Establishing nest protection for the extremely rare Cherry-throated Tanager, Brazil

Year Report 2022|2023.

Mohamed bin Zayed Species Conservation Fund
Instituto Marcos Daniel

Marcelo Renan de Deus Santos and Jaluzza Gazolli

Vitória, March 06th, 2024.

Introduction

This is the final report of the Grant number: 212528238, **Establishing nest protection for the extremely rare Cherry-throated Tanager, Brazil**, began in February 2022 and ended in December 2023.

The Cherry-throated Tanager Conservation Program started in 2020. The activities are based on three fronts: Research and monitoring, habitat protection, community engagement and environmental education. This report brings the results of these activities executed as planned between February 2022 and December 2023. It also brings the financial report for the funds provided by Mohamed bin Zayed Species Conservation Fund.

2022 was a wonderful year, with intense activity on the project, both on research/monitoring and in community engagement. We started 2022 with 10 birds at Kaetés Reserve and 7 birds at Santa Teresa (Augusto Ruschi Biological Reserve) and finished with 15 and 5 respectively. Thanks to supporters like Mohamed bin Zayed Species Conservation Fund, the program was able to accomplish the monitoring and data collection of the known flocks of Cherry-throated tanagers and collect scientific data, protect nests, and help the population growth.

In the first quarter of 2023 the monitoring team successfully spotted the group of Cherry-throated Tanagers in about 90% of the days in the field and the data of the last reproduction season was organized.

From June to December 2023, two nests were found, one in Caetés in August and the other in September in Santa Teresa, both without reproductive success.

In Santa Teresa, two individuals who were being fed by the group and had little mobility were no longer seen and were considered dead due to their age. So, the Santa Teresa group goes from 7 individuals to 5.

Accomplishments:

Activity 1: To stablish a protection program.

During 2022 and 2023 we did a 4 day per week monitoring of the groups of birds in the two occurrence areas.

At Reserva Kaetés, our team found and protected three nests, besides collecting population and natural history data.

At the beginning of the grant the field team was composed of Gustavo Magnago (field work coordinator), Victoria Carolina (biologist at Kaetes Reserve) and Thieres Fiorotti (assistant). On 15th September 2023 Victoria Carolina and Thieres Fiorotti left IMD. They were replaced by Lucas Tonoli (auxiliar) and Wesley Johnny da Silva (biologist) in October 2023.

We hired one biologist (Carlos Harthur Noia) and an auxiliar (Athos José Souza) to monitor the Santa Teresa population. They started it in September 2023 after spending two months (August and September) training with Kaetés Reserve team.

Fig. 1 – PCSA field permanent staff: From left to right: Victoria Carolina (biologist at Kaetes Reserve), Thieres Fiorotti (auxiliar), Carlos Hartur Noia (biologist at Santa Teresa), Athos José (auxiliar at Santa Teresa), Savio Fassini (former ranger) and Gustavo Magnago (field work coordinator). (IMD Archive)

With these changes, the team continues with these components:

Marcelo Renan de Deus Santos (General Coordinator)

Gustavo Magnago (field work coordinator)

Carlos Hartur Noia (biologist at Kaetés Reserve),

Wesley Johnny da Silva. (biologist at Kaetés Reserve),

Lucas Tonoli (field auxiliar at Santa Teresa)

Athos José (Field auxiliar at Santa Teresa)

Valdivia Rocha (Social engagement)

Gabriel Lourenço (Environmental educator)

Jaluzza Gazolli (Environmental educator)

To hire qualified personnel who can live close to the species' areas of occurrence has been a challenge for the project and, therefore, the hiring of field technicians Athos and Lucas is an effort for long-term training. Both technicians are biology undergraduates and have an expectation of career progression in the project after training.

Banding campaigns

Two banding campaigns were conducted. The first was in September 2022 (5 days/50 h) using 4 canopy mist nets without success. The other campaign was in November 2022, using 2 nets for 5 days (50 h) and 4 individuals were captured. We collect blood samples for genetic analysis, sexing and feces for disease screening.

Fig2. Part of PCSA team during the ringing campaign in November 2022. Fabio Schunk is the senior bander. (IMD Archive)

Activity 2: Nest protection protocol

At Kaetés Reserve, the first nesting was in March 2022, with 2 chicks that were monitored and joined the flock successfully. The second nest was in September 2022, with 3 chicks. The nest was monitored successfully.

At Santa Teresa, we found three nests, with only two birds fledging. Although we protected them, two were unsuccessful. In one nest the chicks died in an unusually extreme frosty night.

Then the flock made another nest that was attacked by ants leading the birds to abandon it on the eighth day, and they did not try again this nest was monitored for 16 days (185h). There was one bird that was not well (maybe old), and the others were feeding it like a hatchling.

Fig. 4- Cherry Throated Tanager nest monitored at Reserva Kaetés.

(Alex Mesquita/IMD Archive).

In 2023 the breeding season started earlier, with the first nest identified in the Caetés Forest in August. In Santa Teresa, the first nest was found in September.

From June to December 2023, two nests were found. One in Caetés in August which was abandoned after the third day of incubation and another in Santa Teresa in September which was preyed upon by aracaris (*Pteroglossus sp.*). After these events, no other nests were found.

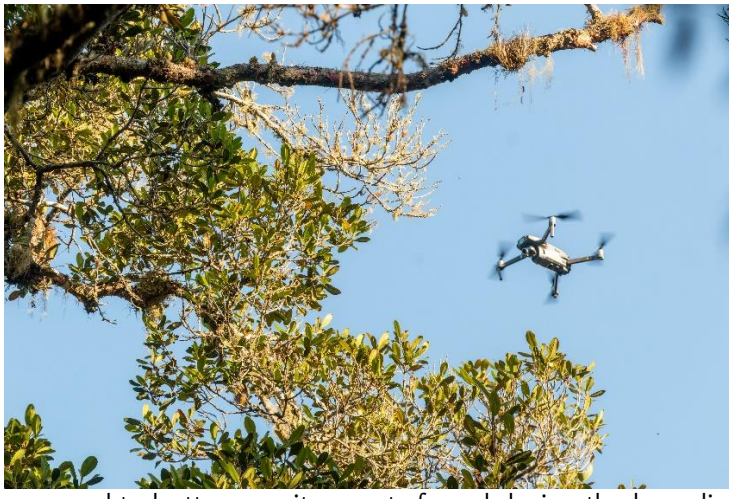
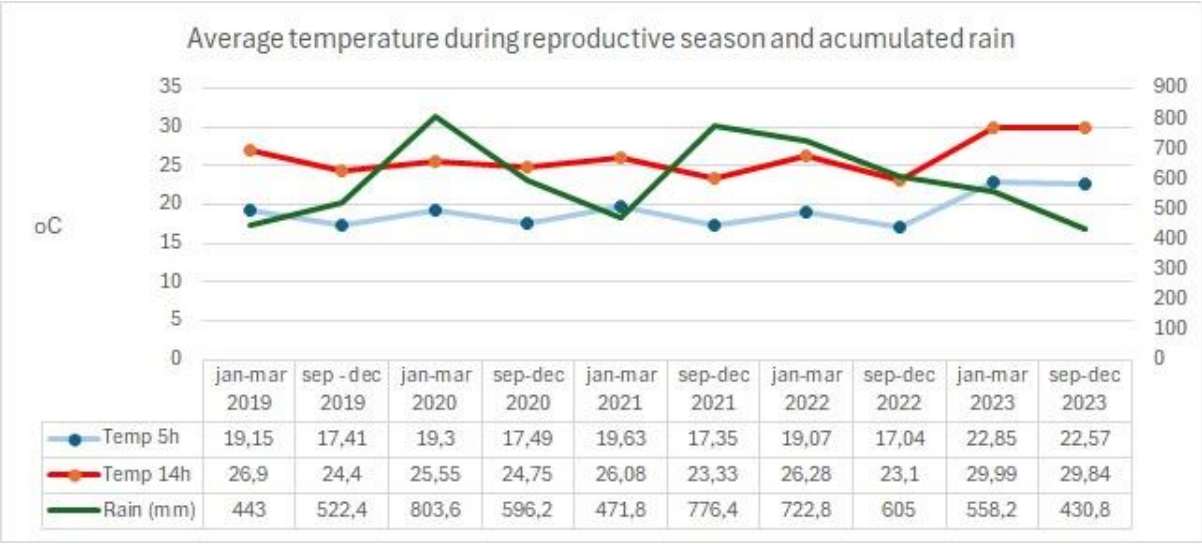



Figure 5 and 6 - Use of technology used to better monitor nests found during the breeding season in 2023.

2023 was marked by the El Niño phenomenon, which caused atypical temperatures and influenced the volume of rain, especially at the beginning of the reproductive period.
According to data from INMET - National Institute of Meteorology, there was an increase in minimum and maximum temperature of 3ºC, and a reduction in rainfall by 300 mm when compared to 2021, the year in which we had greater reproductive success. The last semester of 2023 had the highest average temperatures and lowest precipitation since 2019. Excessive heat and lack of rain directly influence the food supply of birdlife, especially insectivorous species such as the Cherry-throated Tanager.

These data confirm the climate scenario projected for Espírito Santo of an increase in the number of dry days and a reduction in precipitation with extreme torrential events of isolated rain. Considering the biological characteristics of the species, we understand that such climate changes have an impact on its behavior, but that it still needs to be evaluated at a research level.



	jan-mar 2019	sep - dec 2019	jan-mar 2020	sep-dec 2020	jan-mar 2021	sep-dec 2021	jan-mar 2022	sep-dec 2022	jan-mar 2023	sep-dec 2023
Temp 5h	19,15	17,41	19,3	17,49	19,63	17,35	19,07	17,04	22,85	22,57
Temp 14h	26,9	24,4	25,55	24,75	26,08	23,33	26,28	23,1	29,99	29,84
Rain (mm)	443	522,4	803,6	596,2	471,8	776,4	722,8	605	558,2	430,8

data source: INMET

The protection of native and primary forest areas is essential to buffer the climate chances, so the does not worsen.

Population growth

The population size since the beginning of the project in 2020 growth 100%, from 10 to 20 individuals now, 5 in Santa Teresa and 15 in Caetés Forest.

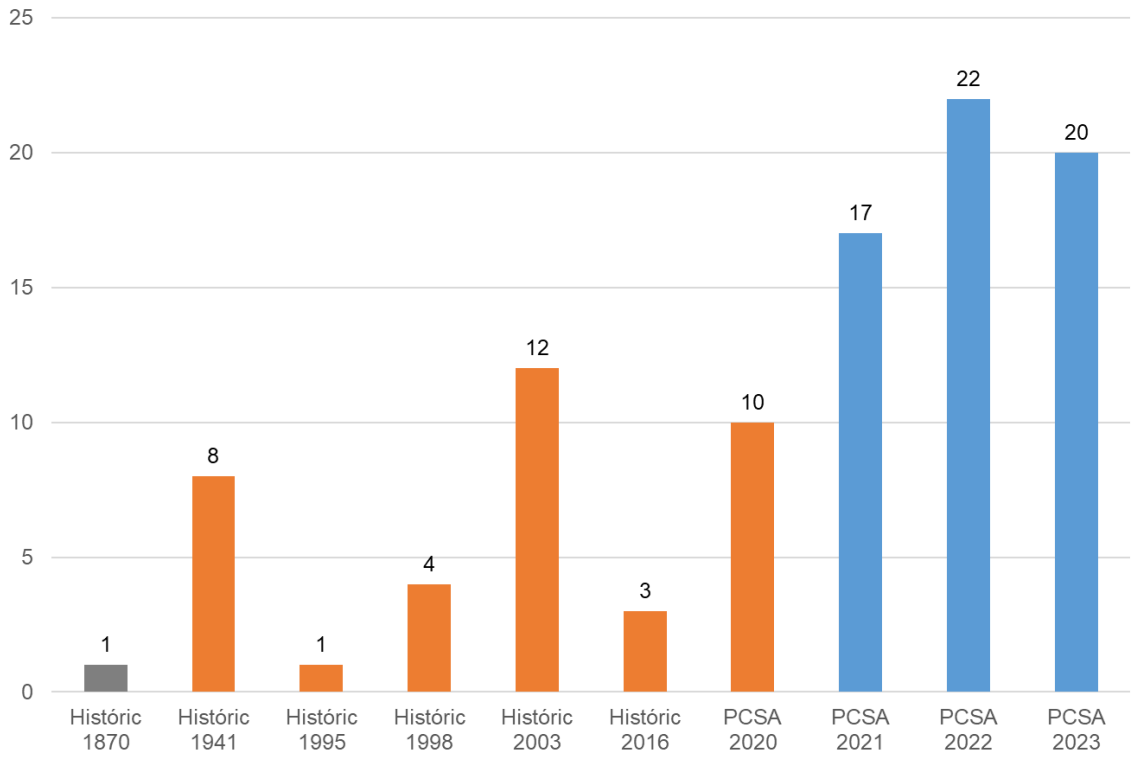


Figure 7 - Population increase

Activity 3: Trainning staff and personell

In November 2022, our biologist Victoria Carolina participated in a banding training offered by CEMAVE/ICMBio in João Pessoa, Paraíba. This training is mandatory to become a banding professional in Brazil, which will facilitate the execution of banding and flock monitoring campaigns in both monitoring areas.

Team firefighting training takes place in June-23 and our goal is to form a support network for quick and effective responses in the event of forest fires in the region. Training details and evidence will be sent in the next report. The equipment was purchased and is ready for use, so we hope to finalize the activities of this objective by the next report. In addition to training, an integrated and multidisciplinary firefighting plan in the region is being developed.

Fig. 19: Kaetés field Team participation in a firefighting course (IMD Archive).

The course was conducted in partnership with ICMBIO and IEMA, the second class that will be held in April 2024, including neighbors of the Kaetés reserve and key actors in the region and in case of any appeal, at the end of the second class.

We have also hired satellite monitoring software (www.quiron.digital) with the aim of preventively monitoring data on climate and land use conditions that could lead to an increase in the risk of forest fires in the region, one of the main risks of extinction of the species. With this information we can focus our actions and resources in advance to mobilize our support network for fire risks.

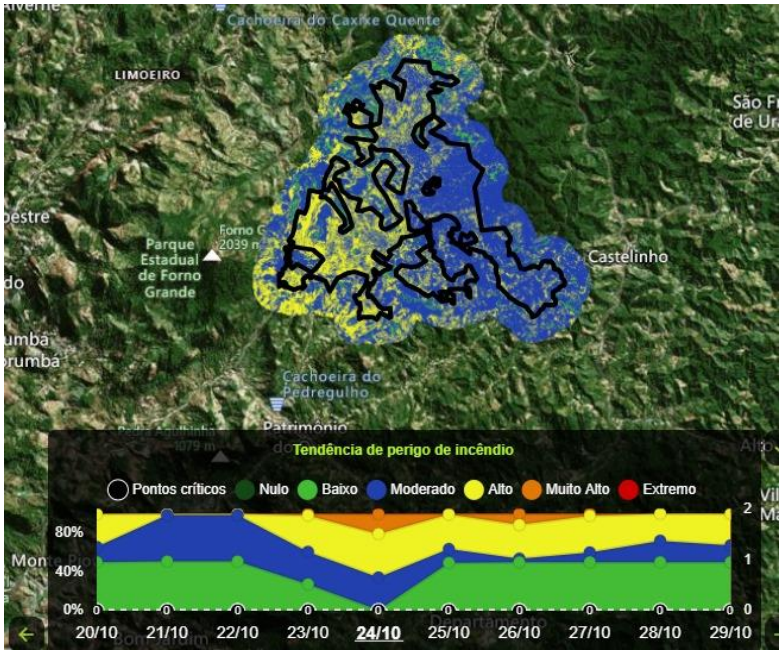


Fig. 20 – Fire risk monitoring Kaetés Reserve map by Quiron software

Financial Report

The funds from Mohamed bin Zayed Species Conservation Fund were applied to the activities planned in the project, which allowed us to successfully conduct the monitoring, data collection and nest protection activities.

TOTAL RECEIVED	**$ 10.000,00**
TOTAL SPENT	**$ 10.000,00**
BALANCE	**0**

Activity	Description	Budget Estimate (US $)	Time It Will Take To Complete (Months / Weeks)
To stablish a protection program	Two rangers will be hired to set a daily basis surveillance in the reserve, deal with invaders in a nonviolent approach and show human presence in the area.	8000	8 months
Nest protection protocol	Purchase the equipments necessary to the field work of daily nest protection during reproductive season	2000	4 months
Trainning staff and personell	Guards and staff will be trainned on protection methods.	0	2 months

Other accomplishments:

Kaetés Reserve – Habitat protection

In 2023 we raised funds with international partners to expand the Kaetés Reserve from 285 to 630 hectares. With this protection, about 40% of the area of habitat use of the Cherry-throated Tanager is protected at the Caetés forest. The Kaetés Reserve is a partnership between Rainforest Trust, World Land Trust, American Bird Conservancy and IMD.

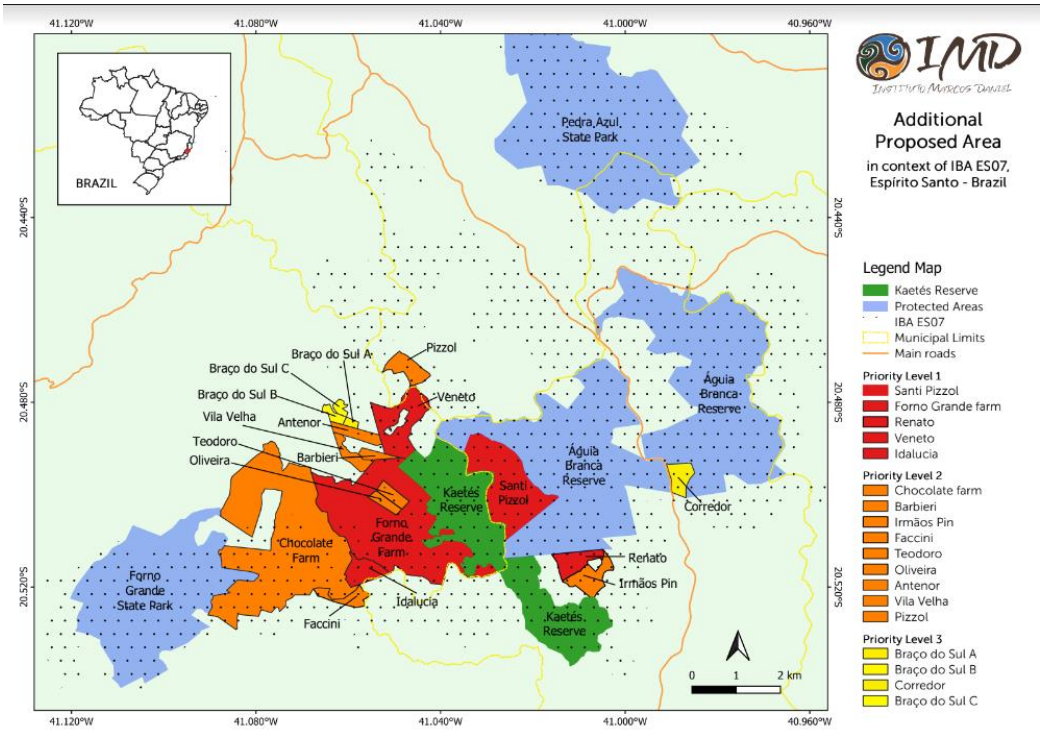


Figure 8: Kaetés Reserve context and priority protection areas for expansion.

A remote security monitoring system was installed with night vision and cell phone access to guarantee security in the Kaetés Reserve and prevent illegal cutting of juçara palm hearts.

Figure 9,10,11 and 12 – remote monitoring security system for the Kaetés Reserve

Community engagement

Since 2020 we are working intensively to engage the local community in the conservation of the Cherry-throated Tanager.

In 2022, we developed together with Vargem Alta City a training program for teachers from public schools, on the local ecosystem approach called Ser Mata Atlântica Project. The project has already trained 40 educators in two classes (2022 and 2023). On a continuous basis, Ser Mata Atlântica has as its pillars, the continuing education of environmental educators, the creation and inclusion of a discipline focused on the study of the regional and local ecosystem and actions in municipal schools and communities in the municipality, called Ecossistemas Vargemaltenses.

An environmental education program is being negotiated with the authorities of the municipality of Santa Teresa. See more in: https://www.instagram.com/p/CmFLCfAP_u_/?igshid=MjAxZDBhZDhlNA==

Upon closing the activities of the Passarinhar e Educar Project in 2023, the PCSA team had the opportunity to share the results achieved throughout the year.

In December 2023, we had two meetings in Vargem Alta with the municipality's management team. One at the City Hall, with Mayor Elieser Rabello and the municipal Secretary of the Environment, Helimar Rabello. The second at the City Council, with the councilors, where the results of the environmental education project "Passarinhar e Educar" implemented in municipal schools and monitoring activities for the year 2023 were presented.

From the active involvement of students, pedagogical teams in schools and community mobilization, the positive effects were notable and aroused interest among political representatives. The mayor, secretary and councilors expressed satisfaction with the results and showed full support for the continuation of the partnership in 2024. The partnership between the PCSA, the City Hall and the City Council shows that everyone is committed to protecting the environment and involving the community, creating opportunities towards local conservation.

from two schools have benefited from the program. Another 1 school is being negotiated to start in the coming months and the goal is to expand the program to cover 10 schools by 2024.



Fig. 15, 16, 17: Records of environmental education actions and materials for birdwatching. Jun/2023 (IMD Archive)

Mobilization of public and private Stakeholders:

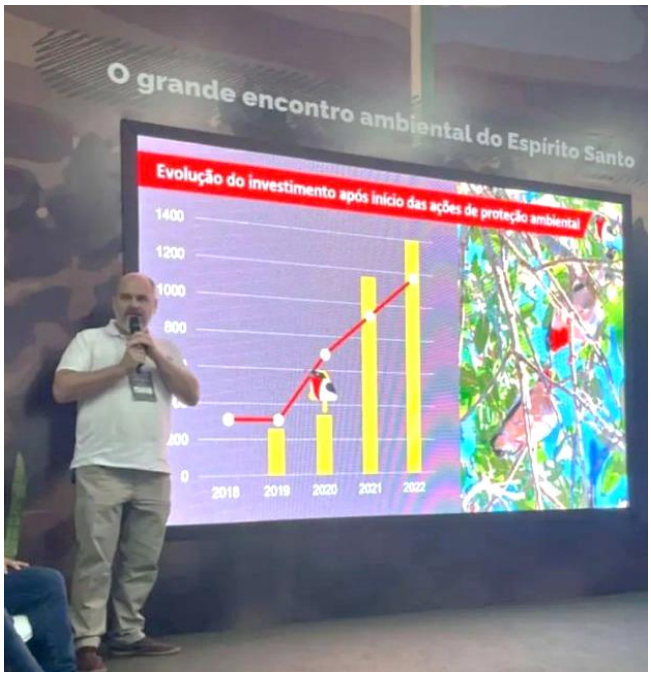


Fig. 18: Presentation of IMD President Marcelo Renan on the session Finance and climate conservation (IMD Archive).

IMD presented its projects at the Capixaba Sustainability fair, from June 26th to 28th, where the attention of the productive sectors, including agribusiness, political authorities from the national and local scenarios, as well as non-governmental entities and the population in general will be focused on the event Sustainability Capixaba, which will have free admission at Praça do Papa, in Enseada do Suá. The forum will discuss the environment, climate change and its socioeconomic impacts. The PCSA is a highlight of international cooperation for the protection of biodiversity. The **Marcos Daniel Institute joined the group responsible for promoting the UN SDGs in the state.**

See more in: https://sustentabilidadecapixaba.com.br/ and https://www.instagram.com/p/Ct9P0aBL_IQ/

Research at Kaetés Reserve:

Two new scientific articles on the species found in the Kaetés Reserve were published, these being the first scientific citations of the Kaetés Reserve formally.

Distribution expansion of Petrocerus catiena (Hewitson, 875) (Lepidoptera: Riodinidae) and

description of the previously unknown female -https://zoobank.org/References/41C2AE23-D6F3-43F7-8AAC-C74145C6230B

The contribution of local people to species conservation: the case of the catfish Trichogenes

claviger in south-east Brazil - https://www.cambridge.org/core/journals/oryx/article/contribution-of-local-people-to-species-conservation-the-case-of-the-catfish-trichogenes-claviger-in-southeast-brazil/B69B5ADAB7A5ACCEB1B05A6A0759AAFC?utm_campaign=shareaholic&utm_medium=copy_link&utm_source=bookmark

Throughout 2023, the field team recorded distinct species in Kaetés Reserve in the project created on the iNaturalist platform. Our objective is to create a catalog so that scientists and visitors can explore the diversity of the unique local fauna and flora and feel motivated to undertake a scientific tourism expedition with us. This work of cataloging the species has also enabled valuable connections for scientific research resulting in publications and reinforcing the biological conservation potential of the Kaetés Reserve.

Visit: https://www.inaturalist.org/places/reserva-kaetes

Main challenges:

We had difficulties to find a biologist and field auxiliar that fit the needs of the project and the possibility of living in Santa Teresa, since the monitoring is a daily activity. We hired them in July for the two months training period, and both are doing a great job now.

The project has two vehicles, one at Kaetés Reserve (a Mitsubishi Triton 2012 4WD pickup truck) and a Fiat Uno 1.0 2010 (not 4WD) at Santa Teresa. Both are used under harsh conditions and present a lot of maintenance needs, consuming many days in the repair shop and demanding a lot of money. The absence of a 4WD at Santa Teresa prevent the team to access the entrance to study area, so they must walk uphill more than 2 km only to access the entry point of the forest, spending precious time every day on that. It would be greatly beneficial for the project to upgrade the vehicles to meet the needs to reduce time and money costs.

PCSA could be presented with better quality and presence at the annual birdwatching fair when we manage to raise specific funds for this purpose.

Future steps:

To search for other flocks in Augusto Ruschi Biological Reserve at Santa Teresa using remote recorders (Audiomoth). The reserve has 3400 hectares with potential occurrence areas that need more search. The bioacoustics will also serve to better understand the habitat use area of the current flock.

To perform the 2024 annual census of the species in potential occurrence areas that are to be explored like Caparaó National Park, Conceição de Castelo – Fazenda Pindobas and others.

The funding for the continuity of the environmental education program for children in the region of Mata de Caetés and the extension to Santa Teresa.

Report and schedule update:

We are pleased to send this report full of good results from our partnership, albeit late. It is important to highlight that monitoring activities are ongoing and we would like to renew our partnership by sending another proposal for financial support to the project as soon as possible. In a future proposal, the funds will cover our basic needs to continue the monitoring strategy. Climate challenges influence the reproductive behavior of species, we must monitor these data in research to accumulate data to model risks in the future.