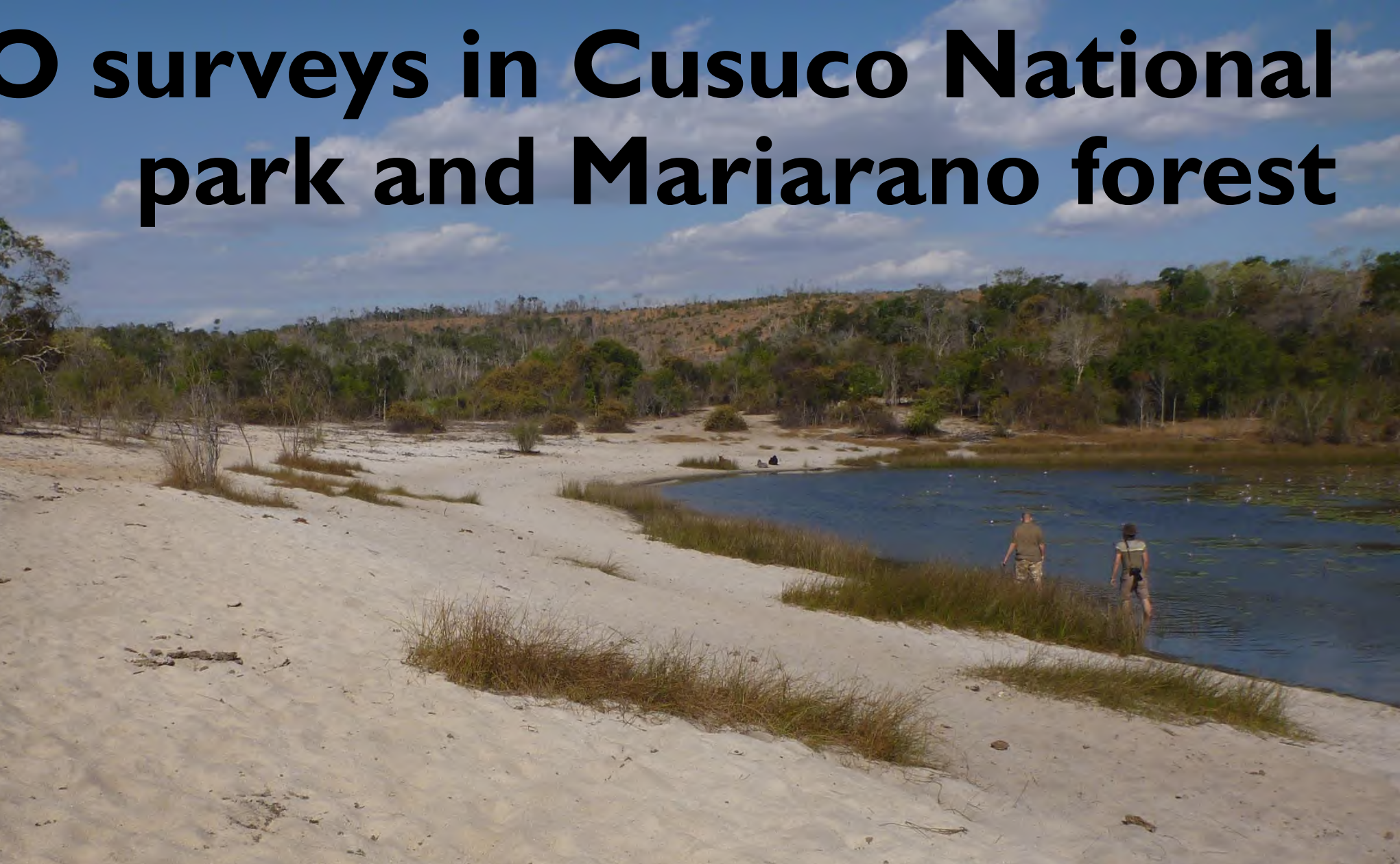


BINCO surveys in Cusuco National park and Mariarano forest



Some structure

- BINCO NPO
- OPWALL – BINCO
- Honduras (CNP)
- Madagascar (Mariarano)
- Reflections and challenges



© Mac Stone / BINCO

Biodiversity Inventory for Conservation NPO

- 2008, platform for the development of biodiversity projects
- Catalysor for conservation projects
- Understudied taxa & regions – specialise in Biodiversity Express surveys and innovative survey methods.
- 100% voluntary contribution – **We harness individual motivation for biodiversity and conservation, uniting small initiatives towards significant impact.**
- Organised in working groups (eg SpiDiverse, Myrmecodex, ...)



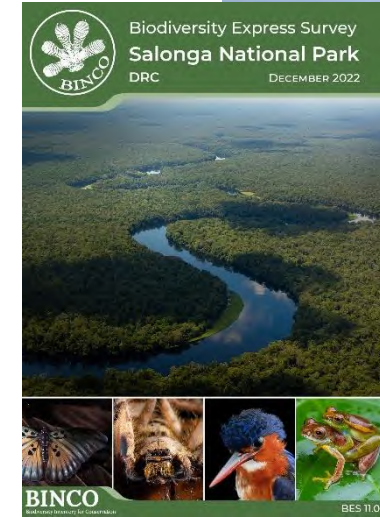
Michiel Van Noppen/BINCO, Salonga NP, DRC 2022

BINCO projects (October 2024)

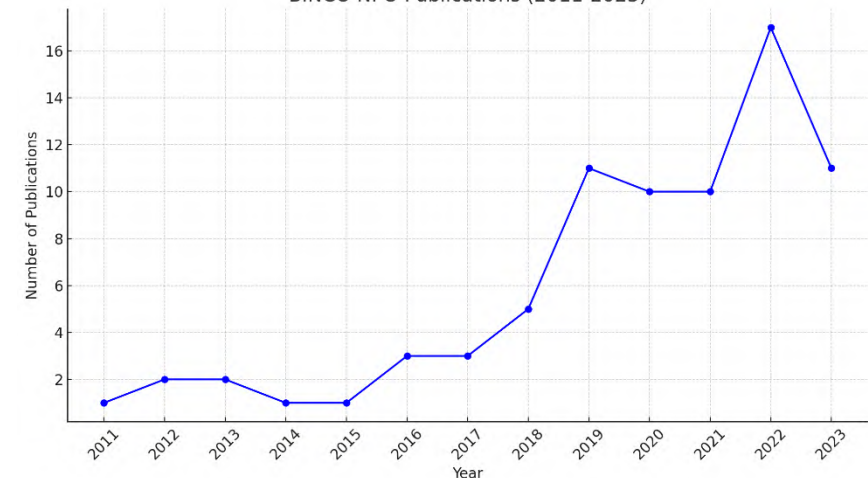


Some numbers that make a difference...

- 2 nature reserves established (Cambodia: Sambour & Praek Prasob wildlife sanctuary) and one enlarged (Mozambique) due to our actions
- 3 youth exchange programmes
- 6 working groups help grow taxonomic expertise and start new biodiversity monitoring projects
- 18 multi-taxon rapid biodiversity assessments in understudied regions
- 67 species new to science described, including a new shrew, fish, spiders, spittle-bugs, ant, dragonfly,... and many more confirmed discoveries
- 11 expedition reports and 82 peer reviewed scientific publications



BINCO NPO Publications (2011-2023)



OPWALL- BINCO collaboration

- To help the **biodiversity Inventory of invertebrates** of CNP & Mahamavo CF.
- To help **recruit staff** for invertebrate biodiversity inventory summer field seasons.
- To **publish new species descriptions** in collaboration.
- To include a link to the Opwall website on the BINCO website
- To apply for additional grant funding for BINCO that could help increase **insight in the ecology of invertebrate species** found at these study sites.
- To input **ideas** on invertebrate inventory research valuable at Opwall research sites around the world.
- To prepare **field guides** to help identification on the terrain.
- To identify Masters qualified BINCO associates to complete a PhD from publishing papers.

2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028



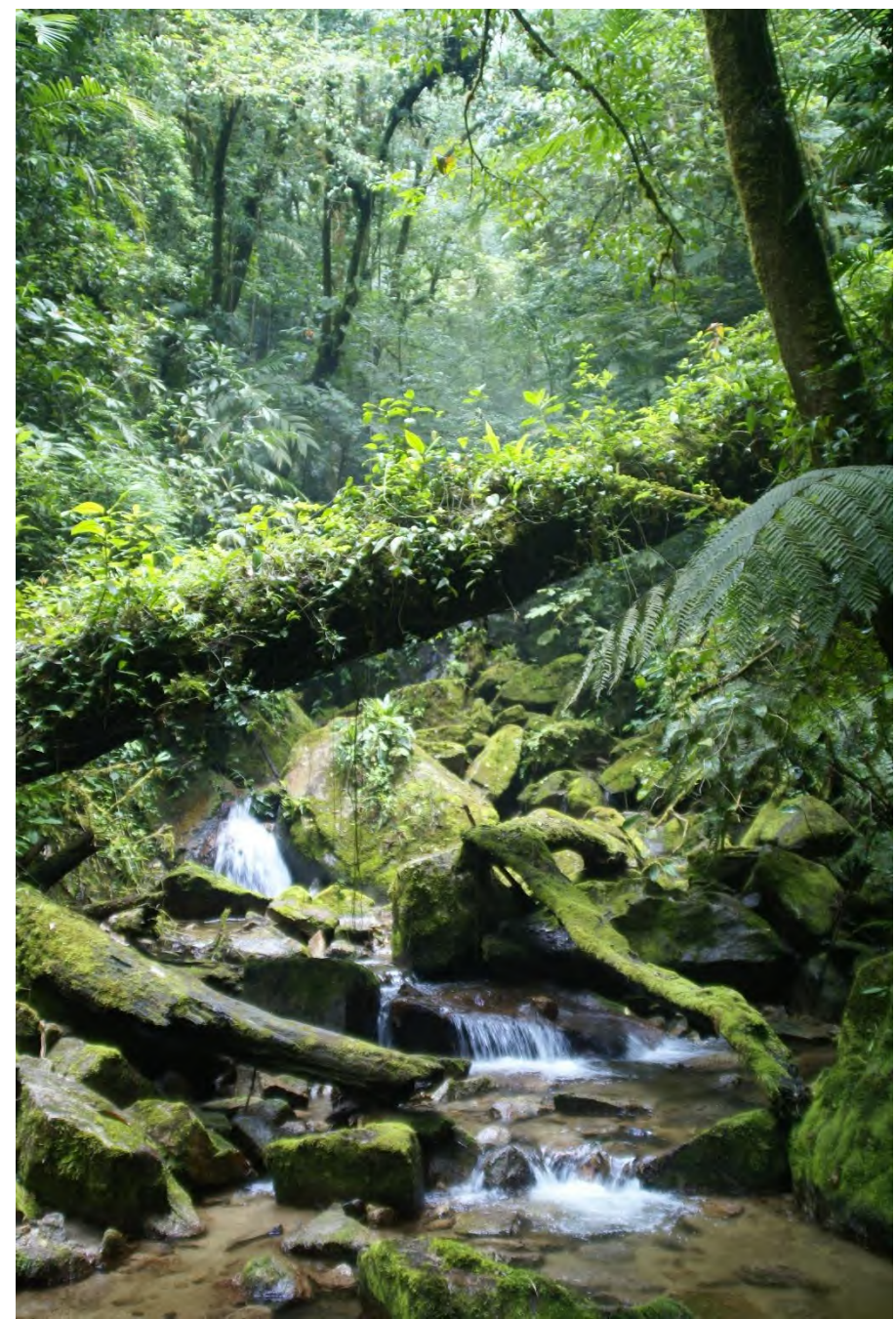
CNP (Honduras), a long time ago...

Honduras – CNP

BINCO invertebrate surveys building on ongoing initiatives

- Longhorns (LT, hand collecting)
- Dragonflies (hand collecting)
- Ants (pitfall, Winkler, litter sieving, hand collecting)
- Leafbeetles (LT, hand collecting)

- Spingidae & Saturnidae (LT)
- Jewel scarabs (LT)
- Syrphidae (Hand collecting)
- Butterflies (handcollecting)



Longhorns (Cerambycidae) (CNP)

- Light trap & hand collection
- 82 species
- Reference collection
- 14 new country records
- 5 (7) + species new to science
- Next steps (distribution, ecology, DNA, etc...)



5 New species Cerambycidae from CNP

1. *Derobrachus cusucoensis* Santos, Mal, Van Roie & Jocque 2018

2. *Heterachthes caceresae* (Cerambycinae, Neoibidionini) Santos et al. 2021

This species is named after Berta Isabel Cáceres Flores (Berta Cáceres for short) who supported indigenous communities and was an active opponent of illegal logging and mass plantations. She was murdered at her home in March 2016.

3. *Oreodera kawasae* (Lamiinae, Acrocini) Santos, Van Roie & Jocque 2021

Blanca Jeannette Kawas Fernández (Jeanette Kawas for short) in honor of her never-ending efforts to conserve the fauna and flora of Honduras. She co-established the Prolansate Foundation, which is still committed to protecting the environment while improving the quality of life of the local communities. Jeanette was murdered at her home in February 1995.

4. *Phrynidius guifarroi* (Lamiinae, Apomecynini) Santos, Van Roie & Jocque 2021

This species is named after Mario Guifarroi from Olancho, Honduras, a hunter and gold miner who turned into a dedicated conservationist when he experienced the degradation of rainforests in eastern Honduras. He was murdered in Moskitia in 2007 while setting up a protected forest zone.

5. *Strangalia lunai* (Lepturinae, Lepturini) Santos, Van Roie & Jocque 2021

This species is named after Carlos Antonio Luna Lùopez (Carlos Luna for short), former director of La Unidad Ambientalista (UMA) and environmental activist. He was murdered in Catacamas, May 1998.



Field guide longhorns (CNP)

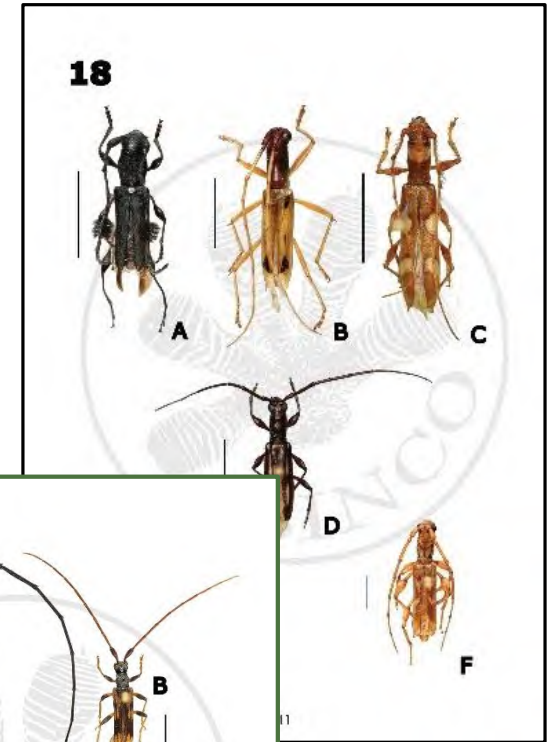
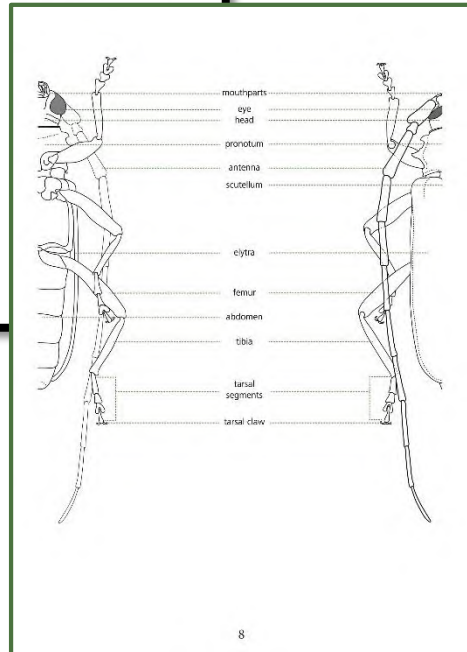
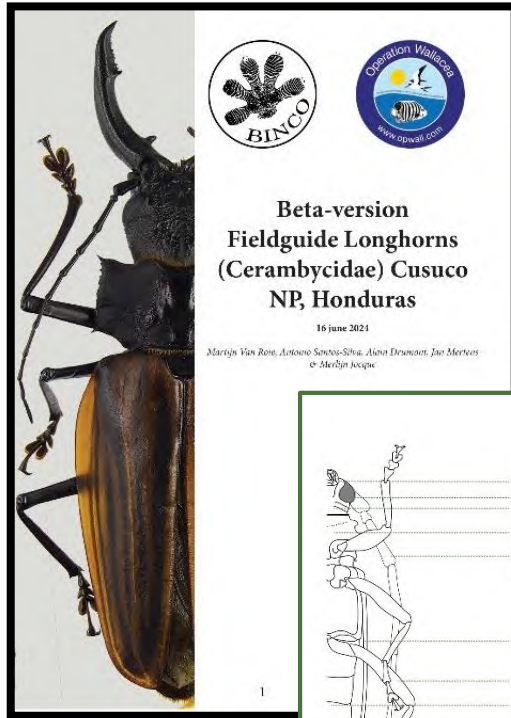


Plate 4 - Disteniidae

***Disteniactea pilati* (Chevrolat, 1857)** **Plate 4A**
Large (75 mm) and elongated longhorn with a characteristic pattern of black spots on yellowish-white elytra. Antennae and legs black. Pronotum with a blunt spine on each side.

***Distenia rugicapsis* Bates, 1885** **Plate 4F**
Medium sized (30 mm), elytra metallic blue most pronounced at edges with well defined spines at the elytral apex. First antennal segment is dark. Remainder of antennae and legs orange. Pronotum with spine on each side. Resembles *Elytrimitatrix pictipes* but the latter lacks a spine at the apex of each elytron.

***Novantinoe agriloides* (Bates, 1885)** **Plate 4G**
Medium sized (25 mm), darkly coloured species with reddish antennae, banded legs and zigzag pattern on elytra. Pronotum black with a blunt spine on each side. Two well defined spines at the elytral apex. Resembles *N. fulvopicta*, but elytral pattern and bands on legs slightly differ between the two species. See the figures to compare.

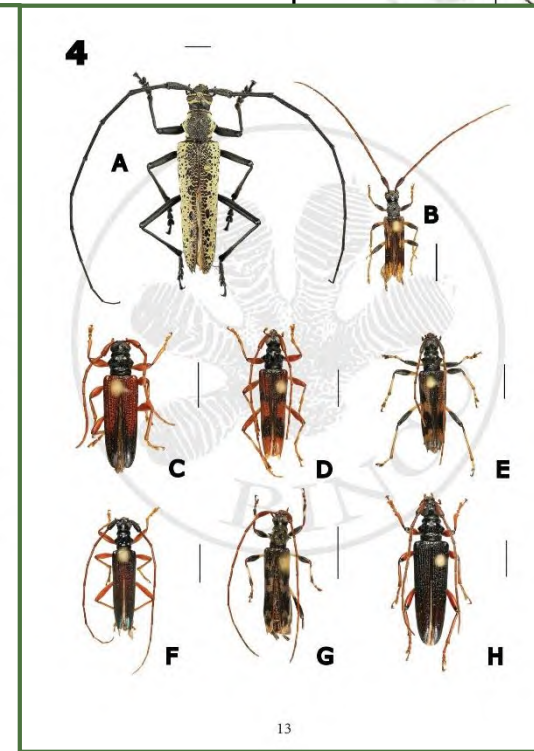
***Novantinoe fulvopicta* (Bates, 1885)** **Plate 4E**
Medium sized (35 mm), darkly coloured species with reddish brown antennae, banded legs and zigzag pattern on elytra. Pronotum black with a blunt spine on each side. Two well defined elytral spines at the apex. Resembles *N. agriloides*, but elytral pattern and bands on legs slightly differ between the two species. See the figures to compare.

***Novantinoe thomasi* Santos-Silva & Hovore, 2007** **Plate 4D**
Medium sized (35 mm), red and black species with banded pattern on elytra. Antennae red. Pronotum black with a spine on each side. Elytra is deeply punctuated at base, but punctuation fading towards elytral apex. Two well defined elytral spines at the apex. Resembles *Elytrimitatrix pictipes*, but the latter lacks elytral spines and does not have a banded pattern on the elytra.

***Elytrimitatrix guatemalana* Santos-Silva & Hovore, 2008** **Plate 4B**
Medium sized (25 mm), species with yellow and black elytral pattern and reddish brown antennae. Pronotum black with a spine on each side. Femora with a dark band. Elytral apex without spines. Resembles both *Novantinoe agriloides* and *N. fulvopicta*, but *E. guatemalana* lacks spines at the elytral apex.

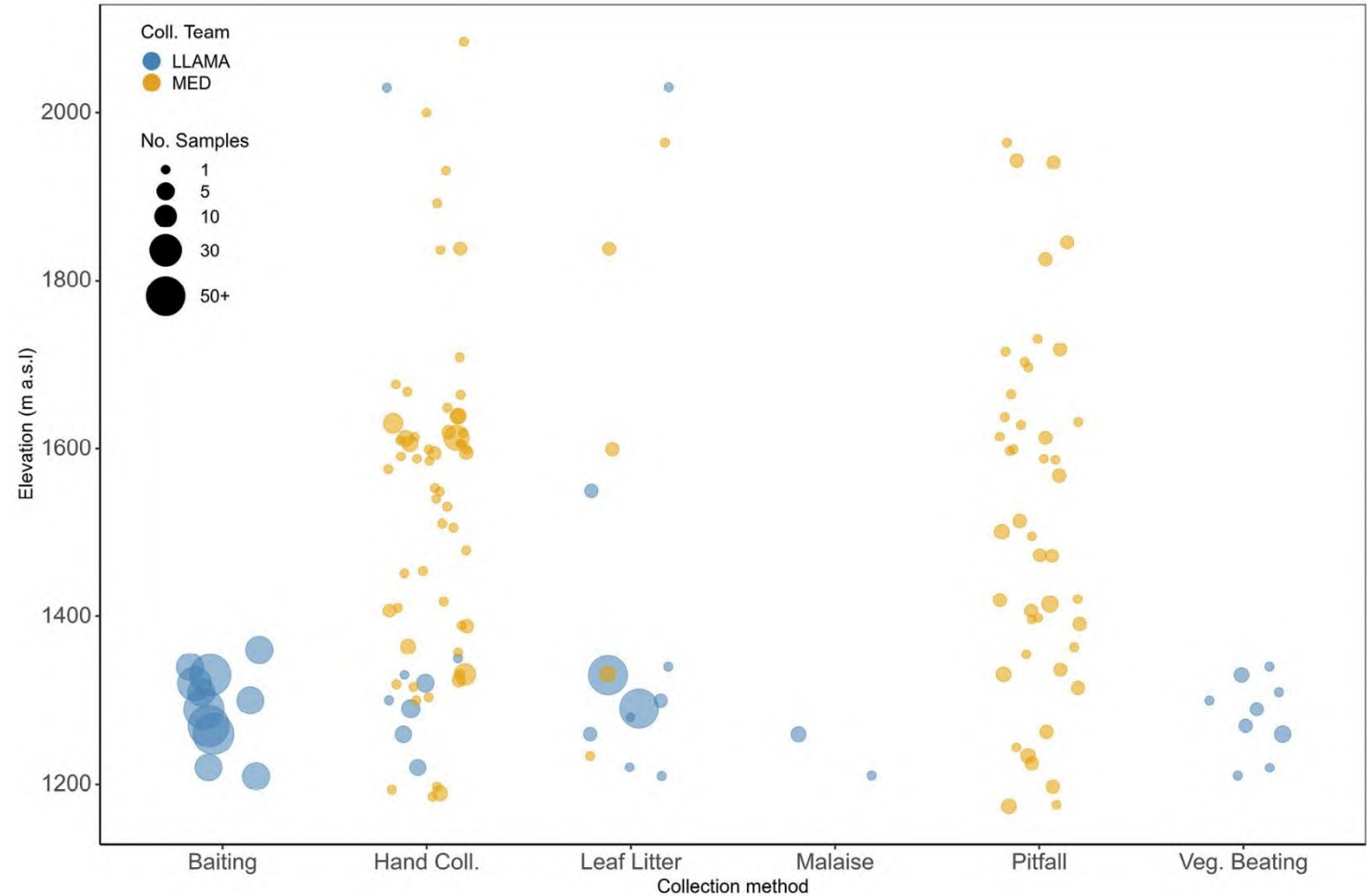
***Elytrimitatrix pictipes* (Bates, 1885)** **Plate 4C**
Medium sized (25 mm), species with dark head and pronotum. Pronotum black with a spine on each side. Legs reddish brown. Elytra punctuated, getting more faint towards the apex. Resembles *Distenia rugicapsis* and *Novantinoe thomasi*. However, the elytral apex of *E. pictipes* is simple, not bearing spines.

***Elytrimitatrix setosa* Santos-Silva & Hovore 2008** **Plate 4H**
Medium sized (40 mm), black to dark brown species with red to reddish brown appendages. Resembles some species of *Callihermus*, but the latter are bigger and lack the ciliated groove in the middle tibia, placing it in Cerambycidae instead of Disteniidae.



Ants (CNP) – Myrmecodex

- 5690 ants processed, grey literature
- Ant species checklist for CNP,
- First ant checklist for Honduras in over a century.
- 162 ant species belonging to nine subfamilies and 60 genera.
- Five species recorded for the first time in Honduras:
- For the first time, male individuals are reported in *Pheidole balatro* Longino, 2019.



Dragonflies (CNP)

- 44 species (Jocque & Garrison 2022, Ortega-Salas et al. 2022)
- 7 new country records
- Three new species

Palaemnema lorea Jocque & Garrison 2022

Paraphlebia kukulkan Jocque & Ortega-Salas 2022

Paraphlebia itzamna Jocque & Ortega-Salas 2022

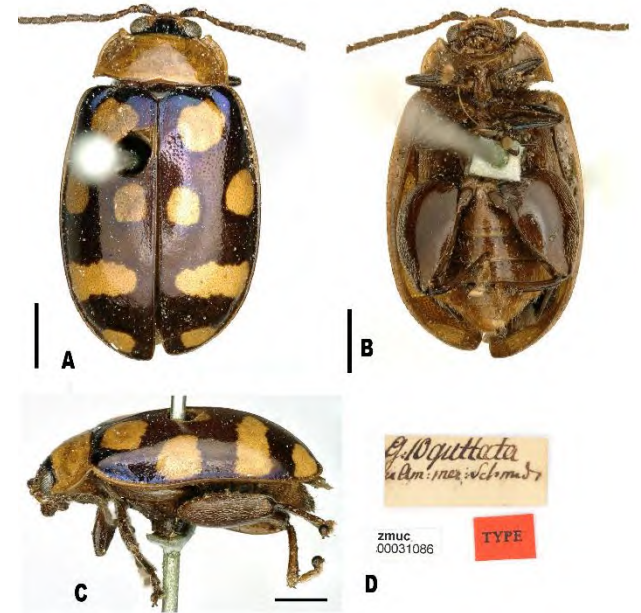
- Ecological observations for most species
- First description of female (*Amphipteryx meridionalis*)
- Next steps:
 - Field guide
 - Larvae (link molecularly)
 - Ecology, distribution, ...



Philogenia strigilis

Leaf beetles (CNP)

- Chrysomelidae
- 30 species recorded from CNP
- Multiple new species (need more material), 2 *Walterianella* sp. *In prep* (Van Roie et al.)
- Host plant information



CNP future research directions

- Dung beetles? Sphingidae and Saturnidae?
- Jewel scarabs
- Butterflies (Standardisation, link with other sites)
- Click beetles (Elateridae)
- Aquatic invertebrates (insects, crabs, development of a biotic index – rare pre-fish/exotic - PhD)
- Spider communities (challenge arboreal)



Chrysina karschi

Mariarano – a slow start

- Light trapping
- Pitfall trapping
- Scorpions
- Butterfly baiting



Spiders (Mariarano) - SpiDiverse

- Timed searches
- 2024 extended, new standardised methodology (timed search in small plots, multiple search methods, day and night, replicated in 5 habitat types)
- Characterisation of spider communities
- Towards a definition of spider communities (test in OPWALL, broadly applicable?)
- Proxy for biodiversity, ecological quality (high diversity)? Functional traits, monitoring.



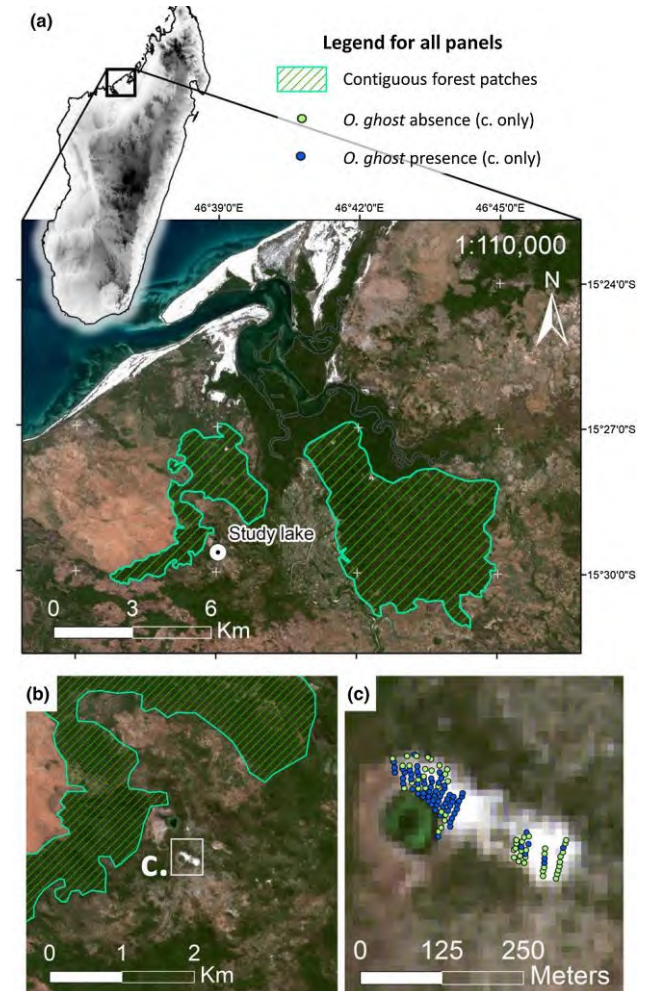
Evarcha tsipikafotsy n. sp.

Spiders (Mariarano)

- 250 (morpho-)species from Mariarano
- 6 new for science described (Jocque et al. 2017, Murray et al. *in press*, Escobar-Toledo & Pett), 12 more identified and in preparation (1 new genus!), estimated 24 more.
- *Hippasosa (Ocyale) ghost* Jocque & Jocque 2017
- Large white wolf (GOT)
- Microhabitat selection & patch occupancy - Mohamed bin Zayed Species project (Pett Brogan)



Hippasosa (Ocyale) ghost Jocque & Jocque 2017



Pett & Bailey 2019

Dragonflies (Mariarano)

- 28 species of dragonflies (Jocque et al. 2021)
- Common species
- Aquatic invertebrates



Ischnura senegalensis

Butterflies (Mariarano)

- Transect surveys (500m) (Pollard walk)
- Replication (3)
- Five (six) habitat types (closed forest, disturbed forest/ forest margin, Grassland and river)
- Hesperidae and Lycaenidae collected



Other Opwall sites & opportunities

- Honduras (spiders, SpiDiverse), towards a standard for spider communities!?
- Croatia (57 butterfly species, 4 new to Krka NP)
- Mexico, related fauna to Honduras, CNP
- Sulawesi (ants, Myrmecodex)

Call for support and collaboration

- Reinforce BINCO working groups – supplemental funding (Museum visits (Oxford NHM!), contact time experts, increased interaction time)

Reflections & challenges

- Export permits (Protocol, timeline and agreements)
- Standardisation of protocols (over OPWALL sites, connection international initiatives)
- **Continuation** of data collections
- Data sharing (Open Science, data hub, prerequisite for research & collaboration)
- Contribute to (inter)national networks (iNaturalist,)



MAC STONE/BINCO

Thank you for the
fantastic collaboration!

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