46	SZ5	(2011-2012)	Blue-throated Macaw	Square	<i>Attalea princeps (palm)</i>	Eggs: 3 Chicks: 1	Eggs: 17 JAN 2022 Chick: 31 JAN 2022
8	PBA46	SZ5	(2011-2012)	Black-bellied Whistling Duck	Square	<i>Attalea princeps (palm)</i>	Eggs: 1	Egg: 22 FEB 2022

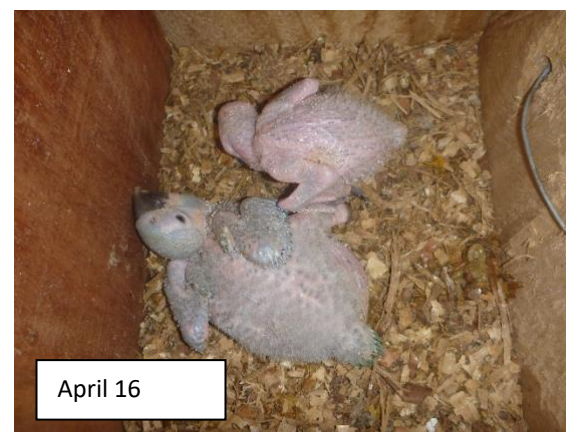
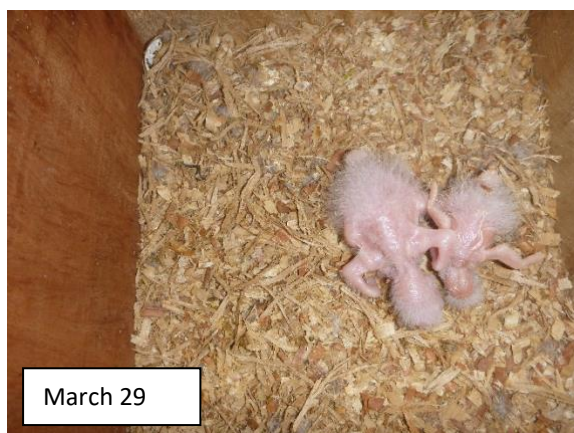
9	PBA48	RW	-	Blue-throated Macaw	Square	<i>Attalea princeps (palm)</i>	Eggs: 3 Chicks: 1 (Natural death)	Eggs: 17 JAN 2021 Chick: 31 JAN 2021
10	PBA81	KC2	(2019-2020) (2020-2021)	Blue-throated Macaw	Square	<i>Acrocomia aculeata (palm)</i>	Eggs: 5 Chicks: 2 Fledged: 2	Eggs: 6 JAN 2022 Chicks: 21 JAN 2022 Fledged: 25 APR 2022
11	PBA 85	IB	(2020-2021)	Blue-throated Macaw	Square	<i>Acrocomia aculeata (palm)</i>	Eggs: 3 (Abandoned)	Eggs: 18 JAN 2022
11	PBA85	IB	(2020-2021)	Black-bellied Whistling Duck	Square	<i>Acrocomia aculeata (palm)</i>	Eggs: 54	Eggs: 30 MAR 2022
12	PBA 89	PB2	-	Blue-throated Macaw	Square	<i>Acrocomia aculeata (palm)</i>	Eggs: 2 (Abandoned)	Eggs: 18 JAN 2022
12	PBA 89	PB2	-	Blue-throated Macaw	Square	<i>Acrocomia aculeata (palm)</i>	Eggs: 3 (Predated and abandoned)	Eggs: 28 FEB 2022
12	PBA 89	PB2	-	Blue-throated Macaw	Square	<i>Acrocomia aculeata (palm)</i>	Eggs: 1 (Abandoned)	Egg: 8 APR 2022
13	PBA 125	BF	-	<i>Aratinga sp</i>	Square	<i>Copernicia alba (palm)</i>	Eggs: 2 (Predated)	Eggs: 7 JAN 2022



Annex 2: Description of nestboxes used by Blue-throated Macaws

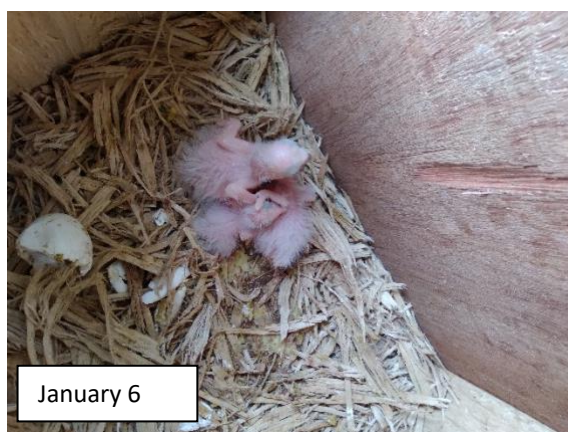
Sponsor (code): MN Companion Bird Association (MN)
Nest code: PBA 1
Location: Laney Rickman Blue-throated Macaw Reserve

Three eggs were found on monitoring during February 28th. The first chick was registered on March 25th and the second on April 1st. The third egg did not hatch and the undeveloped chick died. The two chicks had a normal development until fledging on July 1st. Only one chick was banded due to lack of banding rings left for this year. Banded chick has the number # 2022 BO 009



Sponsor code: Jennifer Darden (JD)
Nest code: PBA 5
Location: Laney Rickman Blue-throated Macaw Reserve

The first two eggs of the 2021-2022 breeding season were found in this nestbox on December 10 initiating the breeding season. A third egg was registered on December 14. Three chicks hatched and were observed during monitoring on January 6. The smallest chick did not survive. Two chicks developed feathers and fledged by March 29. Both chicks were banded with rings numbers # 2022 BO 005 and # 2022 BO 006.



Sponsor code: Susanne Cochran (SC)
Nest code: PBA 11
Location: Laney Rickman Blue-throated Macaw Reserve

There were two unsuccessful breeding attempts in this nestbox. The first breeding attempt occurred on January 6 when two eggs were found. Second breeding attempt happened in February 21 with three eggs. Both breeding attempts were affected by natural predators. This nestbox is located near a forested area with potential predators. With Camera Trap monitoring we were able to record a capuchin monkey (*Sapajus sp*) lurking around the nest and taking out eggs.



Sponsor code: Alicia McLaughlin (TM1)
Nest code: PBA 16
Location: Laney Rickman Blue-throated Macaw Reserve

This nest had two breeding attempts. The first breeding attempt occurred in December 29. Two eggs were found and by January 6 only one egg was left and abandoned by its parents. The second breeding attempt occurred on March 23. Two chicks were registered during monitoring. Both chicks developed normally. The first chick fledged by June 7 and the second successfully fledged by June 11. One of the chicks was banded with ring number #2022 BO 010.



Sponsor code: Lewis "Buddy" Waskey (BW1)
Nest code: PBA 21
Location: Laney Rickman Blue-throated Macaw Reserve

On December 14 two eggs were found during nestbox monitoring. A total of four eggs were registered by December 29. Camera trap monitoring recorded suspicious activity of a woodpecker on the nest. Eggs were potentially predated by this natural predator.



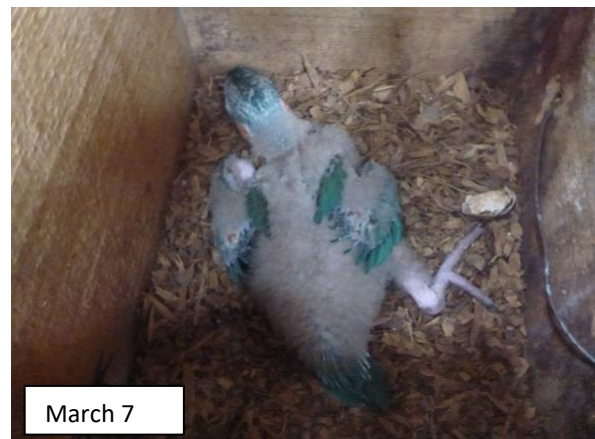
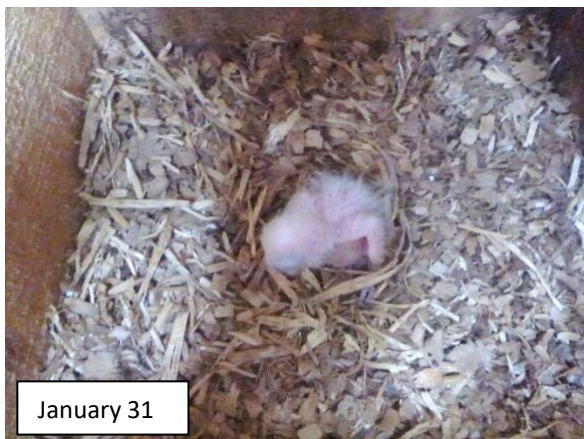
Sponsor code: EARTH Ltd @Southwick's Zoo (SZ5)
Nest code: PBA 46
Location: La Cantina Ranch

Three eggs were laid by January 17. One chick hatched by January 31 while the two eggs remained unhatched. The chick was developing normally. Monitoring during February 22 found the chick missing and one Black-bellied whistling Duck egg in the nest. While we didn't record the exact moment of conflict with the duck, we registered a similar conflict with an individual of the same species in another nest. In that event, the duck was killed by the Blue-throated Macaw breeding pair protecting their nest.



Sponsor code: Georgia Hayes, Chyla May and Michelle Carollo (RW)
Nest code: PBA 48
Location: La Cantina Ranch

Three eggs were registered during monitoring on January 17. By January 31 one chick had hatched with no sight of the remaining two eggs. The chick had a normal development and was banded on March 7. On March 22, the feathering chick was found dead inside the nest. Our camera trap monitoring did not record any unusual movement or predation. The cause of death presumably was natural.



Sponsor code: Kansas City Zoo (KC2)
Nest code: PBA 81
Location: Laney Rickman Blue-throated Macaw Reserve

For the first time, we have recorded five eggs laid by Blue-throated Macaws. The first four eggs were registered on December 30. The total five were laid by January 6. Out of the five eggs, two chicks hatched while the rest remained unhatched by January 21. Both chicks had the same size and developed normally throughout the nesting period. By the 25th of April, both chicks successfully fledged from the nest. Chicks were banded with rings #2022 BO 007 and #2022 BO 008.



Sponsor code: Amanda Hoffman in honor of Itty Bitty (IB)
Nest code: PBA 85
Location: Laney Rickman Blue-throated Macaw Reserve

Three eggs were registered on January 18. By the following monitoring only two eggs remained in the nest that seemed to be abandoned. Observations from park rangers include conflict with a pair of Red and Green Macaws near the nest. Red feathers were also found inside the abandoned nest.



Sponsor code: Pet Bird Association Virginia (PB2)
Nest code: PBA 89
Location: Laney Rickman Blue-throated Macaw Reserve

Three breeding attempts occurred in this nestbox. On January 18 the first two eggs were observed but the nest was abandoned due to a bee infestation. By February 21, another three more eggs were found in a second breeding attempt that ended in a potential predation that the cameras traps did not register. The third breeding attempt occurred by April 8. One new egg was registered. On April 16 our camera traps recorded both parents taking the egg out of the nest.

