

Current studies in Central American Anthribidae (Coleoptera: Curculionoidea)

The impressive diversity of fungus weevils in Panama

K. Samanta Orellana*, Héctor Barrios⁺



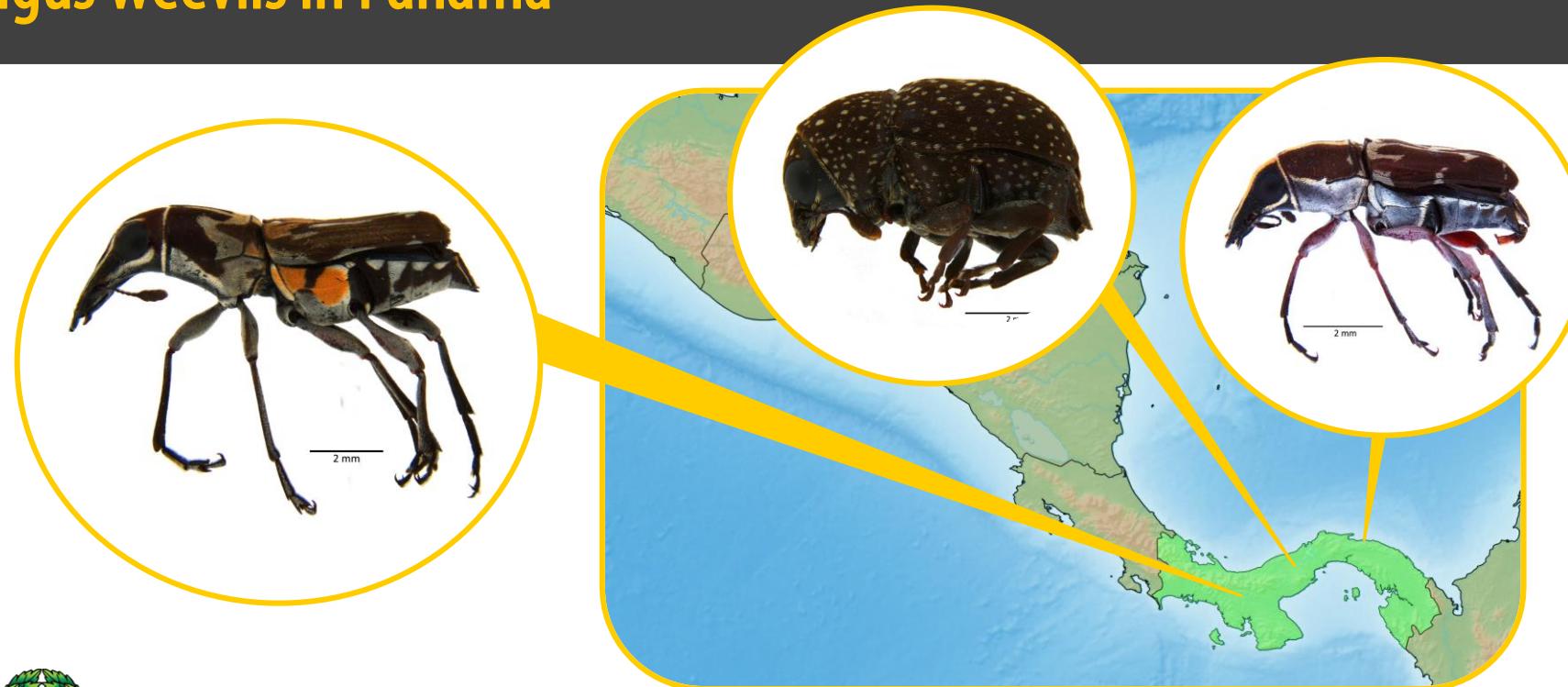
*Presenter

PhD Student/Research Assistant

Franz Lab of Weevil Systematics and Evolution

Arizona State University

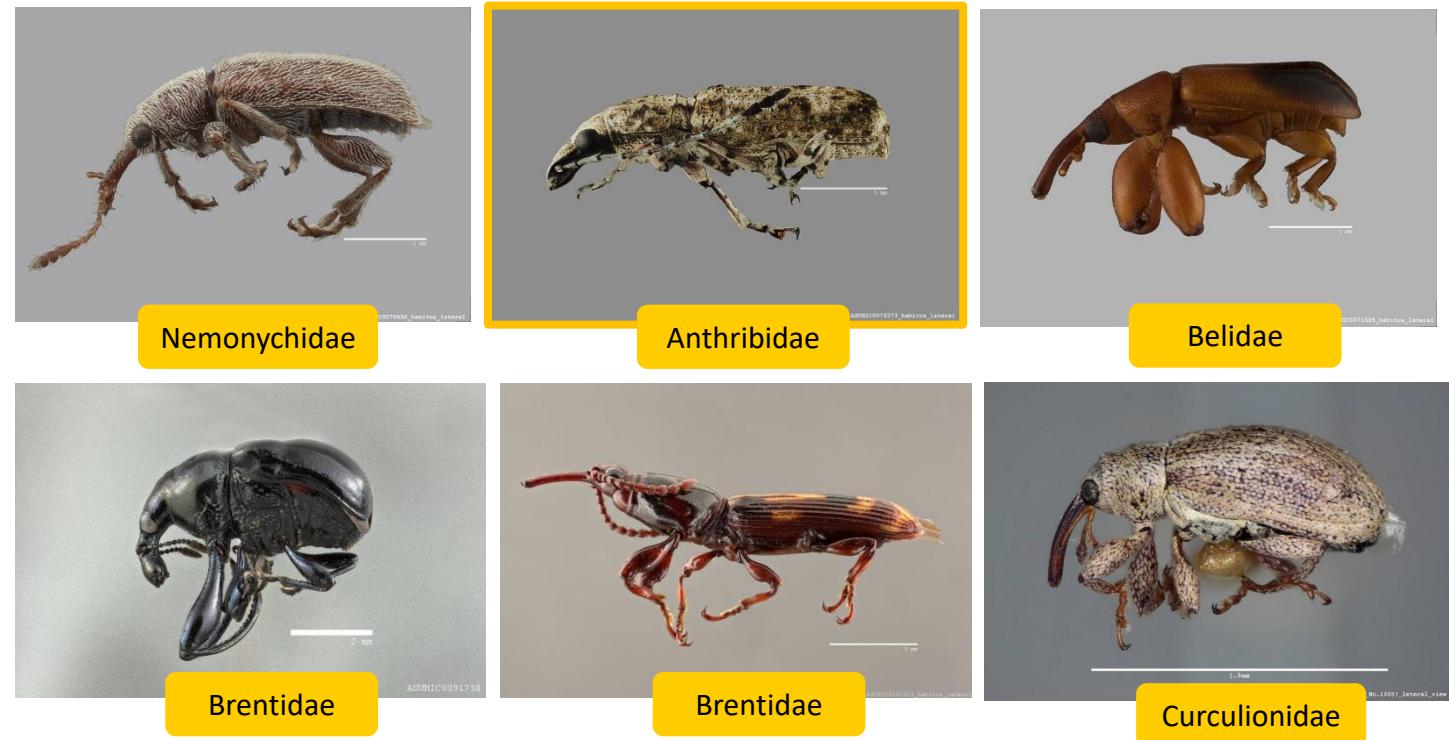
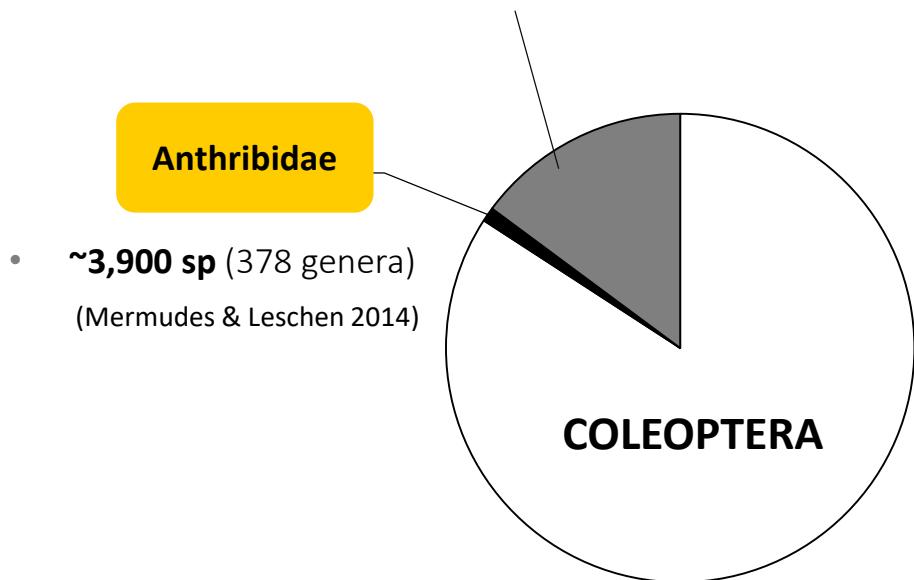
⁺Professor, Universidad de Panamá



Curculionoidea - Classification

ORDEN COLEOPTERA SUPERFAMILY CURCULIONOIDEA

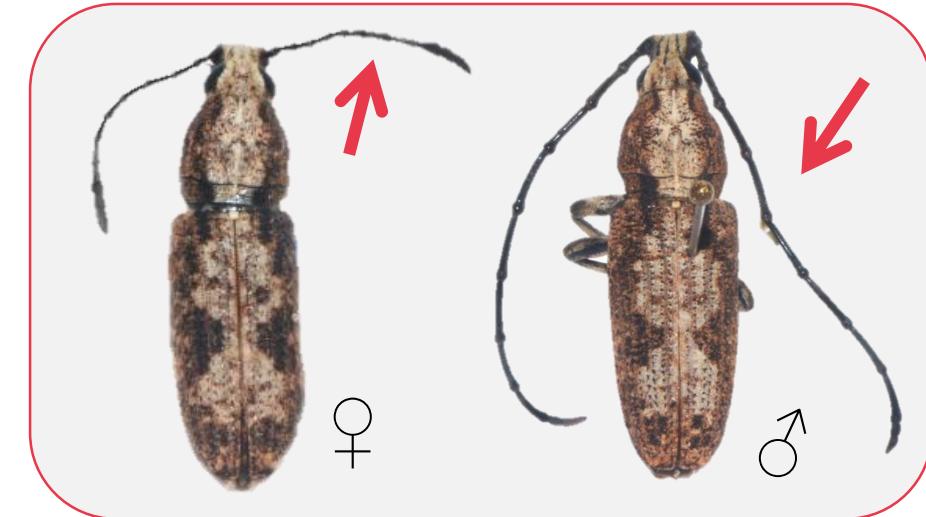
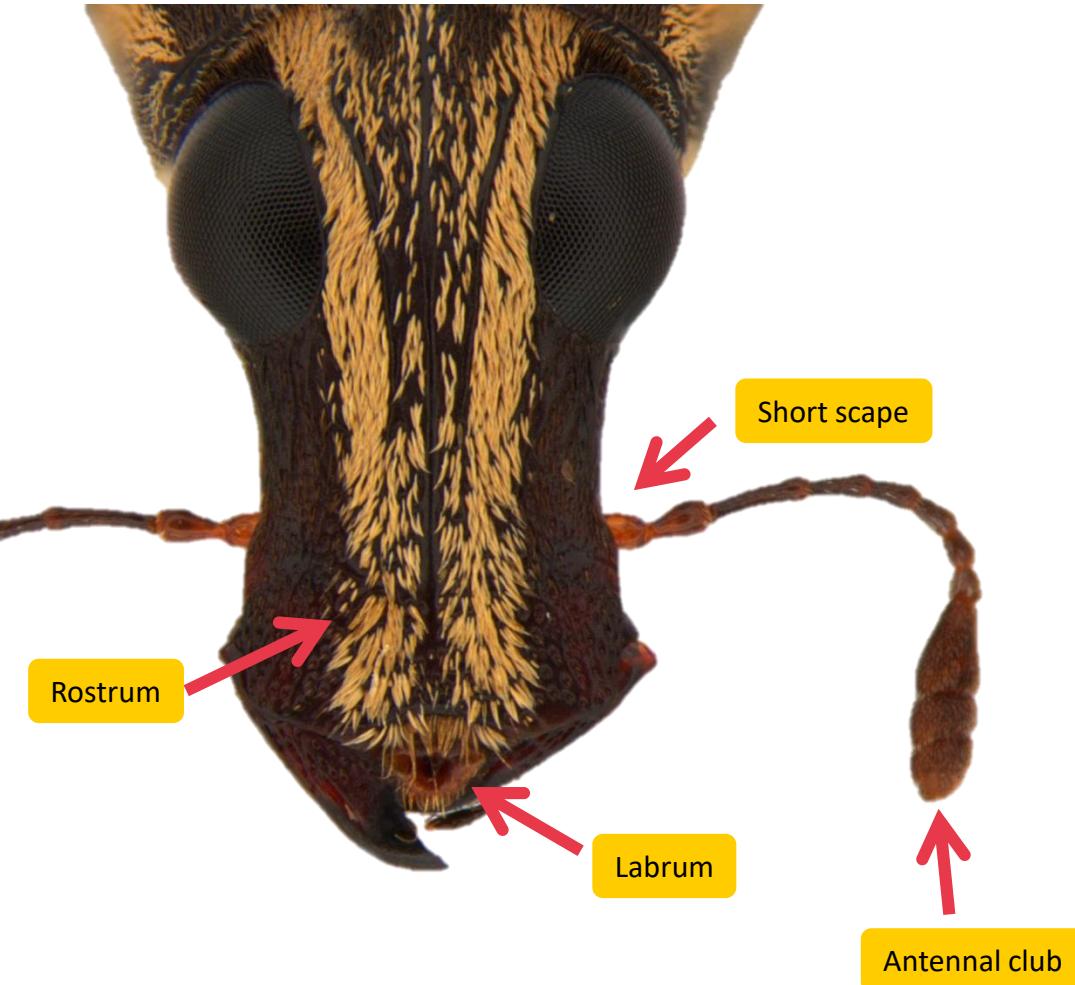
(62,000 species = ALL vertebrate species)



SCAN-Arizona State University- <http://scan-bugs.org/portal/collections/index.php>



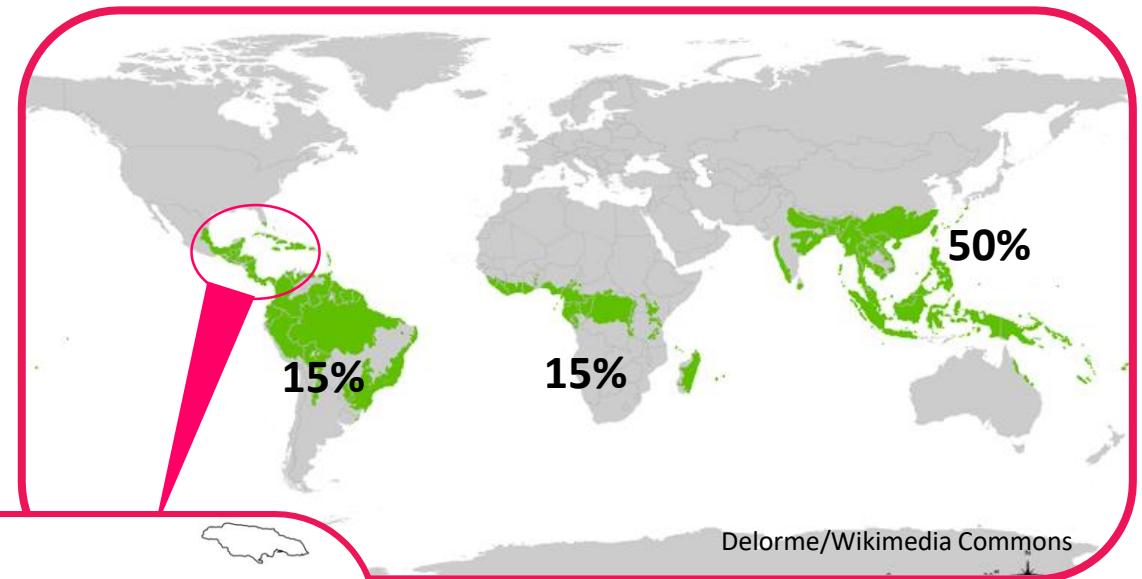
Anthribidae - Distinctive characters



Anthribidae - Distribution

Cosmopolitan group

- 80% of spp. in tropical rainforests
(Rheinheimer, 2004)



How many spp. in Panama?

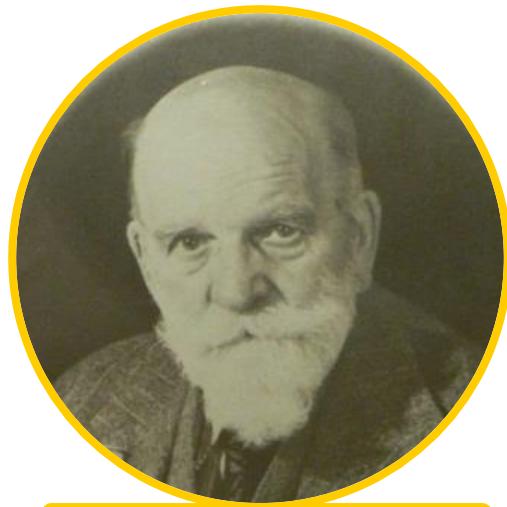


Anthribidae of Panama – Previous research

Literature review

90 spp. recorded for Panama

- 87 spp. – Jordan (1895, 1906, 1937)
- 2 spp. – Valentine, (1980, 1998)
- 1 spp. – Mermudes & Napp (2006)



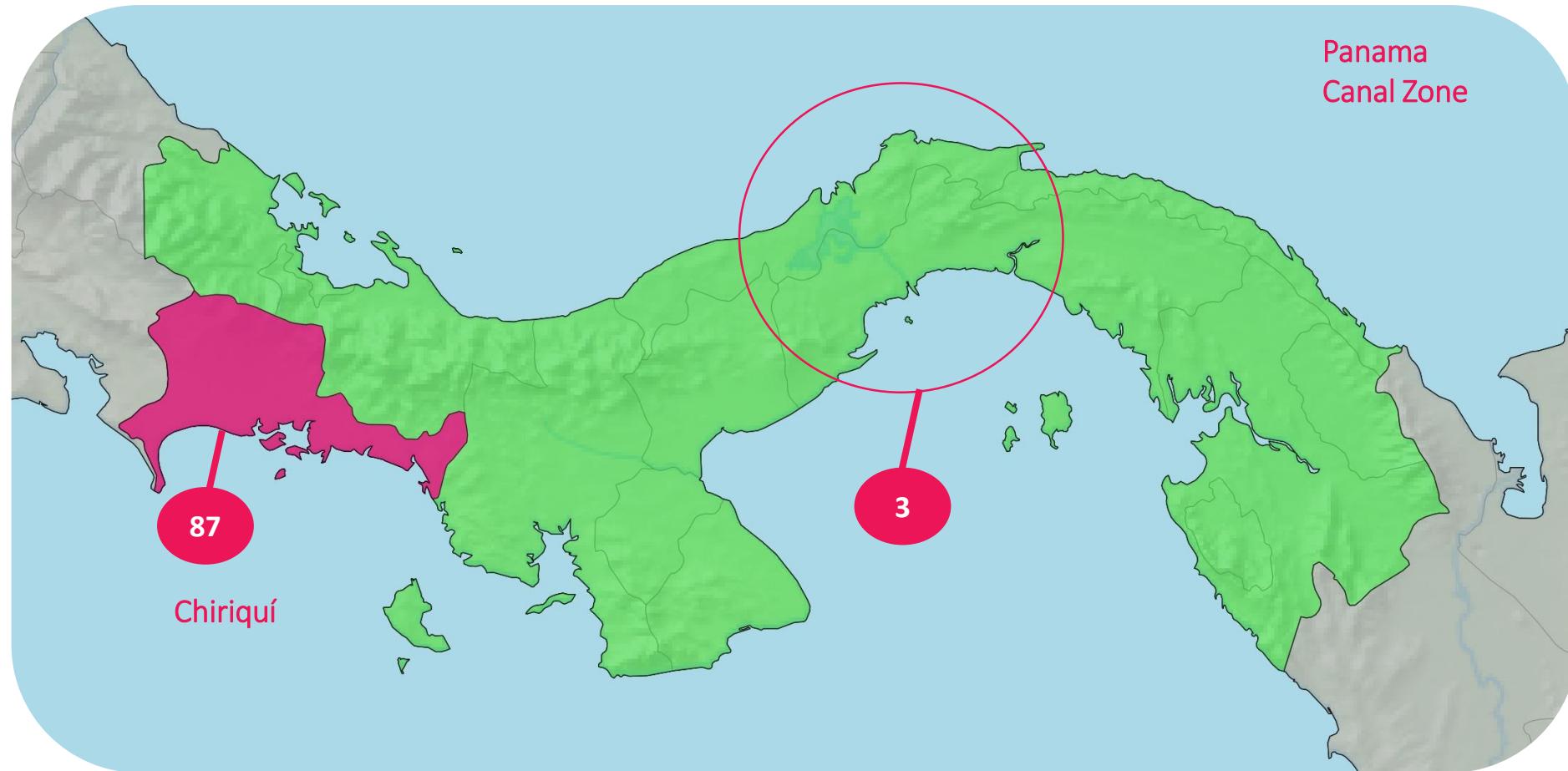
Dr. Karl Jordan



Rheinheimer, 2004



Anthribidae of Panama – Previous research



Anthribidae of Panama – Previous research

Field work



Barro Colorado Island

List of Species of Weevils Collected by Light Traps in Seven Localities in Panama

(BCI = Barro Colorado Island, LCC = Las Cumbres, MIR = Miramar, CGR = Corriente Grande, BOQ = Boquete, FOR = Fortuna, GUA = Guadalupe Arriba.)

TAXON	BCI	LCC	MIR	CGR	BOQ	FOR	GUA
ANTHRIBIDAE							
1980a Anthribidae	18	-	-	-	-	-	-
2071 Anthribidae	11	-	-	-	-	-	-
2688 Anthribidae	1	-	-	-	-	-	-
2881 Anthribidae	1	-	-	-	-	-	-
2883 Anthribidae	11	-	-	-	-	-	-
2896 Anthribidae	1	-	-	-	-	-	-
2941 Anthribidae	5	-	-	-	-	-	-
2943 Anthribidae	1	-	-	-	-	-	-
2956 Anthribidae	1	-	-	-	-	-	-
2961 Anthribidae	5	-	-	-	-	-	-
2962 Anthribidae	4	-	-	-	-	-	-
2972 Anthribidae	3	-	-	-	-	-	-
2987 Anthribidae	1	-	-	-	-	-	-
2994 Anthribidae	4	-	-	-	-	-	-
3021 Anthribidae	4	-	-	-	-	-	-
3022 Anthribidae	1	-	-	-	-	-	-
3044 Anthribidae	7	-	-	-	-	-	-
3047 Anthribidae	1	-	-	-	-	-	-
3048 Anthribidae	2	-	-	-	-	-	-
3109 Anthribidae	1	-	-	-	-	-	-
3112 Anthribidae							
3119 Anthribidae							
3126 Anthribidae							
Anthribidae							

Wolda, O'Brien, Stockwell, 1998



Anthribidae of Panama – New research

Collections work



30 years of
weekly samples



Panamanian collections



Anthribidae of Panama – New research

Collections work



ASU collections



NMNH collections

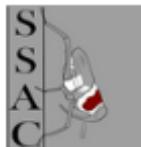
ASU Biodiversity Knowledge
Integration Center
Arizona State University



ASUCOB



ASU
HIC




Smithsonian
National Museum of Natural History

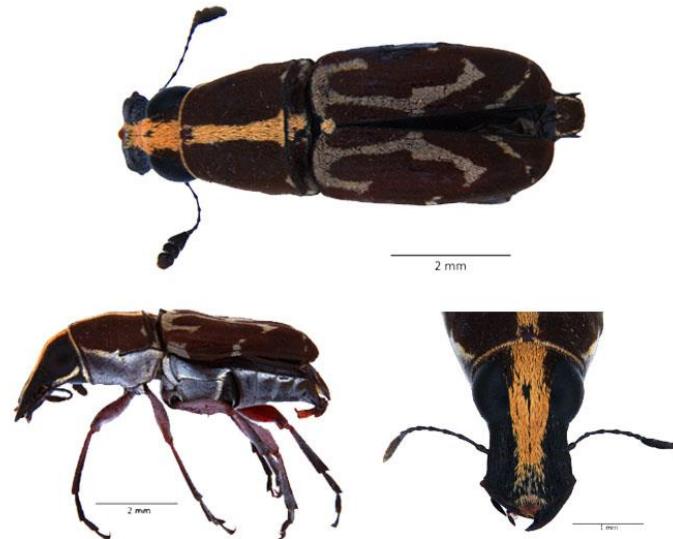


Anthribidae of Panama – New research

Collections work

1174 specimens identified

- Identifications with descriptions and keys
- Specimens compared with type material
- Representative species were imaged



Anthribidae of Panama – New research

Entomological databases



scan-bugs.org



serv.biokic.asu.edu/ecdysis



Anthribidae of Panama – New research

Key to Panamanian genera

- Based on previous keys and new observations
 - Jordan (1906)
 - Valentine (1960, 1998)



Tofilsky (2018)

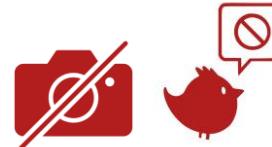
Key to the genera of Anthribidae of Panama

The following key is partially based on Jordan (1906) and Valentine (1960, 1998, 2002). The characters described may vary in species not recorded from Panama.

1. Antennal insertion dorsal (Fig. 80), close to the lower portion of the eyes; scape bent and asymmetrical; club never 4-articulate (SUBFAMILY CHORAGINAE)..... 2
- 1'. Antennal insertion lateral (Fig. 81), or if dorsal, far from the lower portion of the eyes and antennal club 4 articulate; scape symmetrical (SUBFAMILY ANTHRIBINAE)..... 5

SUBFAMILY CHORAGINAE

- 2(1). Eyes elongate-oval, with the upper edges closer than the lower, making frons narrower in the upper portion (Tribe Choragini)..... 3
- 2'. Eyes rounded, with the upper edges not closer than the lower, frons not narrower in the upper portion (Tribe Araecerini)..... 4



Anthribidae of Panama – Results

Catalogue of the Anthribidae (Coleoptera: Curculionoidea) of Panama, including new country records and a key to genera

K. SAMANTA ORELLANA^{1,2} & HÉCTOR BARRIOS¹

¹Programa Centroamericano de Maestría en Entomología, Universidad de Panamá. Estafeta Universitaria, Apartado 3366, Ciudad de Panamá, Panamá. E-mail: hector.barriosv@up.ac.pa.

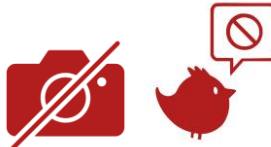
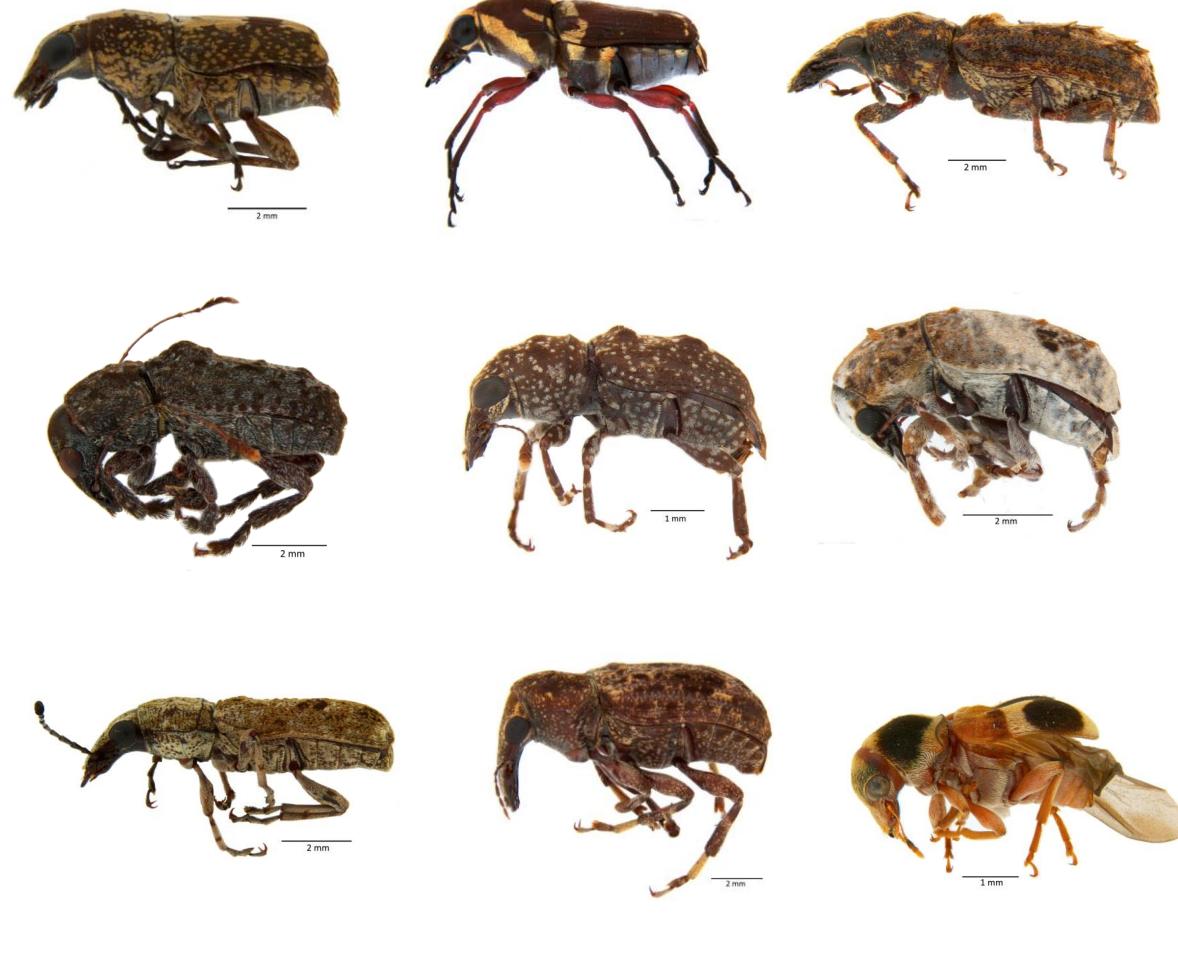
²School of Life Sciences, Arizona State University, Tempe, Arizona. E-mail: sorellana@asu.edu

¹Corresponding author.

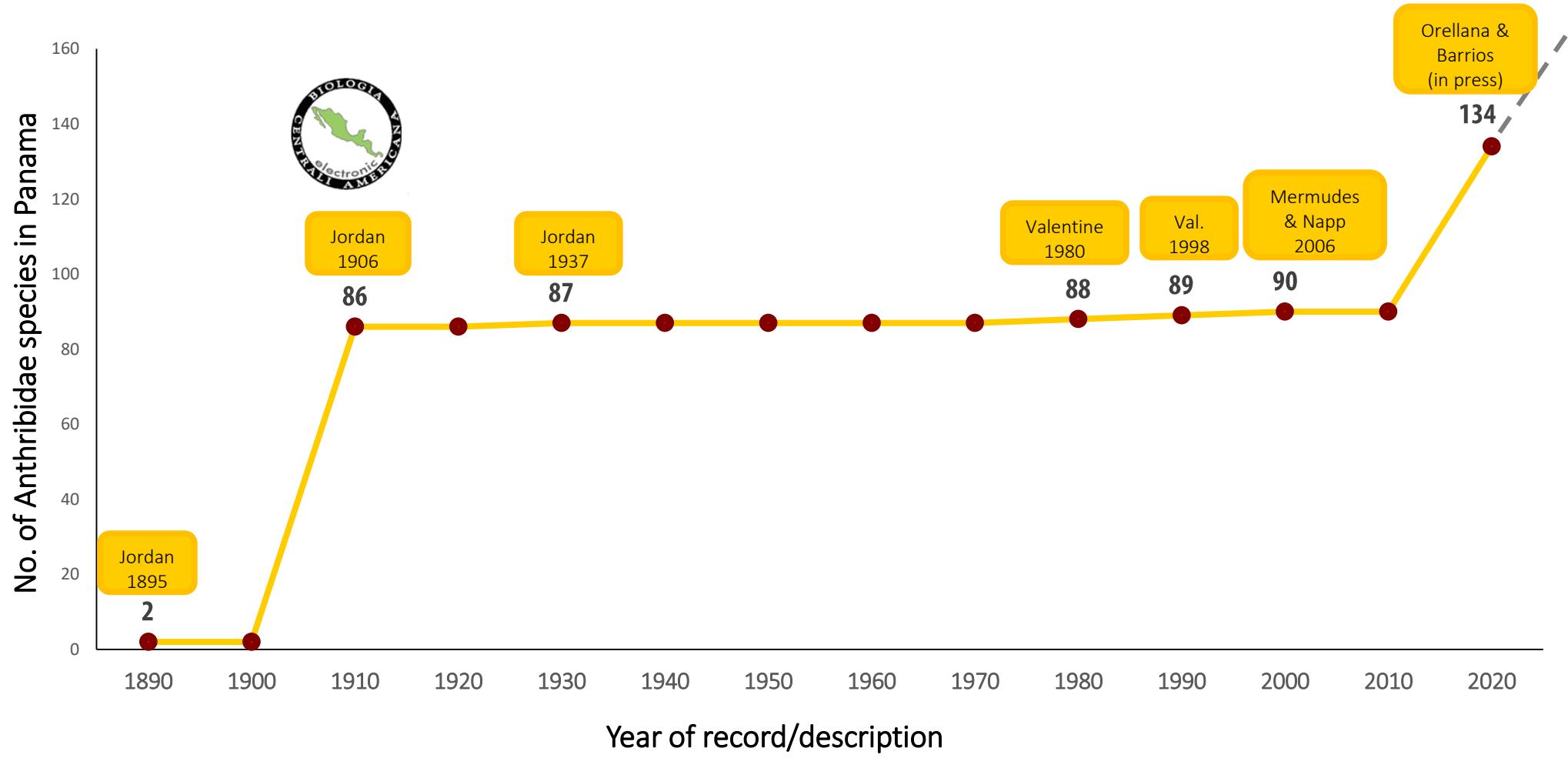
Orellana & Barrios (in press)

134 species for Panama

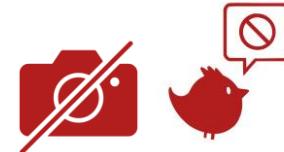
- 44 new country records (species)
- 3 new country records (genera)
- 2 subfamilies
- 14 tribes
- 30 genera



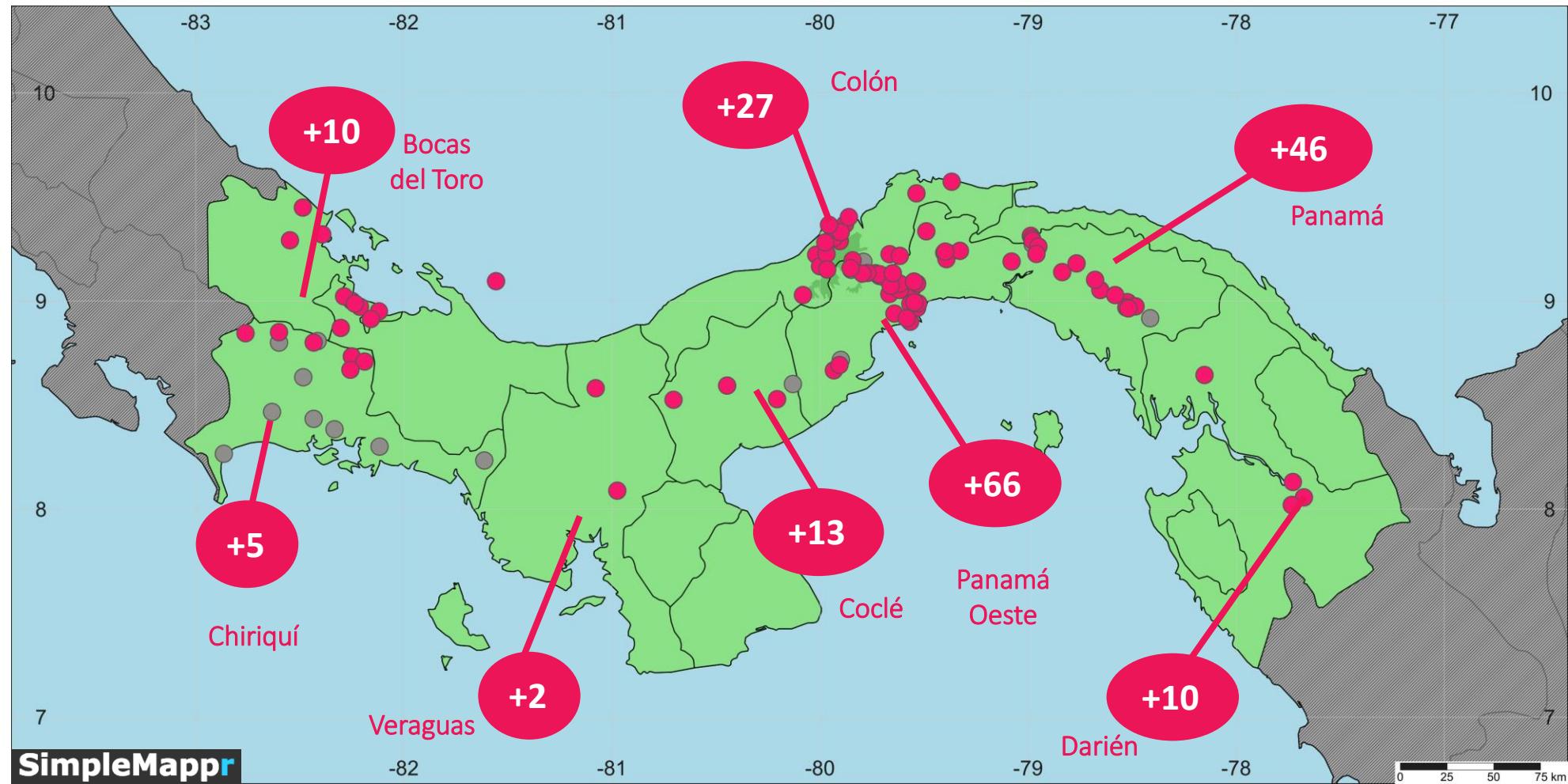
Anthribidae of Panama – Results



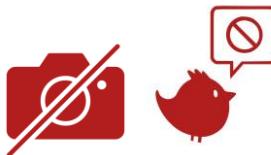
Orellana & Barrios (in press)



Anthribidae of Panama – New records



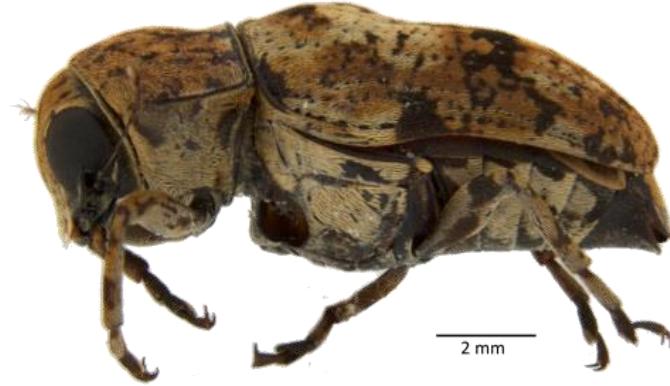
Orellana & Barrios (in press)



Anthribidae of Panama – New records



Eugonus Schoenherr
Eugonus subcylindricus Fahraeus



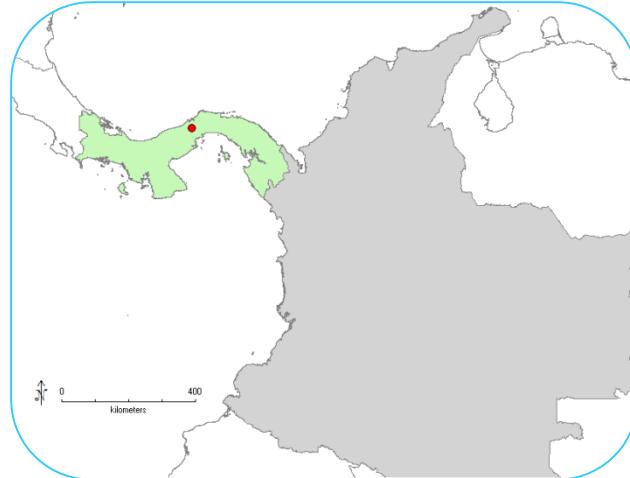
Corrhecerus Schoenherr
Corrhecerus hector Jekel



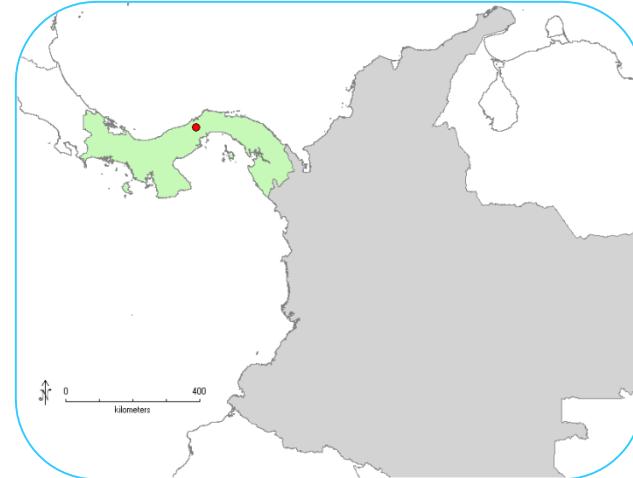
Anthiera Alonso-Zarazaga & Lyal
Anthiera oculata (Jordan)

Anthribidae of Panama – New records

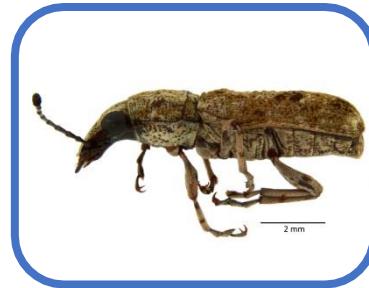
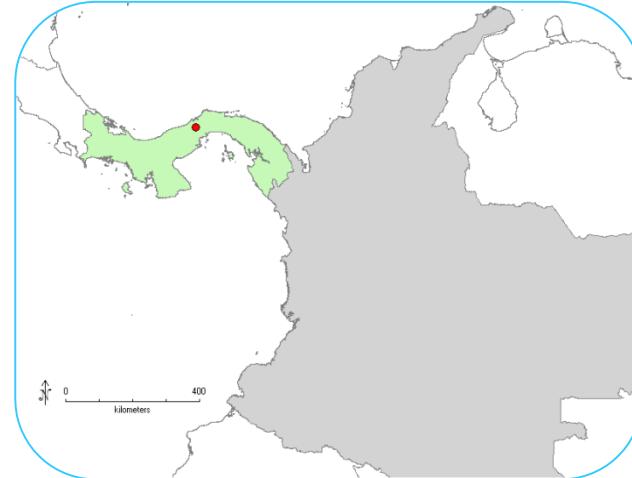
Gymnognathus daguanus Jordan, 1897



Piesocorynus brevis (Jordan, 1904)



Ptychoderes brevis Jordan, 1897

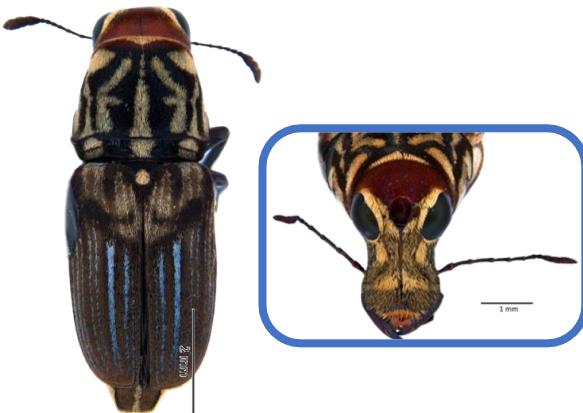


Orellana & Barrios (in press)



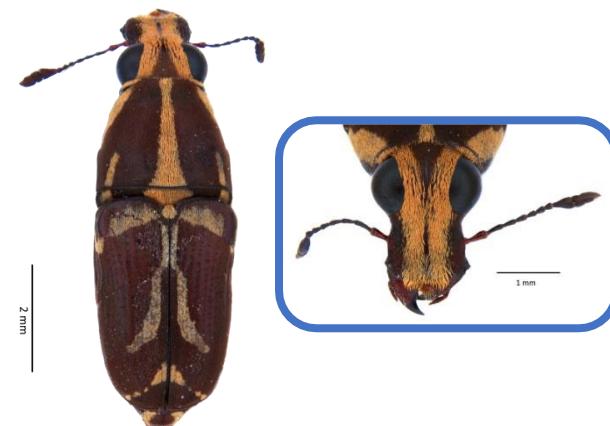
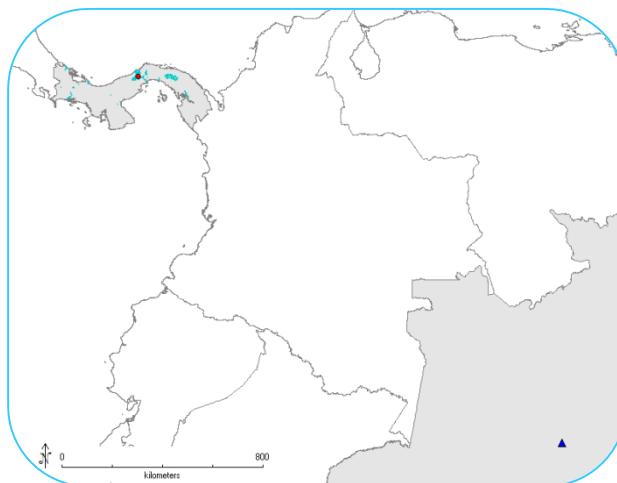
Anthribidae of Panama – New records

Gymnognathus coronatus Jordan, 1904

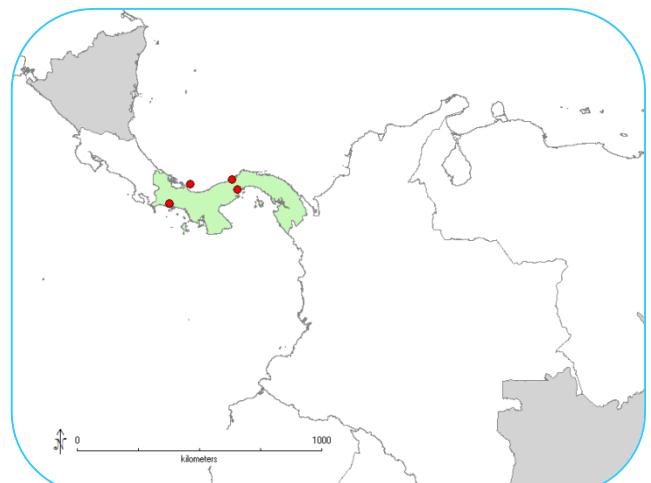


+ 38 more new country records

Gymnognathus lyrestes Jordan, 1937



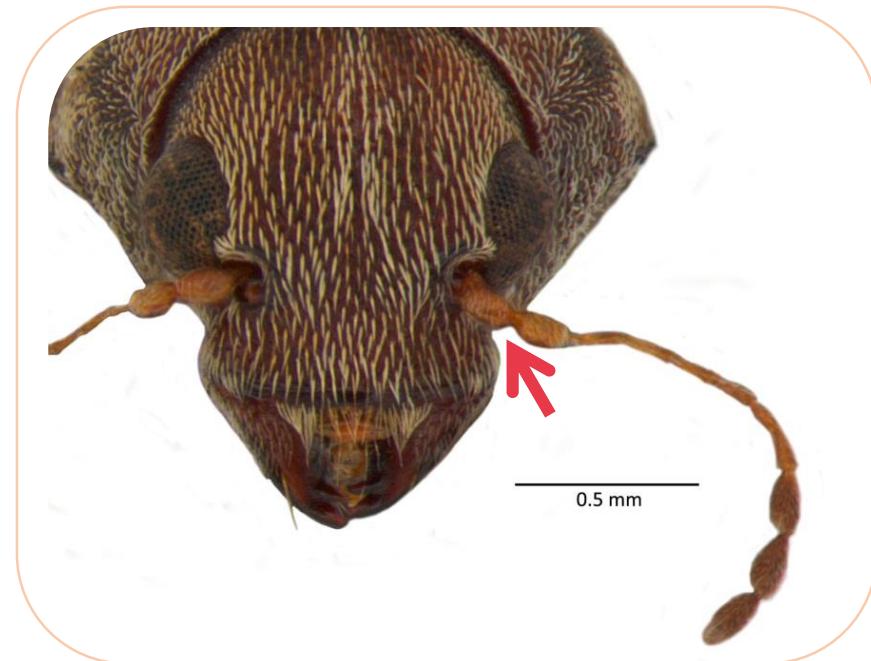
Euparius ajax (Jekel, 1855)



Anthribidae of Panama – Key to genera

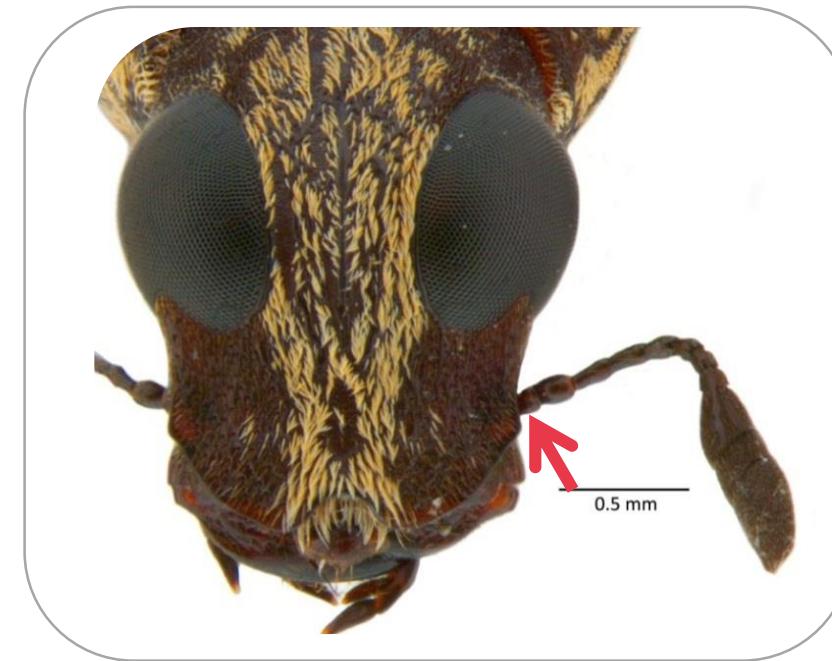
Key to Panamanian genera

30 genera included



CHORAGINAE

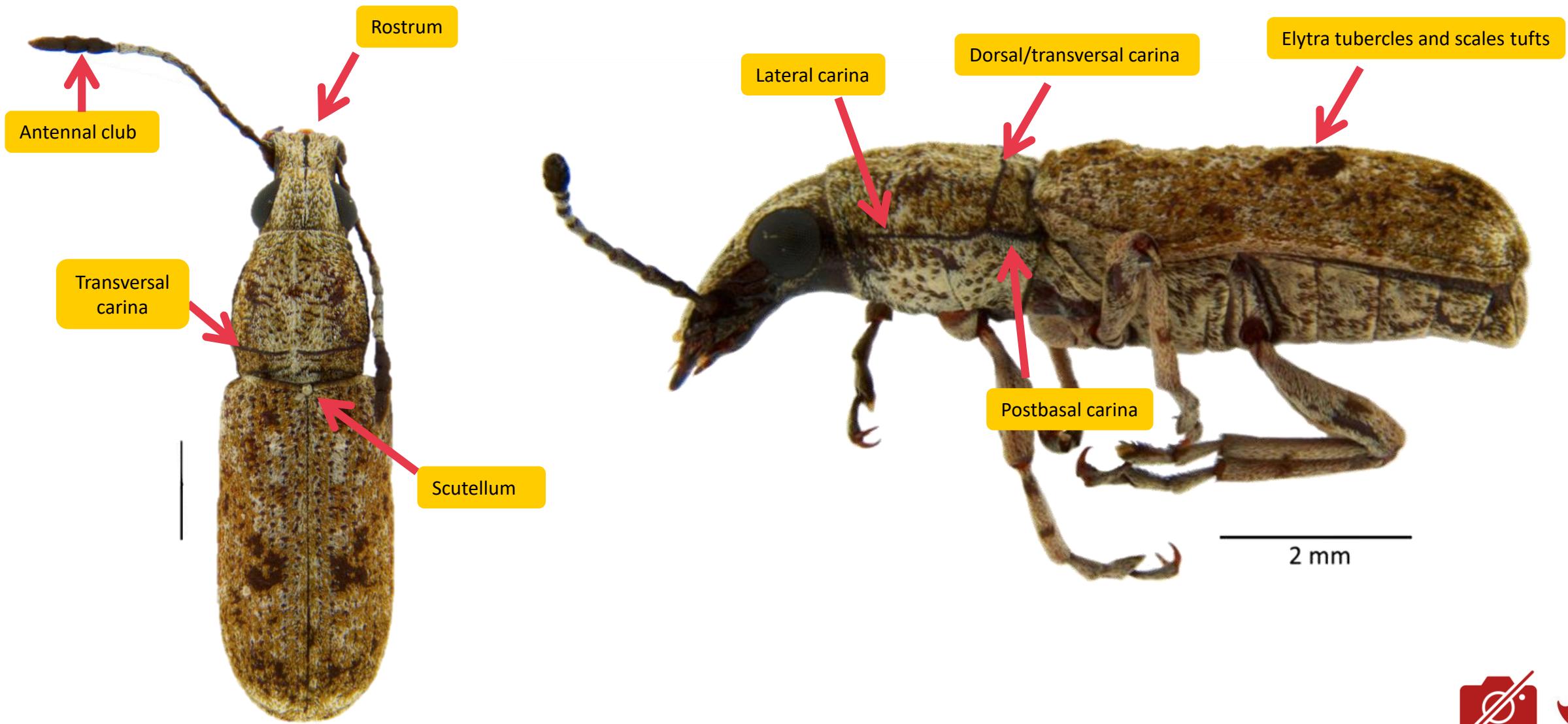
2 tribes, 4 genera, 7 spp.



ANTHRIBINAE

12 tribes, 26 genera, 127 spp.

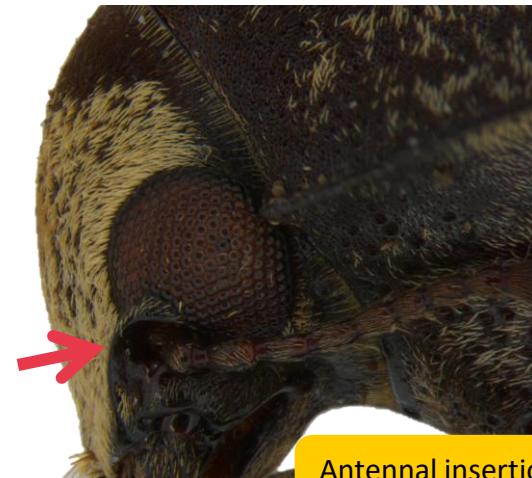
Anthribidae of Panama – External morphology



Anthribidae of Panama



Short rounded rostrum



Antennal insertion
enters the eye



Lateral carina complete

5 species

Several undescribed

Orellana & Barrios (in press)

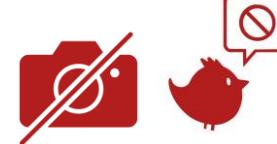
Tribe Basitropini



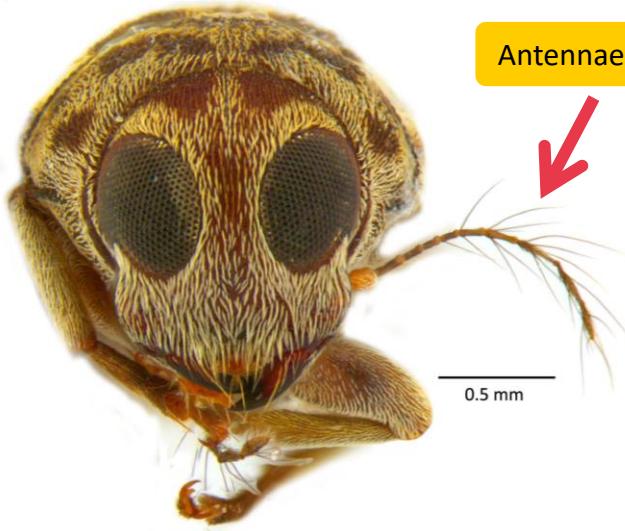
Eugonus Schoenherr



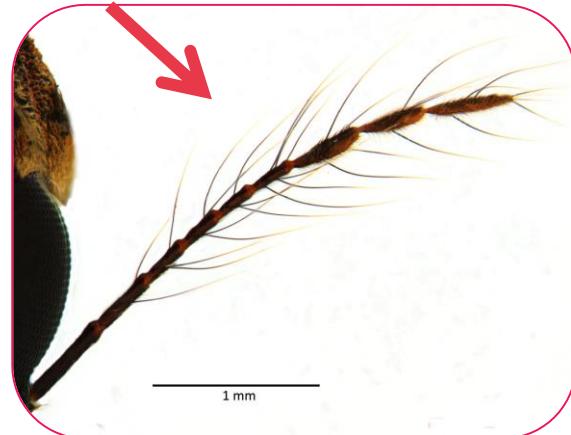
Eugonodes Jordan



Anthribidae of Panama



Antennae with long setae



Short rostrum



Antennal insertion
enters the eye

Orellana & Barrios (in press)

Tribe Corrhecerini



Nemotrichus Labram
& Imhoff



Corrhecerus Schoenherr

7 species



Anthribidae of Panama



Antennae without long setae

Incomplete lateral carina

Longer rostrum



Antennal insertion

Emarginated eyes

Tribe Basitropini



Phaenithon Schoenherr

Tribe Gymnognathini



! Confused with:

Gymnognathus Schoenherr



Anthribidae of Panama

NEW COUNTRY RECORD



Phaenithon albosparsus Labram & Imhoff

NEW COUNTRY RECORD



Phaenithon discifer Jordan

NEW COUNTRY RECORD



Phaenithon perfectus Jordan

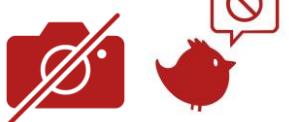
+5 species



Phaenithon curvipes (Germar)



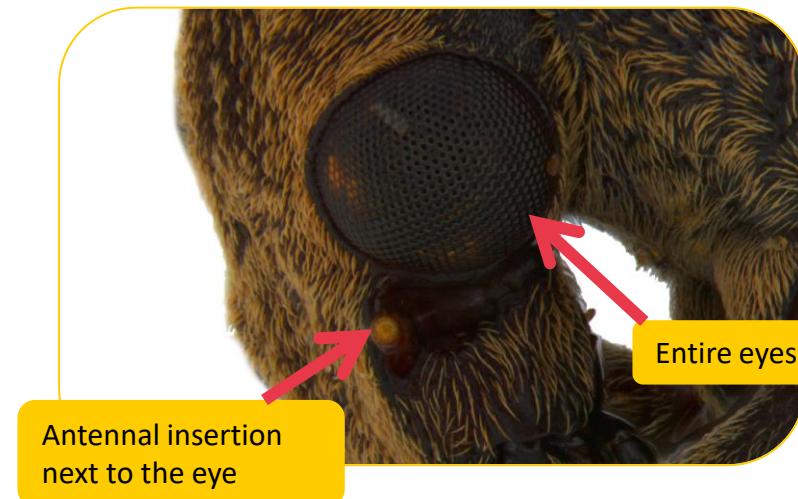
Phaenithon jucundus Jordan



Anthribidae of Panama

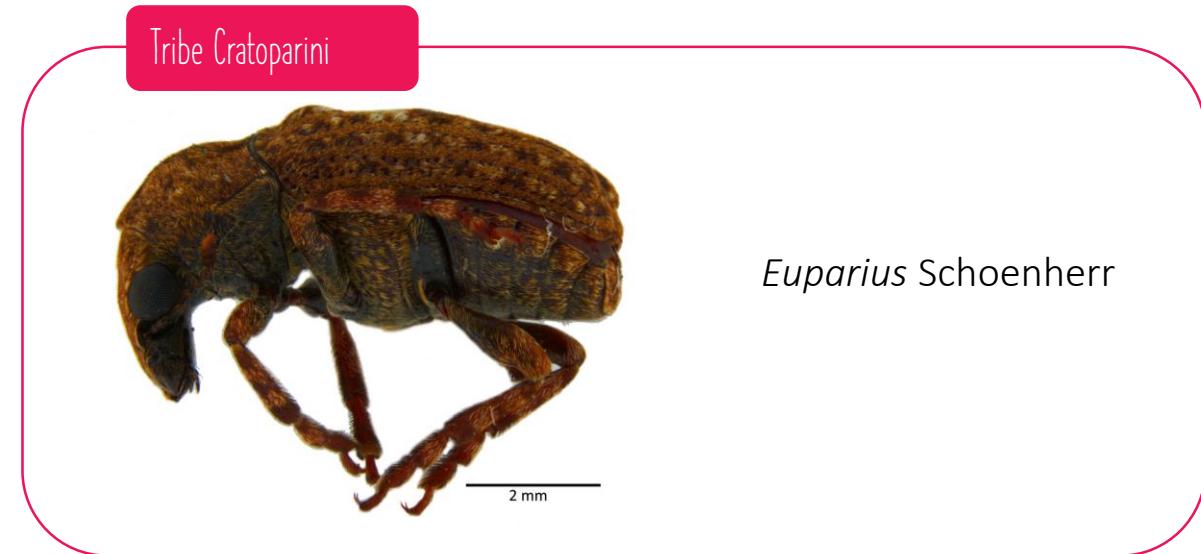


Longer rostrum



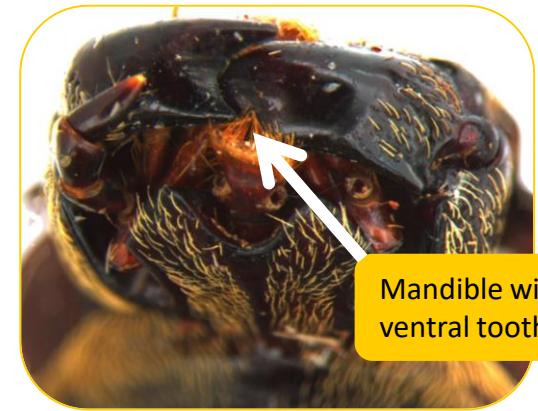
Antennal insertion
next to the eye

Entire eyes



Tribe Cratoparini

Euparius Schoenherr



Mandible with
ventral tooth

Anthribidae of Panama

NEW COUNTRY RECORD



Euparius ajax (Jekel)

NEW COUNTRY RECORD



Euparius clitelliger (Fahraeus)

NEW COUNTRY RECORD



Euparius stratus Jordan

NEW COUNTRY RECORD



Euparius suturalis Jordan

+5 species

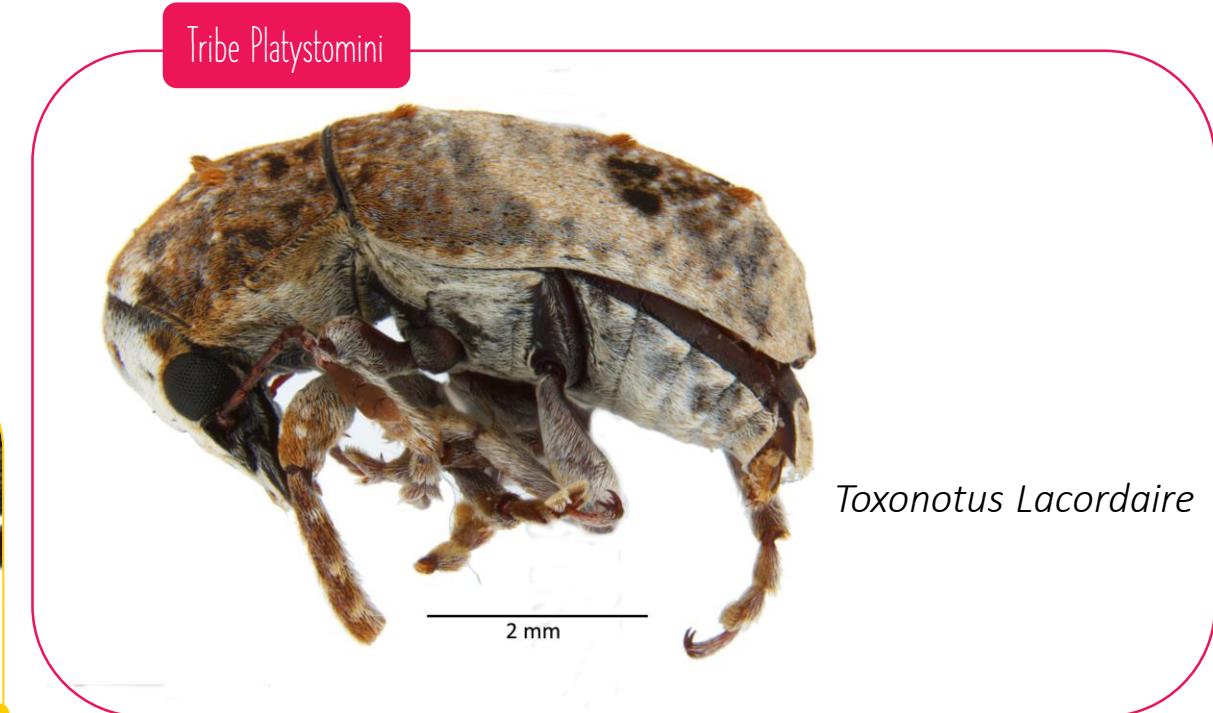
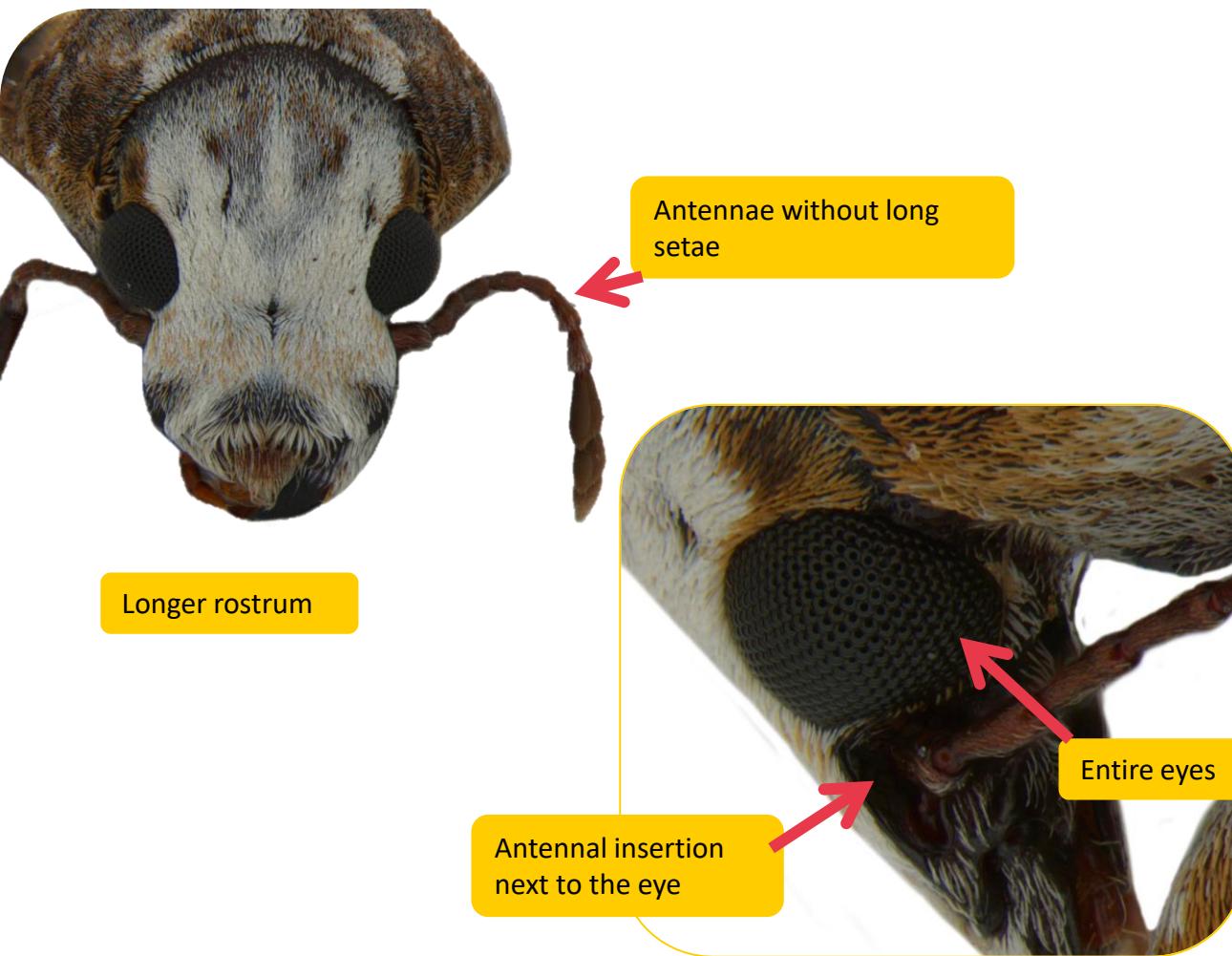
+ several undescribed



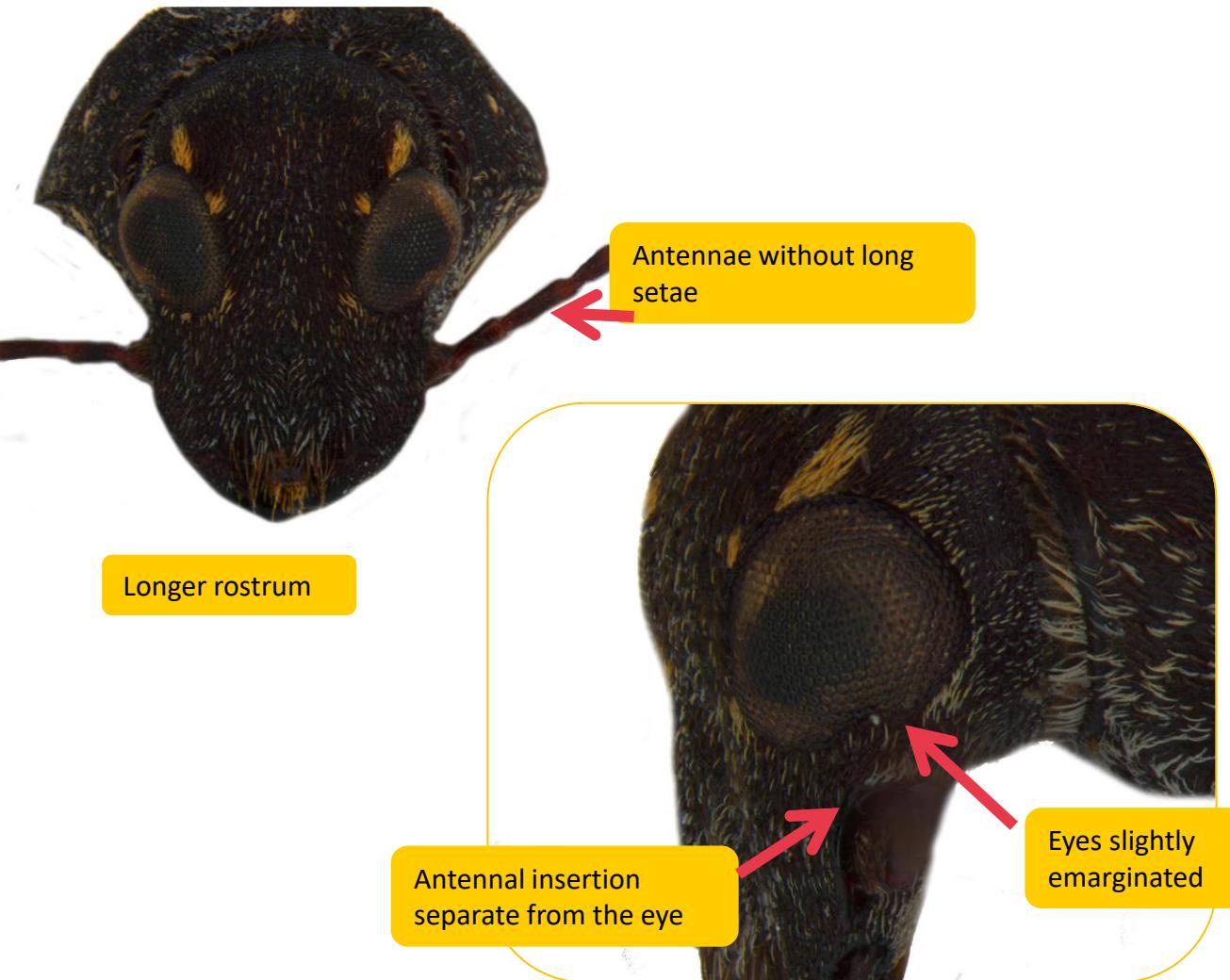
Euparius tapirus (Labram & Imhoff)



Anthribidae of Panama



Anthribidae of Panama



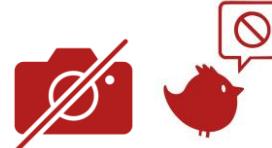
Orellana & Barrios (in press)

Tribe Piesocorynini



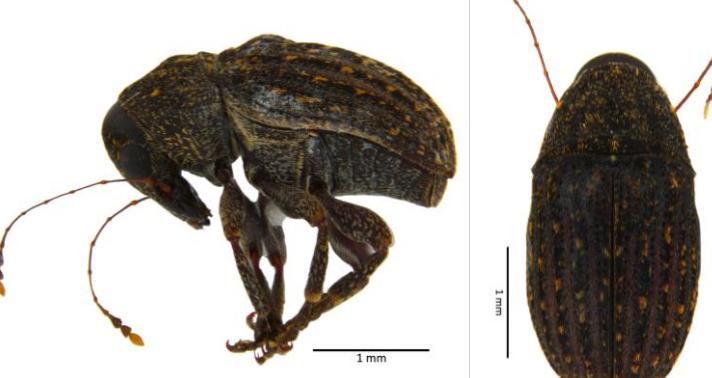
Piesocorynus Dejean

Tufts of setae on pronotum and elytra



Anthribidae of Panama

NEW COUNTRY RECORD



Piesocorynus aspis (Erichson)

NEW COUNTRY RECORD



Piesocorynus brevis (Jordan)

NEW COUNTRY RECORD



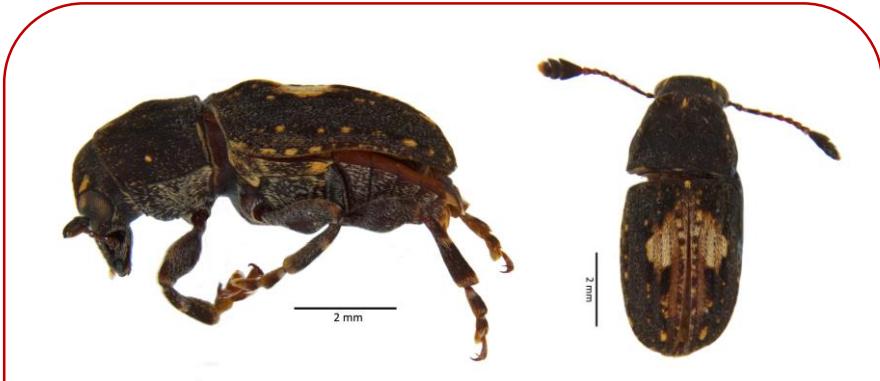
Piesocorynus tristis (Jekel)

+ 6 species

+ several undescribed



Piesocorynus homoeus (Jordan)



Piesocorynus plagifer (Jordan)



Anthribidae of Panama



Tibia and tarsi
with long
erect setae

Tribe Piesocorynini



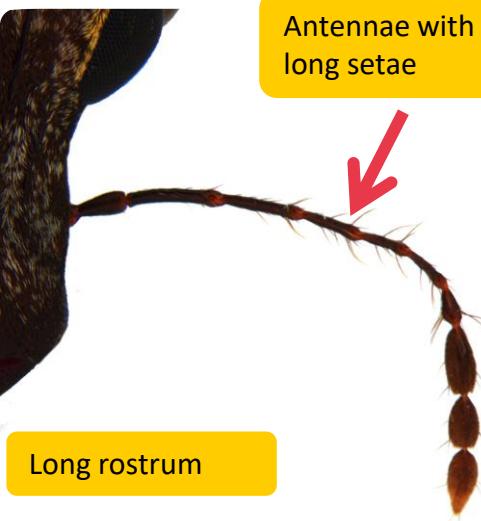
Lagopezus morio Jordan



Lagopezus tenuicornis (Fabricius)

Anthribidae of Panama

Tribe Stenocerini



Antennae with
long setae

Long rostrum

NEW COUNTRY RECORD



Stenocerus frontalis Gyllenhal



Stenocerus angulicollis
Jekel

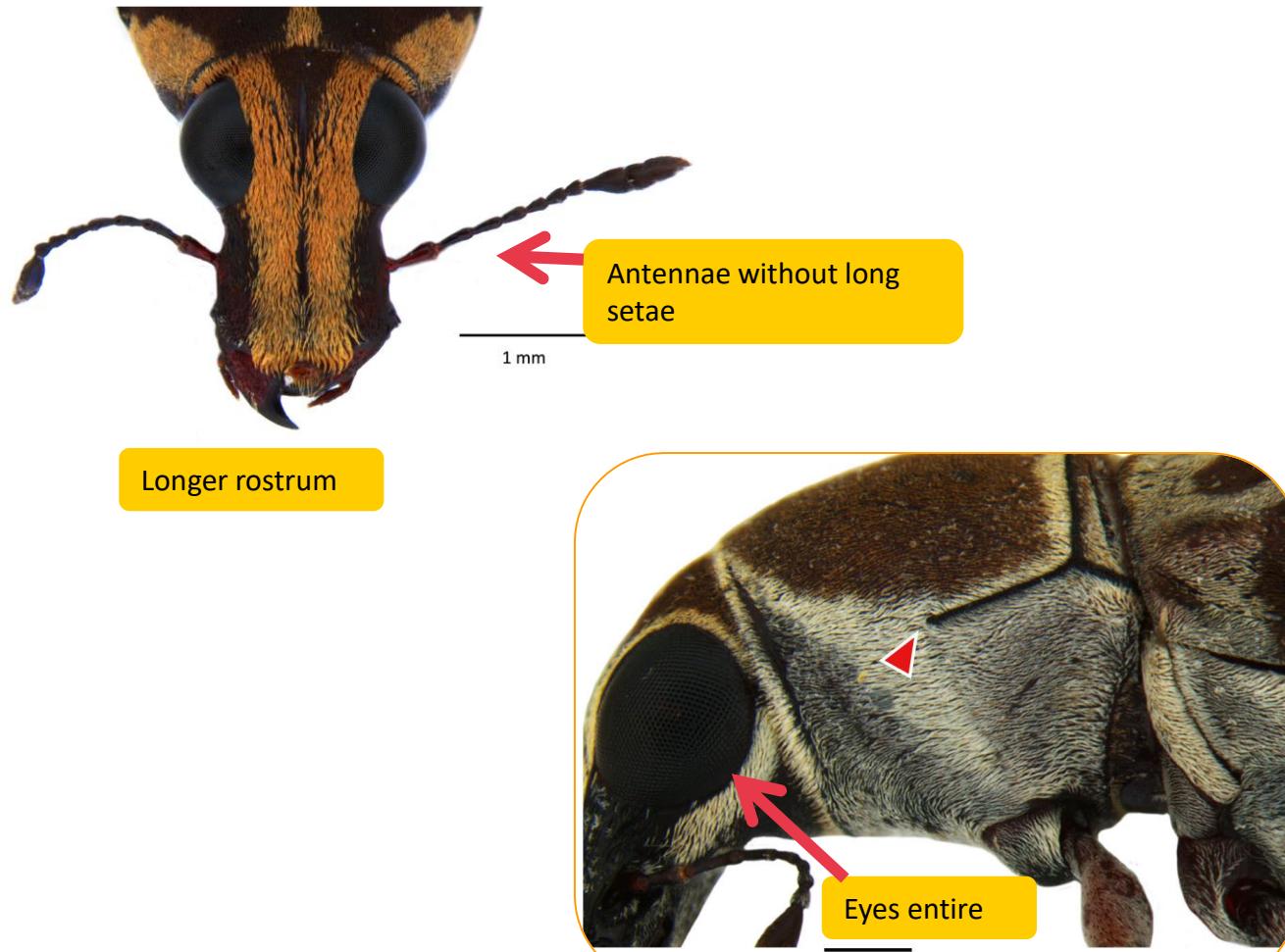
Orellana & Barrios (in press)



Stenocerus longulus
Jekel



Anthribidae of Panama



Orellana & Barrios (in press)



Gymnognathus Schoenherr



Anthribidae of Panama

NEW COUNTRY RECORD



Gymnognathus coronatus Jordan

NEW COUNTRY RECORD



Gymnognathus daguanus Jordan

NEW COUNTRY RECORD



Gymnognathus lyrestes Jordan



Gymnognathus ampulla Jordan



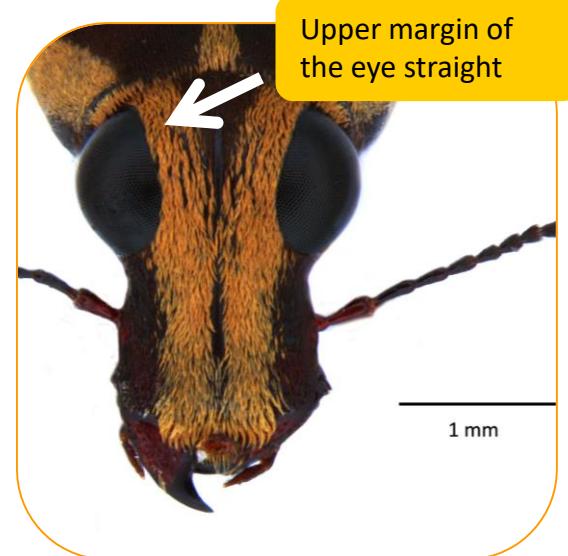
Gymnognathus ophiopsis Dalman

+ 7 species

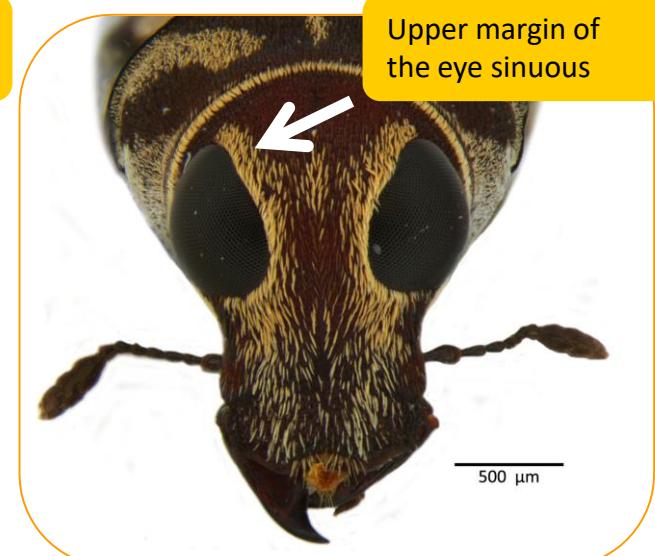
+ several undescribed



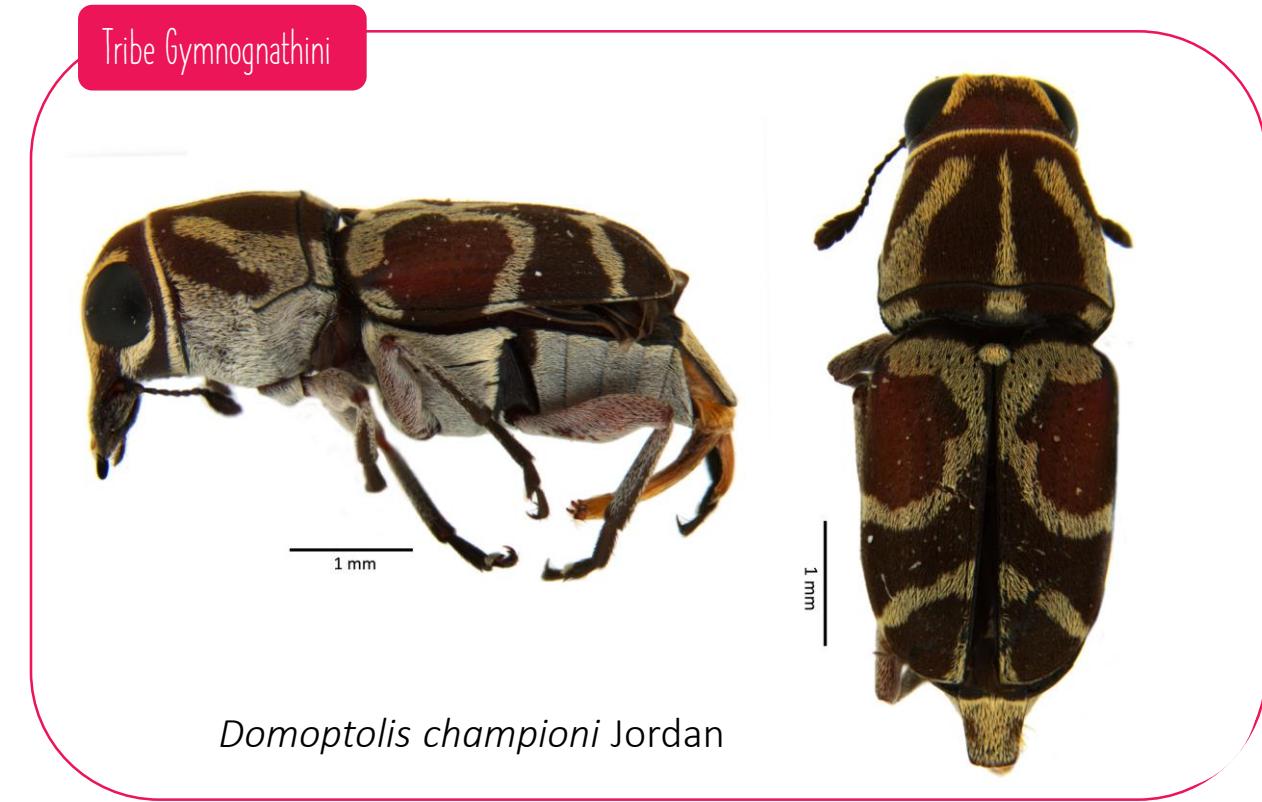
Anthribidae of Panama



Gymnognathus Jordan



Domoptolis Jordan



Domoptolis championi Jordan

Anthribidae of Panama

CHORAGINAE
Araecerini & Choragini



134 species in Panama

+ 60 morphotypes

ANTHRIBINAE

Ischnocerini



Ptychoderini



Zygaenodini



Platyrhinini



Orellana & Barrios (in press)

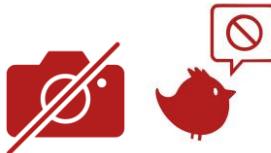
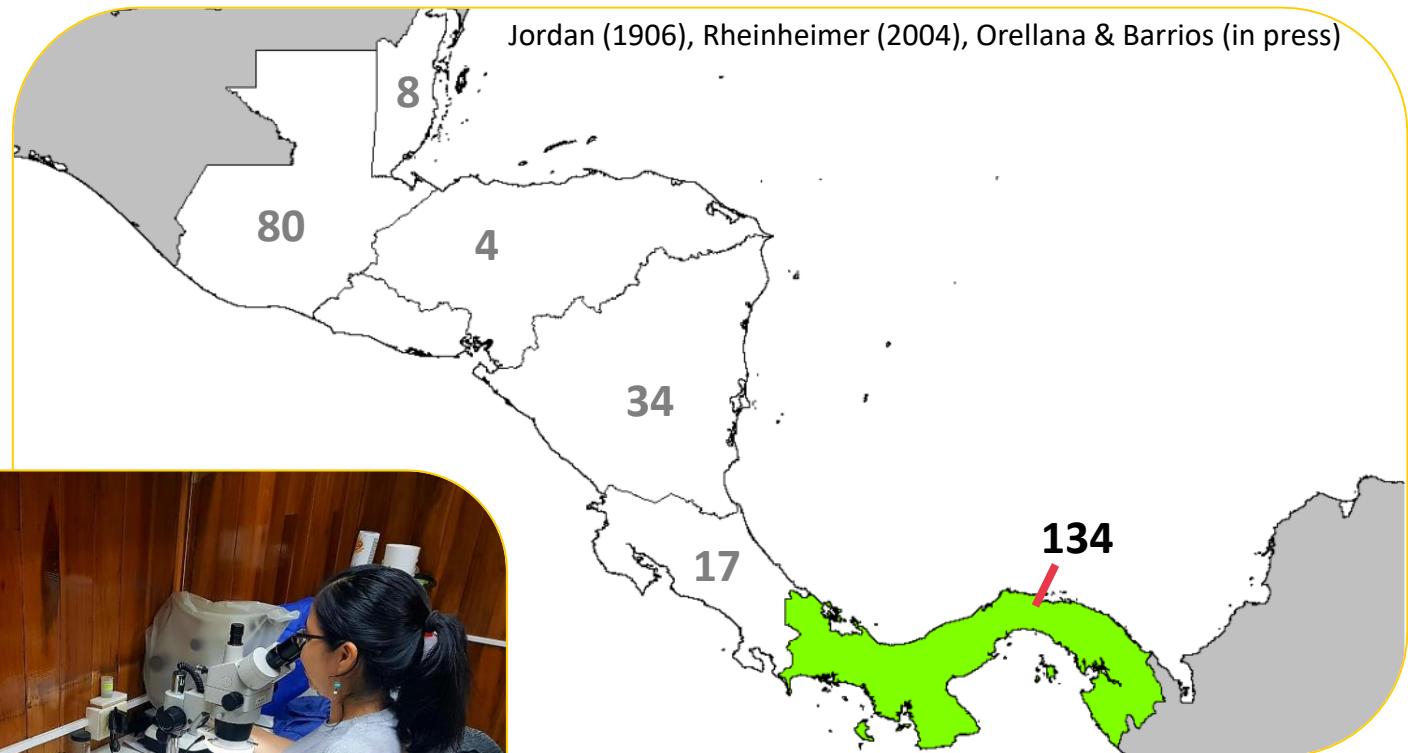


Next steps

- New records
- New species

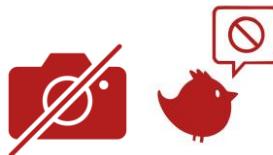
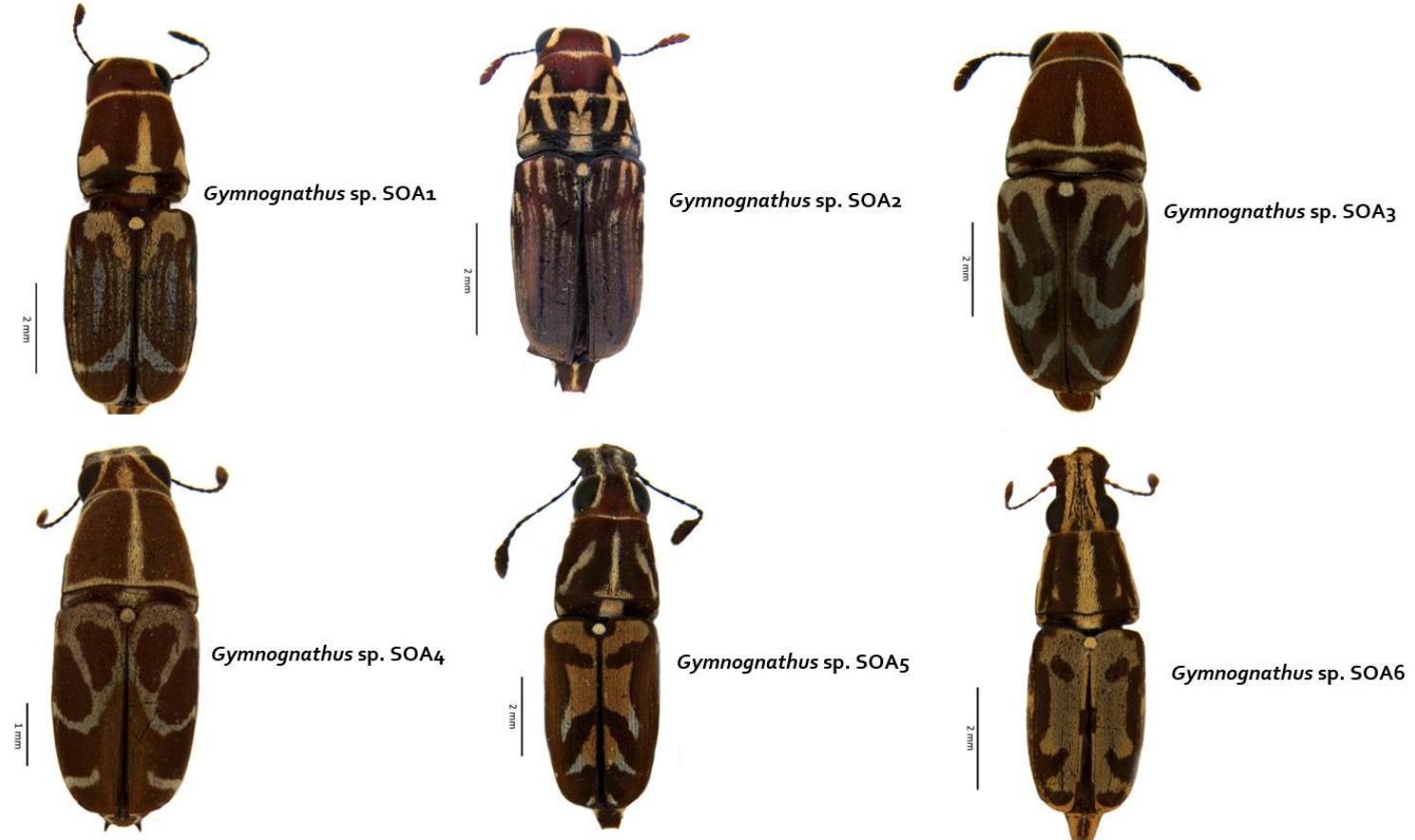


UNIVERSIDAD
DE COSTA RICA



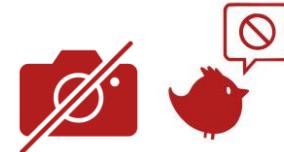
Next steps

- Description of new species
- Revision of Neotropical genus
Gymnognathus Schoenherr
(Anthribinae: Gymnognathini)



Next steps

- Higher level phylogeny of Anthribinae: Anthribidae
 - 1 subfamily
 - 26 tribes (~100 genera)
 - Morphological data
 - Molecular data



Acknowledgments

Dr. Robert Anderson
Dr. Miloš Trýzna
Dr. Nico Franz
Dr. Salvatore Anzaldo
Dra. Lourdes Chamorro
Dra. Sangmi Lee
MSc. Emmy Engasser
MSc. Roberto Cambra
MSc. Jairo Mora
Dr. Jack Schuster
Dr. Jiichiro Yoshimoto
Ing. Humberto Lezama
Dr. Paul Hanson



Deutscher Akademischer Austausch Dienst
Servicio Alemán de Intercambio Académico



Thank you

Please contact the presenter if you have questions or comments

K. Samanta Orellana

sorellana@asu.edu

 @coleopterasam



Héctor Barrios



2020
ENTOMOLOGY
VIRTUAL ANNUAL MEETING

