

What Characterizes Dynastinae?

- Pygidium completely exposed.
- Pigido completamente expuesto.
- Antennal insertion NOT visible from above.
- Articulation de la antena con la cabeza NO visible desde arriba.
- Length of all sternites longer than metasternum.
- Largo de todos los esternitos mayor que lo del metasterno.



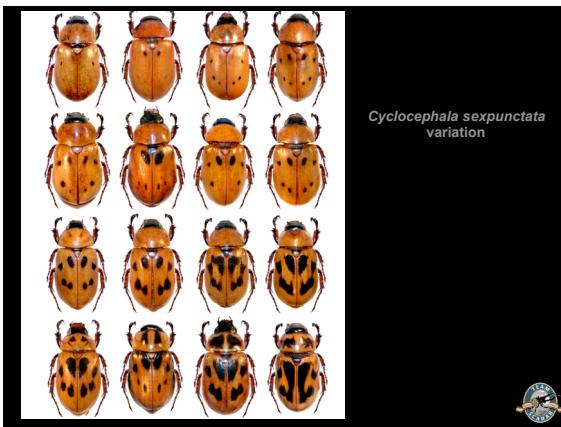
Important Characters in Dynastinae

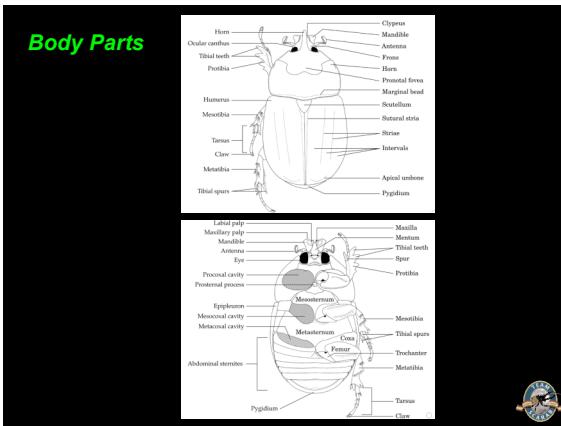
- Clypeus with apex bidentate, rounded, acuminate, or truncate.
- Apice del clipeo bidentado, redondeado, acuminado o truncado.
- Mandibles variable: Cyclocephalini and some Phileurini lack teeth on lateral edge, other tribes with teeth or lobes.
- Mandíbulas variables: Cyclocephalini y algunas Phileurini faltan dientes en el margen lateral, otras tribus con dientes o lóbulos.
- Antennae 8-10 segmented, club small or elongate (always with 3 segments).
- Antena con 8-10 segmentos, maza pequeña o elongada (siempre con 3 segmentos).
- Protarsal claws of males of most Cyclocephalini and some Pentodontini enlarged; large claw entire or split.
- Garras protarsales de los machos de la mayoría de Cyclocephalini y algunas Pentodontini agrandadas; garra grande entera o dividida.
- Base of pronotum with marginal bead or not.
- Base del pronoto con o sin rebordo marginal.
- Dorsal surface, whole or in part, with or without setae.
- Superficie dorsal, completamente o en parte, con o sin setas.

Important Characters in Dynastinae

- Surface sculpturing of head, pronotum, elytra, and pygidium.
- Escultura de la superficie de la cabeza, pronoto, élitros y pigido.
- Protibia with 0-4 lateral teeth.
- Protibia con 0-4 dientes laterales.
- Metatibia at apex truncate with small spinules or with 2-3 teeth.
- Apice de la metatibia truncado, con espinas pequeñas o con 2-3 dientes.
- Color and pattern.
- Color y patrón.
- Sexes usually dimorphic (except Phileurini, some Cyclocephalini, and some Pentodontini) with males having either horns or enlarged tubercles or enlarged protarsi.
- Sexos usualmente dimorfos (except Phileurini, algunas Cyclocephalini, y algunas Pentodontini), los machos con cuernos o tubérculos agrandados o protaros agrandados.
- Development of epipleuron of females.
- Desarrollo del epipleuro de las hembras.
- Male genitalia diagnostic in nearly all species.
- Genitalia masculina diagnostica para casi todas las especies







Tribes of Dynastinae

HEXODONTINI: Madagascar only. Approx. 10 species.

CYCLOCEPHALINI: New World, 1 genus in Africa. Approx. 400 species.

PENTODONTINI: Worldwide. Approx. 600 species.

ORYCTINI: Worldwide. Approx. 240 species.

PHILEURINI: Worldwide. Approx. 250 species.

ORYCTODERINI: Australia, New Guinea, Pacific. Approx. 25 species.

AGAOCEPHALINI: New World only. Approx. 45 species.

DYNASTINI: New World, Asia, Africa. Approx. 70 species.



World Genera of Dynastinae

CYCLOCEPHALINI: 93% of Genera are **New World**

Acrobolia
Ancognatha
Arrigutia
Aspidolea
Augoderia
Chalepides
Cyclocephala
Dyscinetus
Erioscelis
Harpocles
Mimeoma
Ruteloryctes
Stenocrates
Surutu



World Genera of Dynastinae

PENTODONTINI: 29% of Genera are **New World**

Aceratus *Ebolowanus* *Metanastes* *Pentodon*
Adyaphorus *Enaretodus* *Microrcytes* *Pentodontoschema*
Alissonotum *Ehdrosianibe* *Micromyces* *Pericopitus*
Amptoris *Epironastes* *Metacanthomis* *Philoscapus*
Anomalomorpha *Eremobothynus* *Necadystygnathus* *Phyllochera*
Anoromotus *Eucopidocaulus* *Necodon* *Phyllocheraalata*
Aphonoides *Eutycus* *Neocytes* *Phyllogephatus*
Aphonodetus *Gorditus* *Nemnastes* *Pimalopus*
Aphonus *Glyaspites* *Nephrodrodus* *Podalagus*
Barutus *Haplosoama* *Nimbacola* *Pionoryctes*
Bothynus *Heteroconus* *Novapus* *Pseudocavonus*
Calcnemis *Heteroligus* *Orisolochus* *Pseudohomonyx*
Callistemonus *Heteronychus* *Orthocavonus* *Pseudodyrcetes*
Carneiolus *Hekelianus* *Oryctomorphus* *Pucaya*
Cavonus *Hypocaccophorus* *Oxygryllus* *Semanopterus*
Vellopitys *Hypocaccophorus* *Oxylygrus* *Tenogenys*
Clytus *Hypocaccus* *Paraceras* *Temnorrhynchus*
Coptognathus *Hypocanthus* *Parabothynus* *Thrinites*
Corynophylus *Hypocrites* *Paranodon* *Tomarus*
Coscinoccephalus *Idioschema* *Parapucaya* *Toxopodus*
Cryptocerus *Inderaligus* *Pareranomychus* *Trissodon*
Dasygnathus *Lonchotus* *Pareranomychus* *Xynedria*
Diloboderus *Marronus*
Dipelicus *Mellissius*



World Genera of Dynastinae

ORYCTINI: 52% of Genera are New World

Anomocaulus	Irazua
Blabephorus	Lichnostrategus
Calypsoryctes	Macrocyphonistes
Ceratoryctoderus	Mégaceropsis
Clyster	Oryctes
Coelosis	Podischnus
Cyphonistes	Scapanes
Dichodontus	Strategus
Dinoryctes	Tehuacania
Enema	Trichogomphus
Gibboryctes	Xenodorus
Heterogomphus	Xyloryctes
Hispanioryctes	
Hoploryctoderus	



World Genera of Dynastinae

PHILEURINI: 64% of Genera are New World

Actinobolus	Mictophileurus
Amblyodus	Neosyrichthoschema
Amblyproctus	Oryctophileurus
Archophanes	Palaeophileurus
Archophileurus	Paraphileurus
Caymania	Phileurus
Ceratophileurus	Planophileurus
Chiliphileurus	Platiphileurus
Cnemidophileurus	Prophileurus
Cryptodus	Pseudosyrichthus
Eophileurus	Rhizoplatodes
Goniophileurus	Rhizoplatys
Hapiophileurus	Syrichthodontus
Hemophileurus	Syrichthomorphus
Homophileurus	Syrites
Hovophileurus	Syrichtes
Metaphileurus	Syrichtoschema
Microphileurus	Triopius

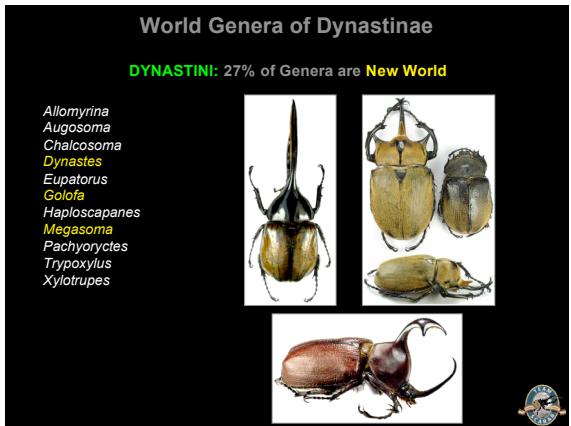


World Genera of Dynastinae

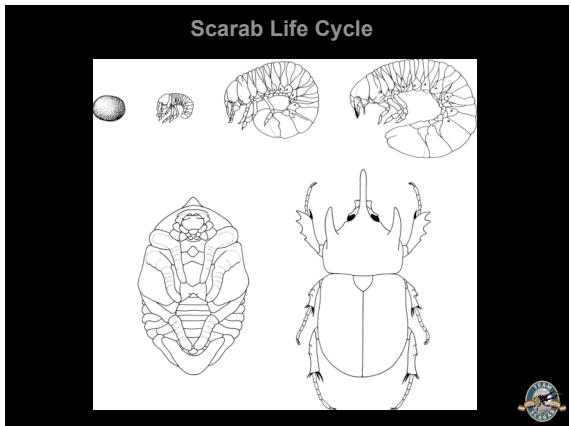
AGAOCEPHALINI: 100% of Genera are New World

Aegopsis	
Agaocephala	
Antodon	
Brachysiderus	
Colacus	
Democrats	
Gnathogolpha	
Horridocalia	
Lycomedes	
Mitracephala	
Spodistes	







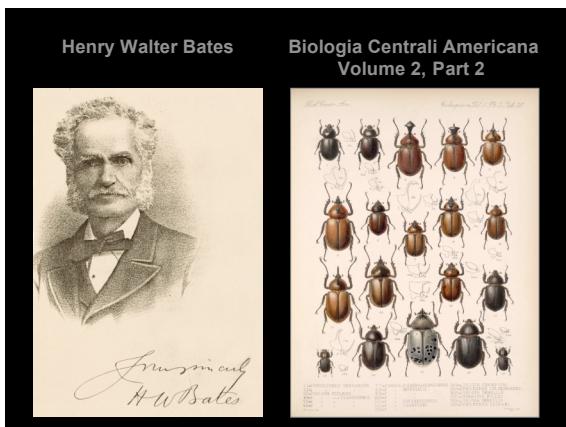




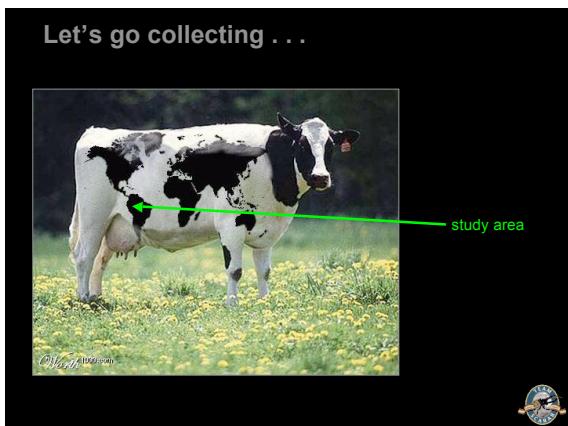


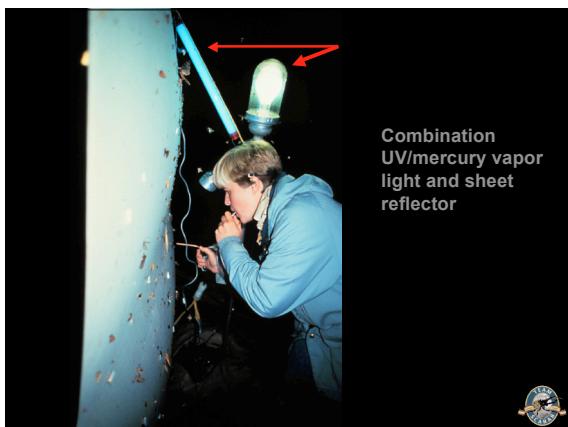


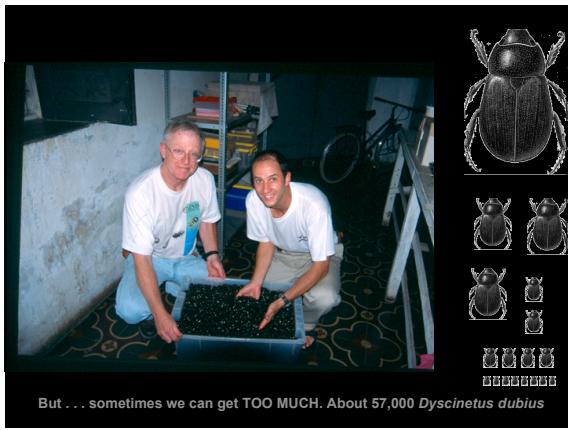














Excavating rotten logs







Foliage gleaning and beating vegetation

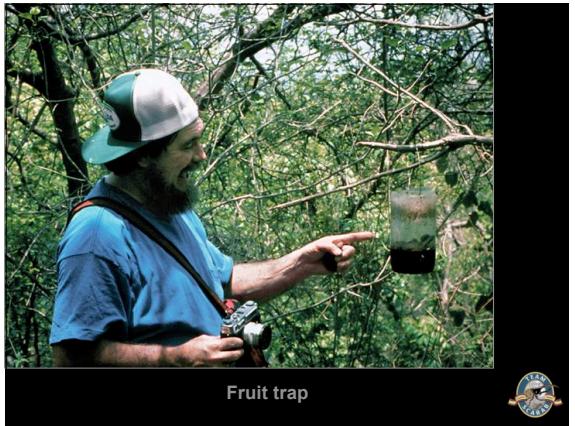


















By-catch: the other insects that we do not want.

But collect them for other colleagues.
Strange Diptera are sent to dipterists.

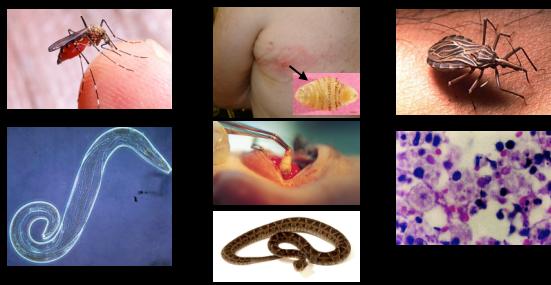


Strange Hymenoptera are sent to hymenopterists



Joys of collecting in the tropics?

Medical hazards of tropical collecting: bot flies, malaria, yellow fever, dengue, chagas, leishmaniasis, cholera, amoebiasis, hepatitis, onchocerciasis, TB, arboviruses, schistosomiasis, snake bite.



Traffic hazards are customary!



More road hazards!



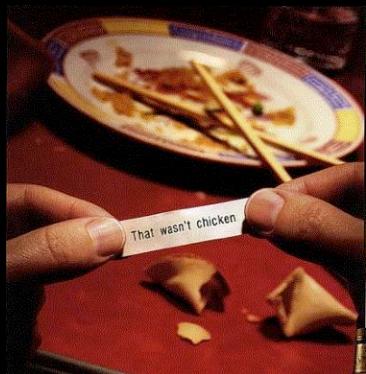
What the . . . ?



Some roads may not be . . . roads.



Strange foods!



Strange animals!



Dangerous animals!



Dangerous people!





**Educational
outreach
to local people**

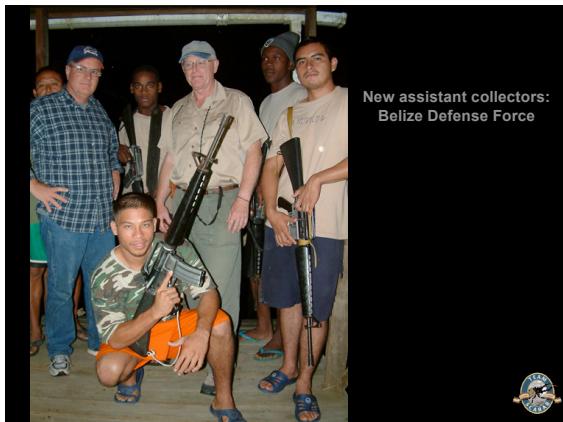
Las Cuevas Research
Station, Belize
May 2008





Educational outreach: a new collector for a project.





**New assistant collectors:
Belize Defense Force**





Collections outreach to identify and curate specimens



Collections outreach





SUBFAMILY DYNASTINAE in LATIN AMERICA

Tribe Cyclocephalini - 13 genera
Tribe Pentodontini - 25 genera
Tribe Oryctini - 14 genera
Tribe Phileurini - 23 genera
Tribe Agaocephalini - 11 genera
Tribe Dynastini - 3 genera



A detailed photograph of a large, reddish-brown Dynastinae beetle, likely a species from the Cyclocephalini tribe. The beetle has a prominent, curved horn on its head and a segmented body. It is shown from a side-on perspective against a white background.



Cyclocephala mafaffa Burm.



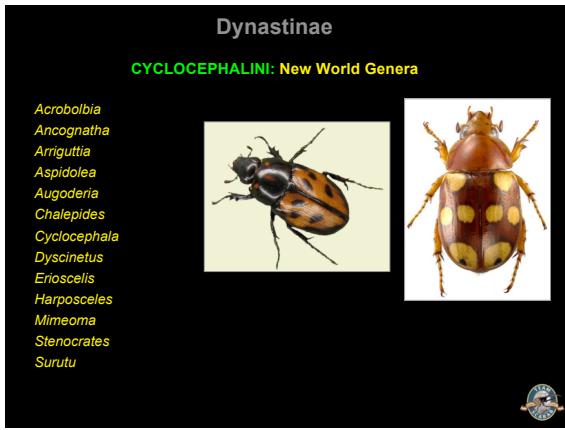
A photograph of a collection of Cyclocephala mafaffa Burm. beetles, arranged on a grid. The beetles exhibit various patterns, including marbled and mottled designs. A ruler is placed next to the beetles to show their size.

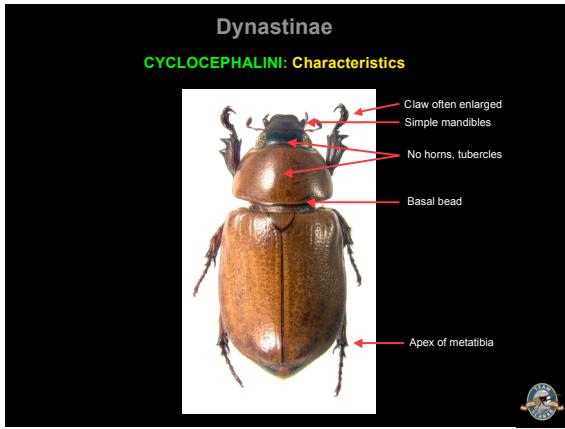
Tribe Cyclocephalini
Genera: 13
Species: Approx. 400

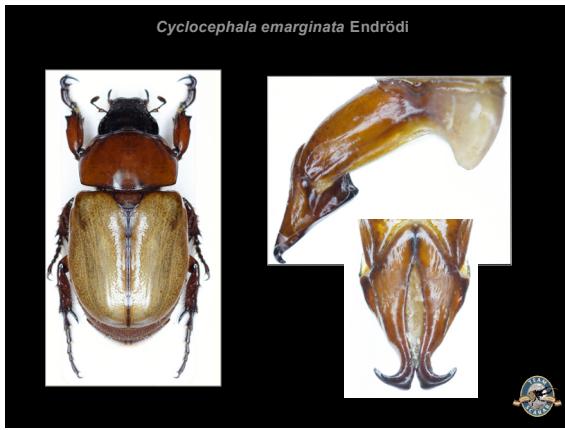


A detailed photograph of a single Cyclocephala mafaffa Burm. beetle, shown from a top-down perspective. The beetle has a reddish-brown body with a distinct pattern on its elytra. It is set against a black background.

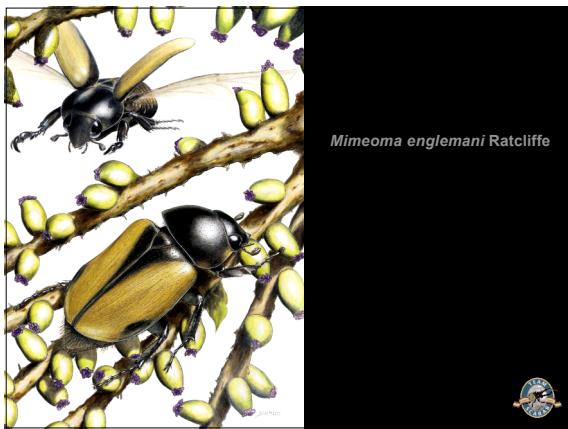




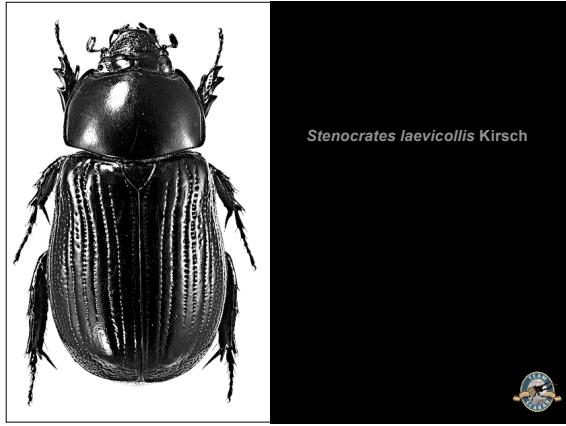




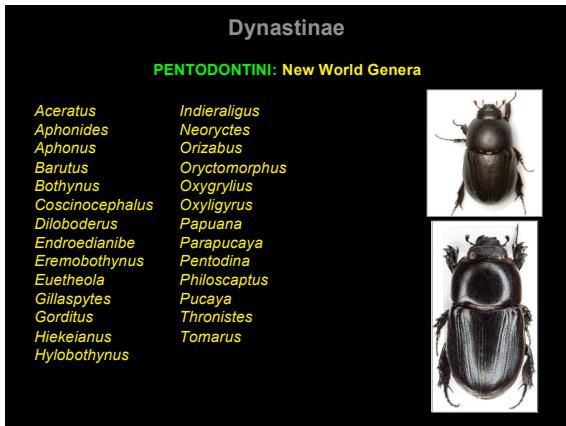


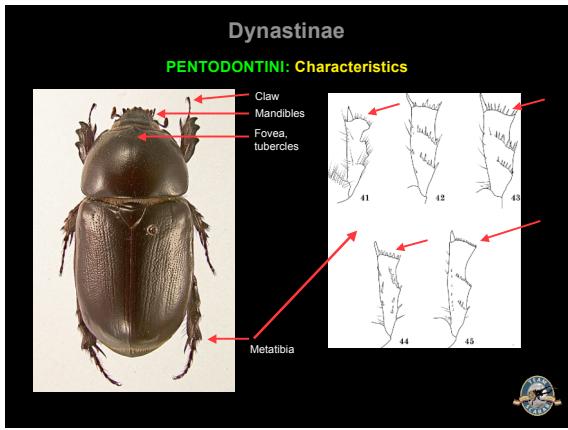


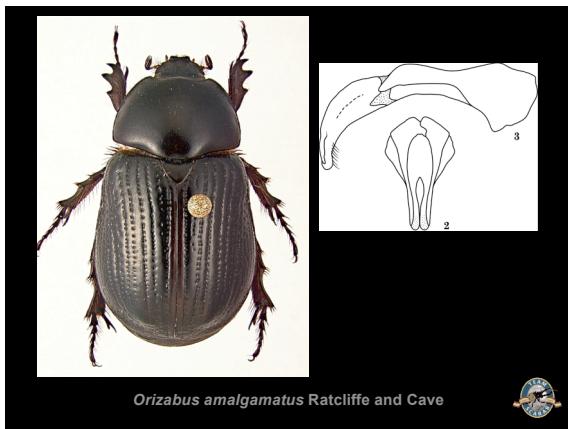










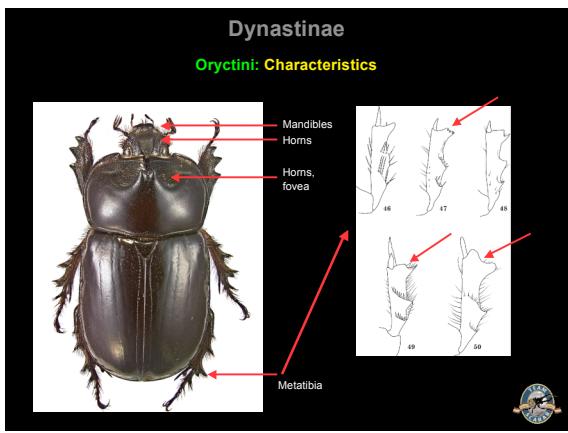






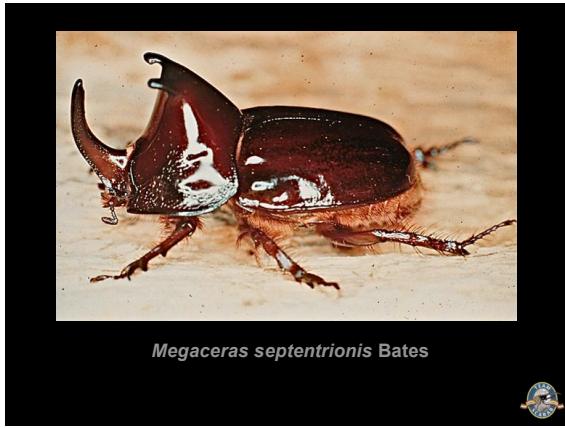


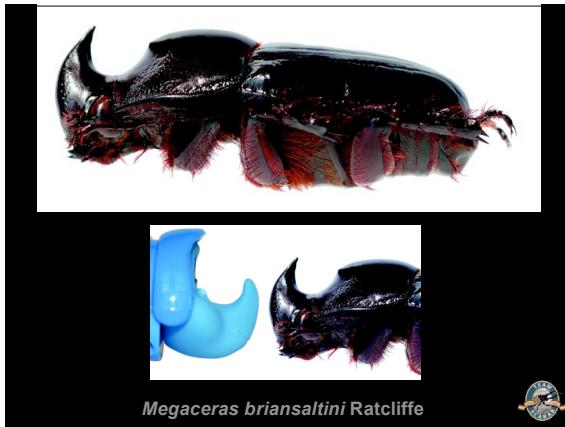


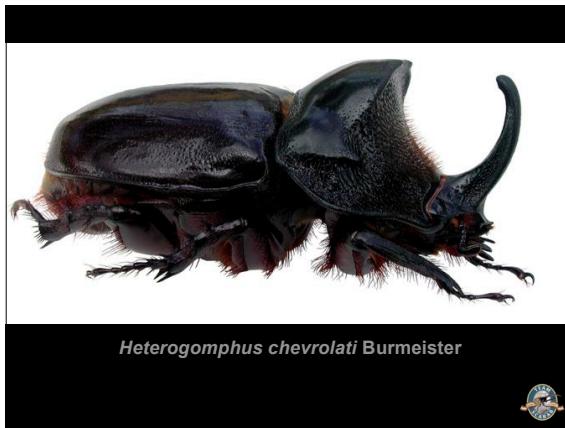




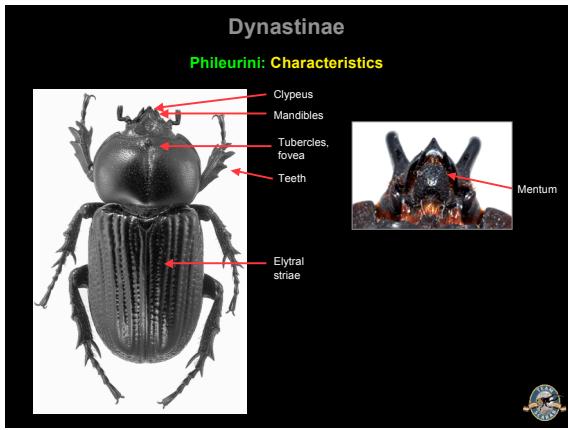






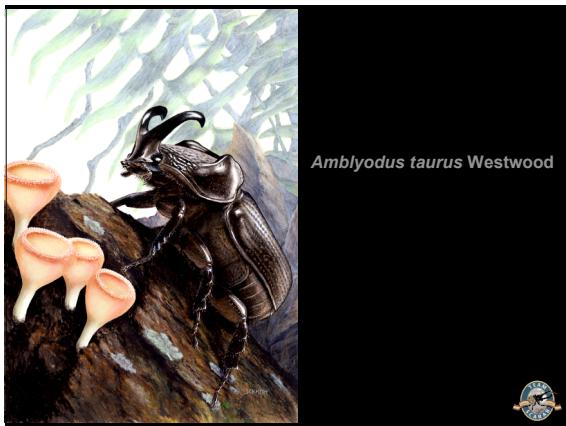










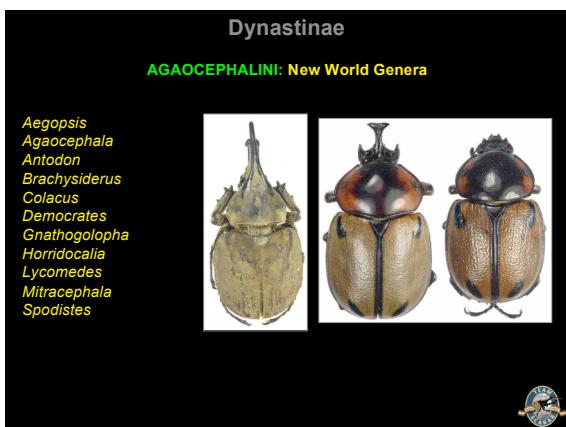


Amblyodus taurus Westwood



Tribe Agaocephalini

Genera: 11
Species: 45

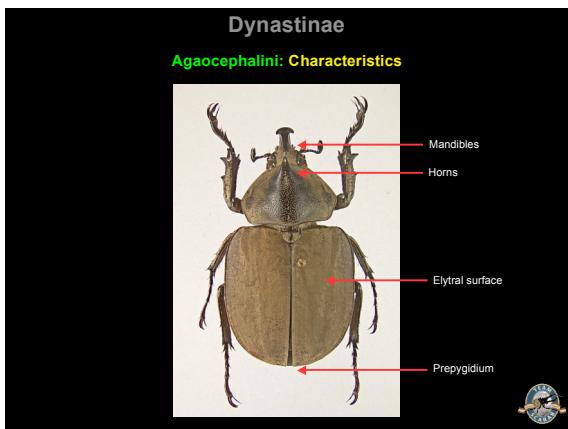


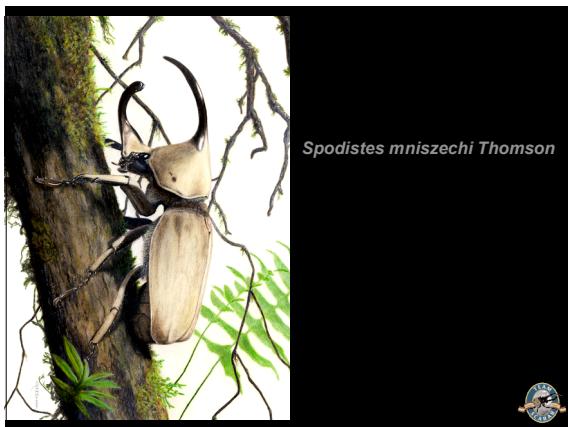
Dynastinae

AGAOCEPHALINI: New World Genera

Aegopsis
Agaocephala
Antodon
Brachysiderus
Colacus
Democrates
Gnathogolopa
Horridocalia
Lycomedes
Mitacephala
Spodistes

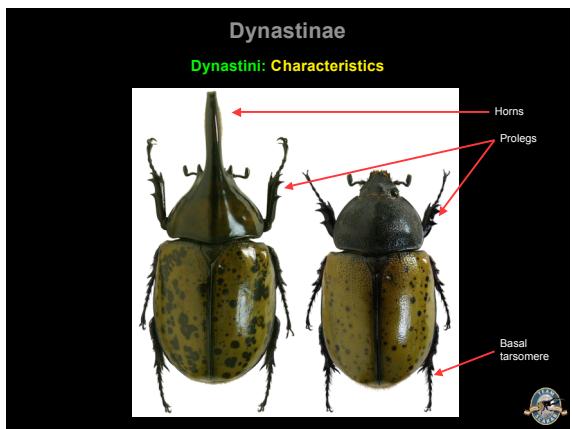
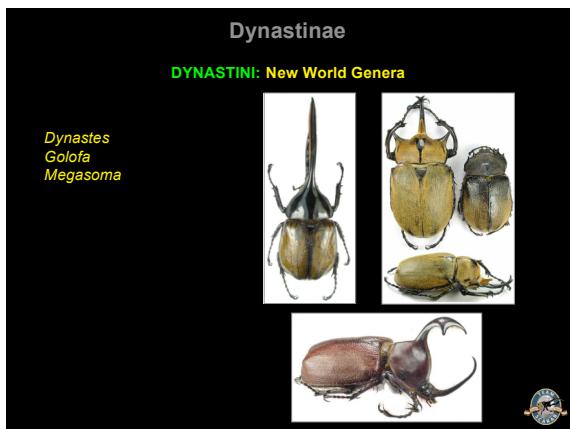


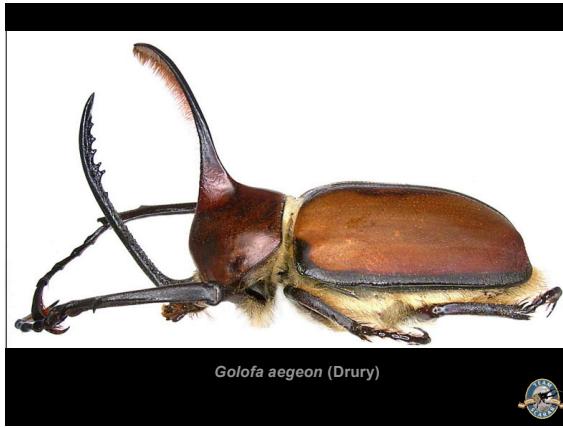








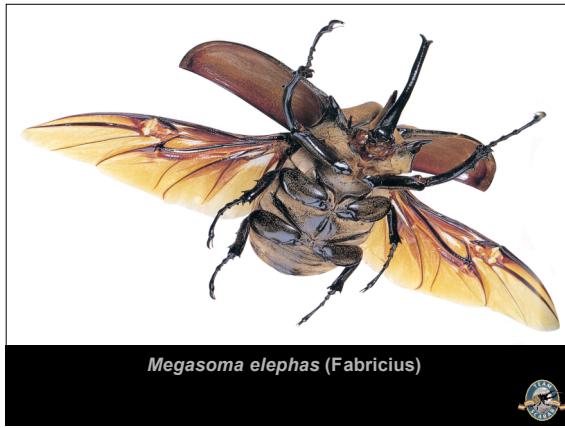












Why Do This Kind of Research?

We do not know, to the nearest order of magnitude,
how many species there are in the world

— E.O. Wilson

Why Do This Kind of Research?

Exploration

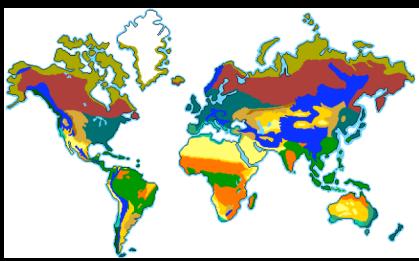
Why Do This Kind of Research?

Discovery



Why Do This Kind of Research?

To understand ecosystems



Why Do This Kind of Research?

To understand how evolution works



Why Do This Kind of Research?

To apply knowledge to protect and conserve natural resources



Why Do This Kind of Research?

To foster human welfare

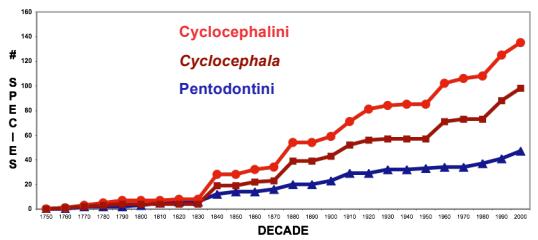


New Species Discovery



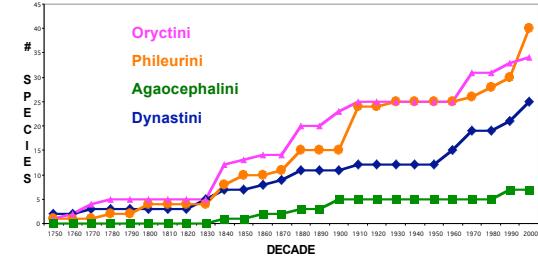
More New Species?

Cumulative new species curve



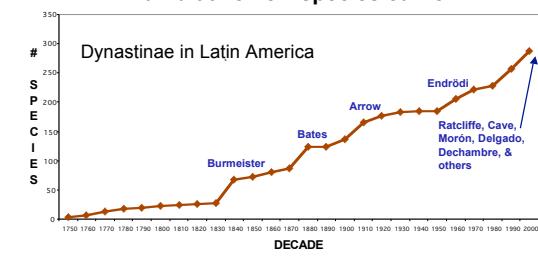
More New Species?

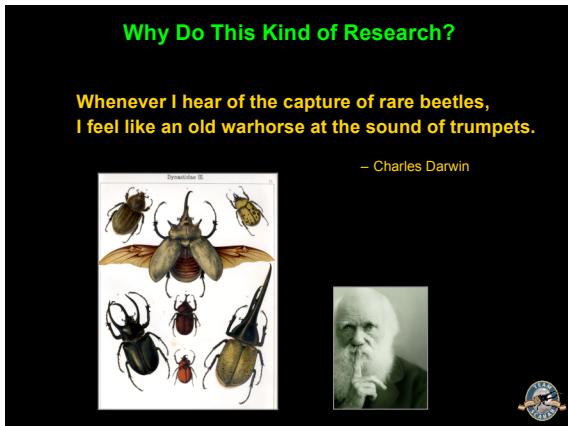
Cumulative new species curve



More New Species?

Cumulative new species curve





Team Scarab Website

... to promote the study of scarabeoïd systematics by sharing methods, data, techniques, literature, and specimens, and to foster enhanced communication between scarab workers all over the world.

... promover el estudio de la sistemática de los escarabajos por compartir métodos, datos, técnicas, literatura y fomentar mayor comunicación entre escarabólogos através del mundo.

The page features a large image of a blue scarab beetle, links to various research and database resources, and contact information for the Director, Dr. C. Ristello.

SCARAB WORKERS
WORLD DIRECTORY

This directory is provided as a service to the entomological community. Its purpose is to facilitate communication among scarab workers, to catalog scarab-related resources, and to assist in providing information on scarab systematics. We are continuously updating the directory as new listings and new workers are added. We are also attempting to provide information about early workers who have made contributions for today's scarab taxonomy and classification.

If you are publishing papers about scarabaeids and would like your name and contact information included about your work, a photo or a short bio, please send us an e-mail message to scarab@unl.edu.

SEARCH
ALPHABETIC LIST
TAXONOMIC LIST

SCARAB WORKERS
WORLD DIRECTORY

DIRECTORY HOME **ALPHABETIC LIST** **TAXONOMIC LIST** **GEOGRAPHIC LIST**

List arranged by scarabaeid workers who live in a particular biogeographic realm. For the world map below, those countries in which there is at least one scarabaeid worker listed are highlighted in red. Click on the country to go to the list of countries in the frame to the left. Countries are listed only if there is a participating worker in the directory.

NEOTROPIC

- Argentina
- Brazil
- Chile
- Colombia
- Costa Rica
- Ecuador
- Guatemala
- Mexico
- Nicaragua
- Venezuela

Herman C.C. Barneister
U.S.A. - 1900

Conrad Gillett
Hector Gasca

A world map showing the distribution of scarabaeid workers across the Americas and parts of Africa and Asia.

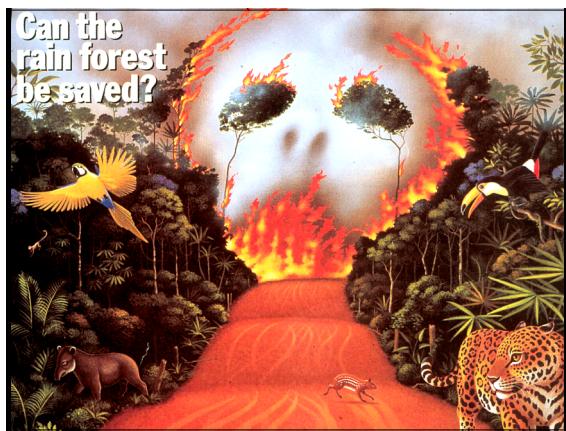
Why Do This Kind of Research?

If we permit the loss of the rainforests, and with them a major portion of Earth's biological diversity, it will be viewed as the greatest act of desecration in human history.

Si permitimos la pérdida de los bosques lluviosos, y al par de ellos una mayor parte de la biodiversidad de la Tierra, se lo verá como el acto de destrucción más grande en la historia humana.

— Thomas Lovejoy, World Wildlife Fund







Working together, taxonomists, ecologists, governments, anthropologists, conservation organizations, NGOs, resource managers, and especially concerned citizens CAN conserve and protect the irreplaceable biodiversity of the rainforest biome.



SAVE TROPICAL FORESTS !

*30 million insects can't
ALL be wrong !*



OPERACIONES EN LA SELVA

UNIVERSITY OF NEBRASKA STATE MUSEUM
