

Pilot Study - Bats

Estancia Don Luis, Ituzaingo, Corrientes.

Purpose of study

Estancia Don Luis is a former cattle ranch which has been reclaimed for conservation purposes. With the field station operational, we were invited to conduct a preliminary survey to identify the species of the immediate area. A bird expert herself, the owners request was to focus on the mammal species present.

This report covers the findings of the mist net study conducted immediately around the field station and immediate woodland.

The Study was conducted by Dr Amy Hall and Kate Sharma during the period of the 16th - 28th of March

All bat photographs were taken by and copyright to Gregory Guida.

Equipment

Series 700P (Polyester) Mist Net: Height 2.5m, Length 3m in combination with Telescopic mist net poles and Mist Net Mounting Set: Set A (for nets 3 to 15m long) produced by Ecotone from NHBS.com

Gloves (thick leather)

Bat box Duet Bat detector

Method

Positioning of the nets and preparations (ie digging holes for the poles and putting in pegs for guide ropes) were done during the day.

Half an hour before sunset the net was erected and secured using guide ropes. This should not be done any earlier so as to minimise the risk of catching birds.

Depending on the position of the netting – if it was in view of the house continuous monitoring was implemented, but when in the wooded area, the net was checked approximately every 10 minutes in combination with the use of a bat detector pointed towards the net to ensure quick notification of catches between checks.

During the course of the study the net was placed in five positions around the main house. These are shown Diagram A.

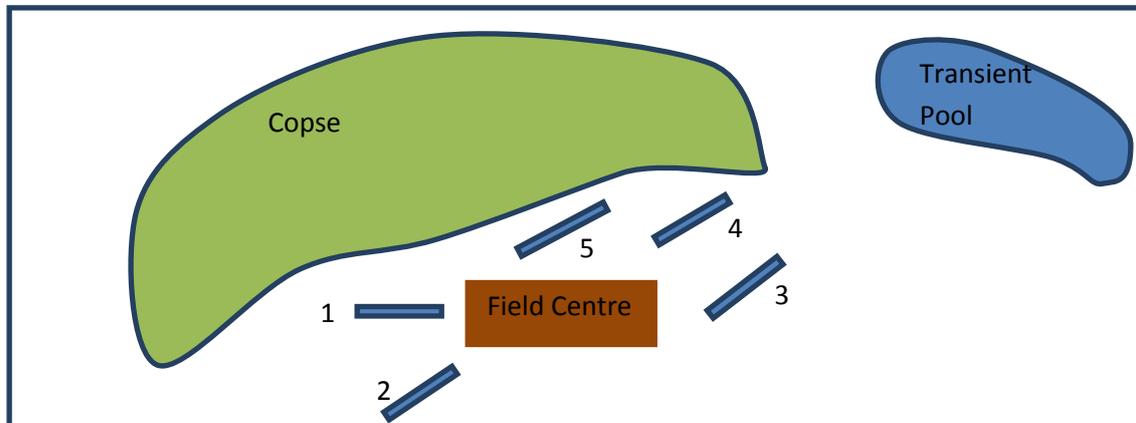
The study was conducted over a 2 week period with trapping starting half an hour before sunset and finishing 3 hours after.

Upon capture, bats were realised by hand (although in extreme instance, sometimes cutting the net was essential for the swift and safe release of the bat).

The bat was then weighed, measured and photographed, with emphasis on any defining characteristics, (see below) to enable identification. This was conducted as swiftly as possible to ensure the animal suffered the minimum distress and released immediately afterwards.



Diagram A – Sketch Map indicating locations of mist net in numerical order



Results

Although a number of bats were seen around the site (both visually and using the detector)

Only three individuals (all adults) were caught – they are as follows (all measurements are in mm)

Bat 1 - Male *Lasiurus blossevilli* or Hoary Bat

IUCN – Least concern (2008)

Caught in net 1

Forearm – 40mm

Weight – 10g

Distinguishing features

Furry tail

Bright colouring



Bat 2 - Female *Eptesicus furinalis* – Argentine Brown Bat

IUCN – Least concern – 2008

Caught in Net 3

Forearm – 32

Weight 10g

Distinguishing features

Small feet



Bald bottom
Big ears with pointed tragus
Free tail
Dark colouring with frosted underbelly

Bat 3 – Female *Eumops patagonicus* – Patagonian Dwarf Bonneted Bat

IUCN – Least concern – 2008

Caught in net 5

Head & Body – 60

Total Tail - 29

Free Tail – 20

Hind Leg – 27.7

Forearm – 45

Ear – 12

Weight 17.5g

Distinguishing features

Dark Brown with pale underbelly

Hairy Large feet

Long free tail

Large fleshy ears that meet in the middle



Conclusion

The Estancia don Luis is an exceedingly rich area for bats. In just a short amount of time three bats were caught in the mist net, but many more were seen flying around the field station and picked up on the detector. All three species are listed as Least Concern on the IUCN Red Data list however that does not preclude the presence of rarer species.

The forest fragments contain a number of mature trees suitable for roosting and the surrounding matrix of wetland provides an abundance of insect prey. The three bats caught were all insectivorous. It seems unlikely that fruit bat species could be supported on the number of fruit trees available, however this should not be ruled out as groups of howler monkeys (*Alouatta caraya*) do live in the same copses and rely on fruit as a large part of their diet.

The study has shown that a variety of species, from different families coexist in the area and further study is definitely recommended.

Recommendations

Using a high quality bat detector, recordings can be made which would enable a non-invasive method of analysing species presence. We suggest using either a Peterson with a recording device attached, or for more inaccessible locations, an Anabat may be used for taking unmanned readings.

The recordings can then be analysed using appropriate media and using sound banks, identifications can be made.

This can be done with basic training and no licence would be required.

If experienced personnel are available and a licence is issued, continuation of the mist netting would continue to provide interesting information. Suggestions for continuation of mist netting are as follows;

Initially we would suggest starting in the darker areas to the south coming around the west to the north of the house. These would be set up as per the pilot study; however we would suggest that the monitoring should continue throughout the night until the morning to allow the maximum chances of capture. This will require at least 2 scientists being present who are not also involved in daylight trapping regimes for other species as they were during the pilot.

Further positions could include the forest interior or during wetter months, around the pond (this was dried out during the majority of the survey). Nearby copses could also be investigated which would involve camping at the location.

If these are attempted however extreme care must be taken as these situations would increase the likelihood of encountering venomous snakes. The higher levels of insect activity should also be taken into account.

We would also suggest that a longer net may be advantageous, many bats were observed to be swerving out of the way of the net at the last minute. Whilst their ability to echolocate means that bats are usually quite good at avoiding nets, however a longer net maybe an advantage. A great increase in length would make it difficult to manage and would require more people for monitoring, however upgrading from a length of 3m to 6m (maybe having 2x 3m nets for greater flexibility) may increase catch numbers.

In terms of long term goals, the location of individual roosts although difficult maybe advantageous, as well as enabling counting of individuals in a group, it would enable informed decisions about species preferences. It could also be important if any trees need to be felled at any time.

In terms of landscape improvement, the creation of linear corridors between the copse behind the field station and adjoining patches of woodland would be particularly advantageous to a number of species including bats.

References

Barques, Giannini and Mares - Guide to the Bats of Argentina
Oklahoma Museum of Natural History (1993)

Emmons L H - Neotropical Rainforest Mammals 2nd edition
University of Chicago Press (1997)

Redford K H & Eisenburg JF - Mammals of the Neotropics: Southern Cone - Chile, Argentina,
Uruguay, Paraguay v. 2 (Mammals of Neotropics)
University of Chicago Press; 2nd edition (1992)

Sutherland W - Ecological Census Techniques : A Handbook
Cambridge University Press; 2 edition (2006)

Other Recommended Reading

Anderson AB & Jenkins CN – Applying Natures Design, Corridors as a strategy for biodiversity
conservation
Columbia University Press (2006)

Ausden M – Habitat Management for Conservation
Oxford University Press 2007

Other Species

During the course of our stay, we also encountered a number of reptiles. These were briefly handled either purely for ID purposes or simply to remove them from the field station or immediate surroundings for the purposes of safety. Photographs taken by Kate Sharma

Thamnodynaste hypoconia - Keeled Sepia Snake



Leptophis ahaetulla marginatus - Parrot Snake



Helicops leopardinus - Leopard Keelback



Eunectes notaeus - Yellow Anaconda



Bothrops alterus - Urutu Lancehead



We also found *Maybuya frenata* - Cope's Mabuya Lined Skink (no photograph currently available)