

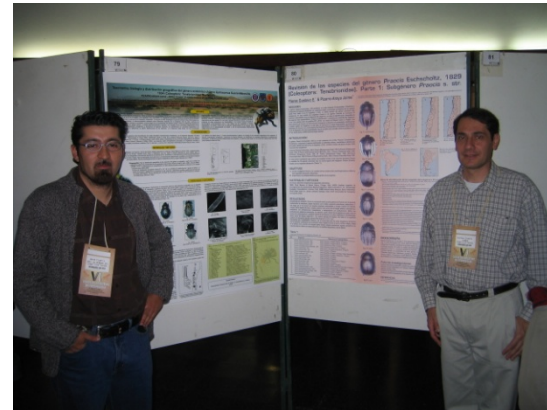


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Revision of the South American genus *Praocis* (Tenebrionidae: Pimeliinae: Praociini)

**Gustavo E. Flores¹ and
Jaime Pizarro-Araya²**



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Nycteliini



Praociini



Physogasterini

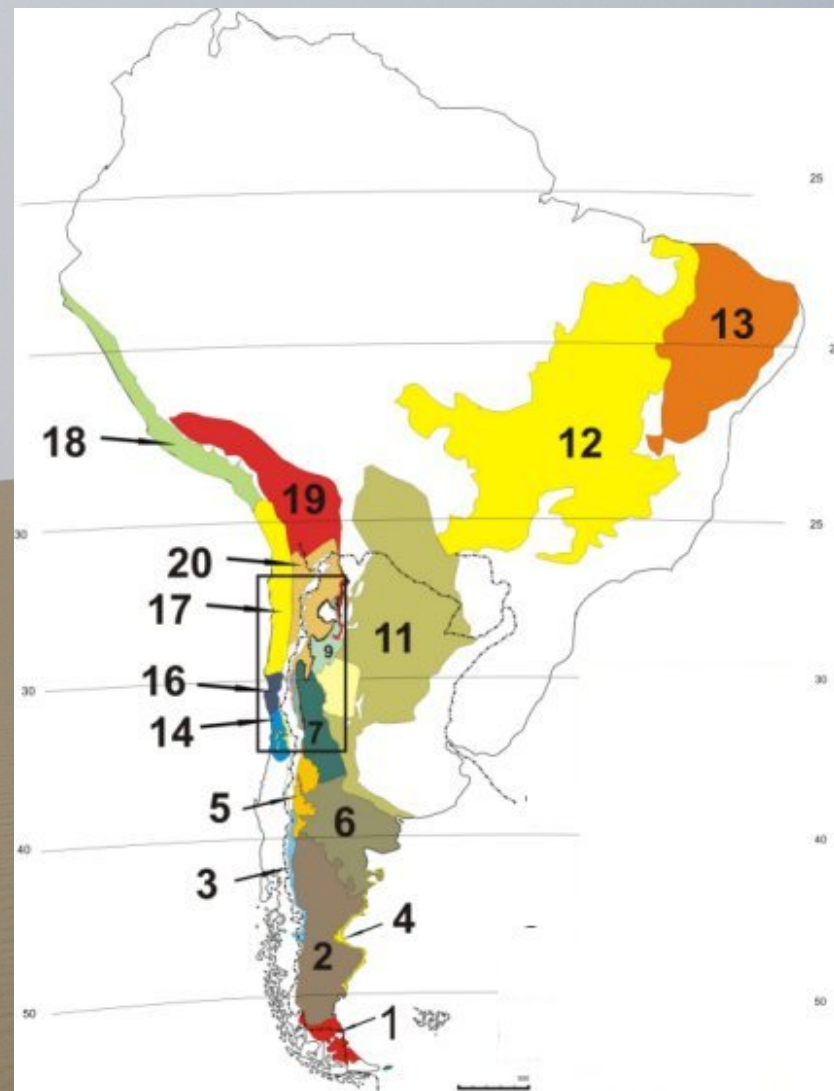


Pimeliinae: 3 endemic South American Tribes

Nycteliini

Praociini

Physogasterini



(Doyen, 1993; Flores & Pizarro-Araya 2006)

The genus *Praocis* Eschscholtz belongs to the Praociini, an endemic Neotropical tribe of Pimeliinae with 149 species arranged in 14 genera

- Asidelia* (1)
- Neopraocis* (1)
- Eutelocera* (1)
- Platesthes* (13)
- Calymmophorus* (6)
- Thylacoderes* (4)
- Antofagapraocis* (2)
- Falsopraocis* (3)
- Platyholmus* (17)
- Pilobaloderes* (1)
- Praocidia* (2)
- Patagonopraocis* (3)
- Gyrasida* (6)
- Praocis* (79)



Asidelia



Neopraocis



Platesthes



Calymmophorus



Falsopraocis



Pilobaloderes



Patagonopraocis



Gyrasida

Praocis is the most speciose genus of the tribe (51 %) and distribution of its species coincides with the whole distribution of the tribe.

Since *Praocis* was erected (Eschscholtz, 1829) 119 names of species and subspecies have been proposed, 33 of which (28 %) are synonyms

Kulzer (1958): 77 species and 7 subspecies arranged in 10 subgenera (six of which were new) distributed from central Peru to the southern part of Patagonia in Argentina and Chile



Redefinition of *Praocis*

We redefine the genus *Praocis* on the basis of five consistent character states, some of them used in previous revisions (Eschscholtz 1829; Solier 1840, 1851; Lacordaire 1859; Kulzer 1958): maxillary palps with last segment axe-shaped (defined here as apex twice as wide as base), antennomere 3 shorter than 4 + 5 combined, pronotum with single lateral margin expanded, remote from disc, and anterior angles rounded.



Subgenus excluded from *Praocis*

The subgenus (*Parapraocis*) Kulzer, 1958 is excluded here from *Praocis* because its species exhibit the following character states: maxillary palps with last segment subcylindric, apex wider than base (apex 1.5 times as wide as base), antennomere 3 longer than 4 + 5 combined, pronotum with lateral margin not expanded, contiguous with disc, lateral margin double, and anterior angles acute. It includes three species inhabiting Peru and deserves recognition as a separate genus within Praociini.

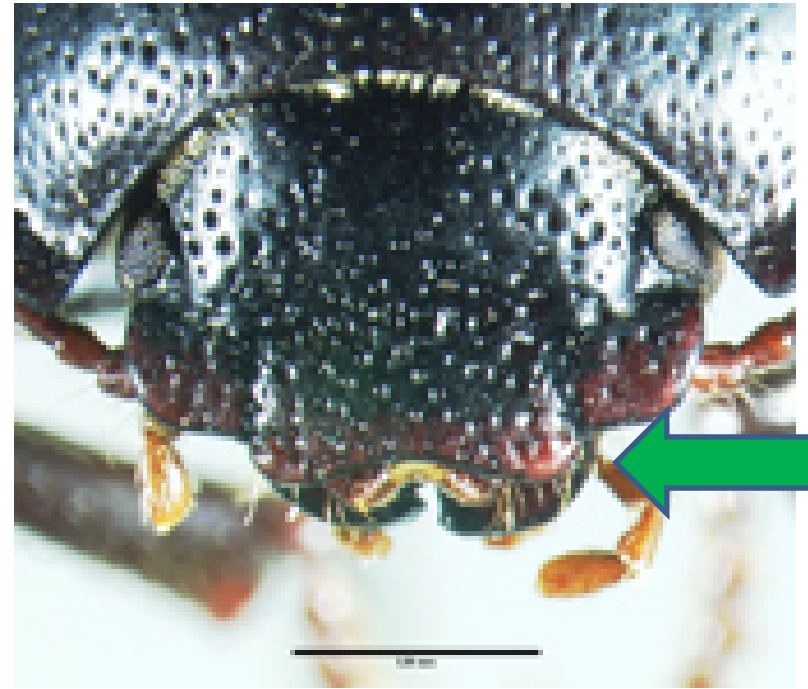


Revision of *Praocis* (in progress)

- Character states constant
- Number of current species for each subgenus
- Number of undescribed species for each subgenus
- Current distribution range of each subgenus
- Enlargement of distribution of each subgenus with the new records

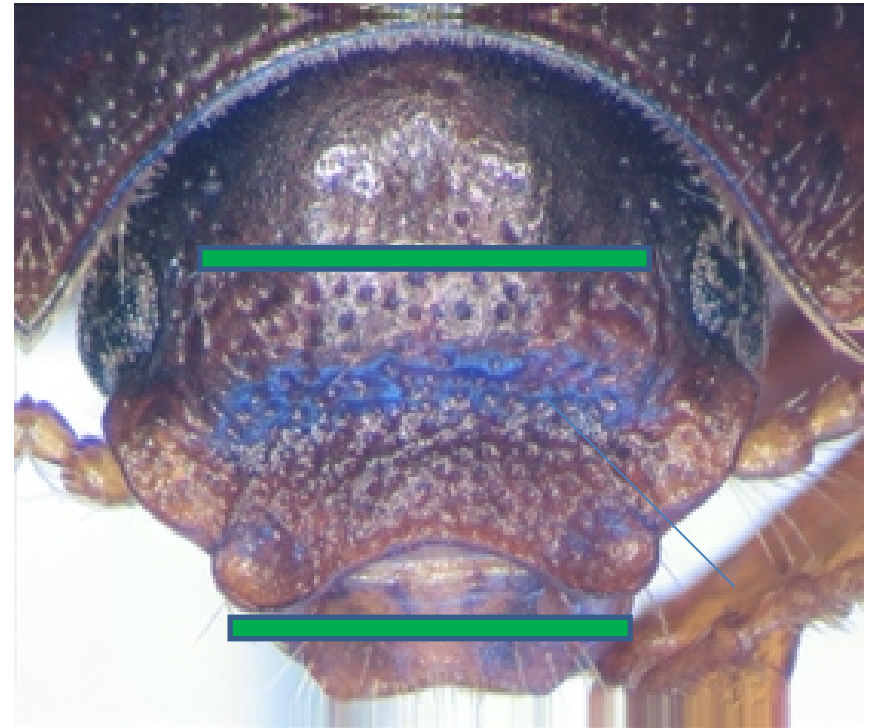
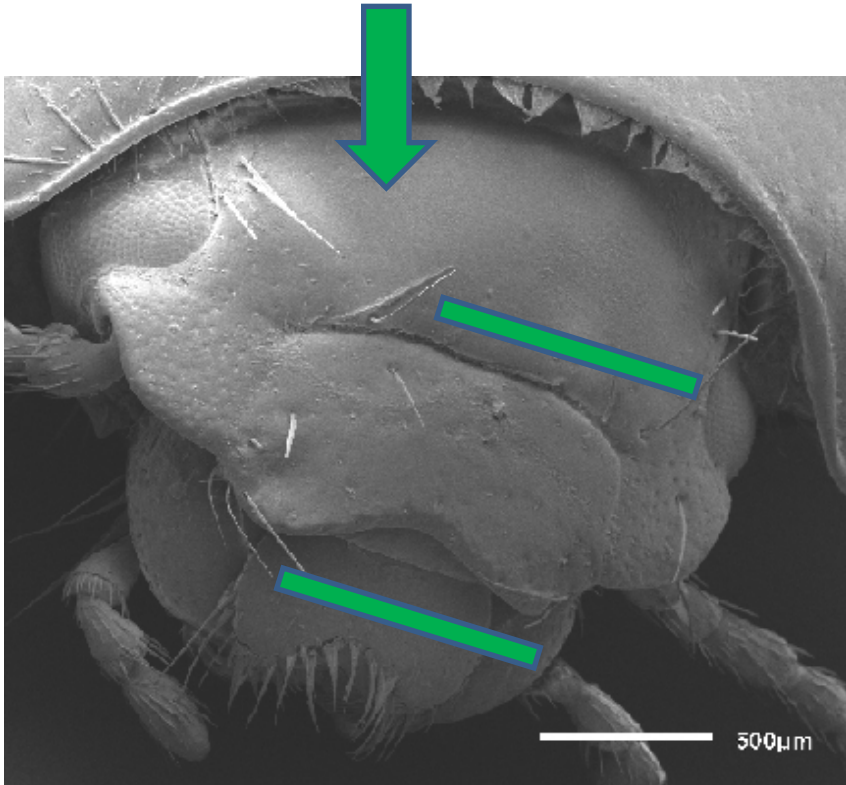


1) anterior margin of clypeus: A) extending anterior to lateral expansion of frons



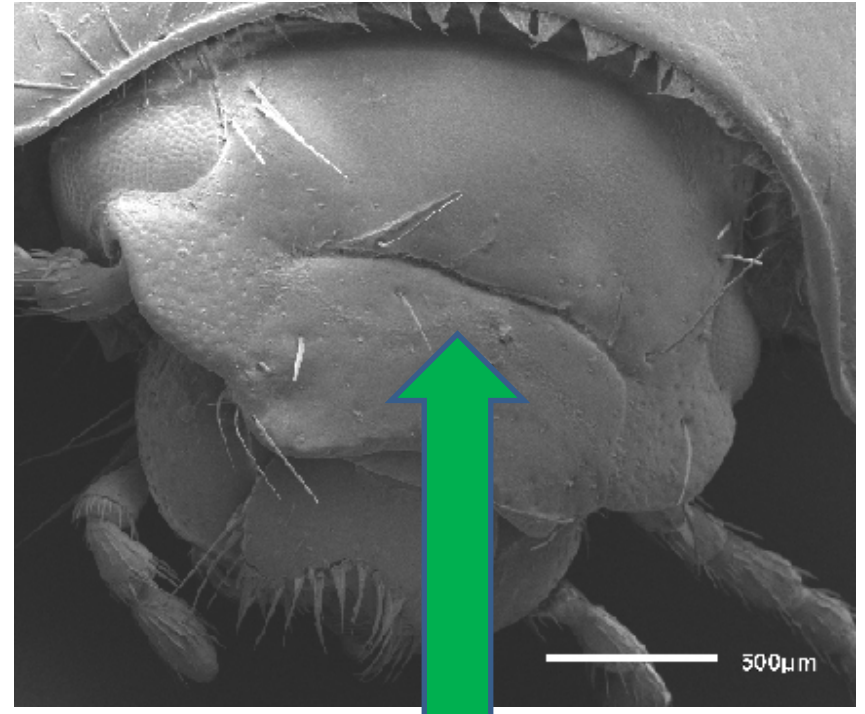
B) at same level that lateral expansion of frons

2) width of anterior margin of clypeus: A) half the width of interocular distance



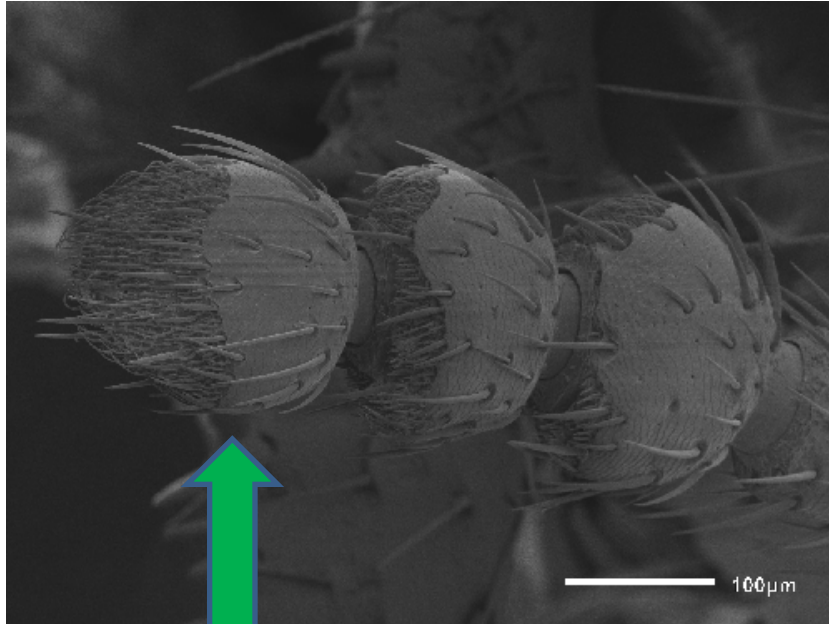
B) width of anterior margin same width of interocular distance

3) clypeal suture A) as horizontal groove, clypeus lower than frons



B) as vertical groove, clypeus and frons at same level

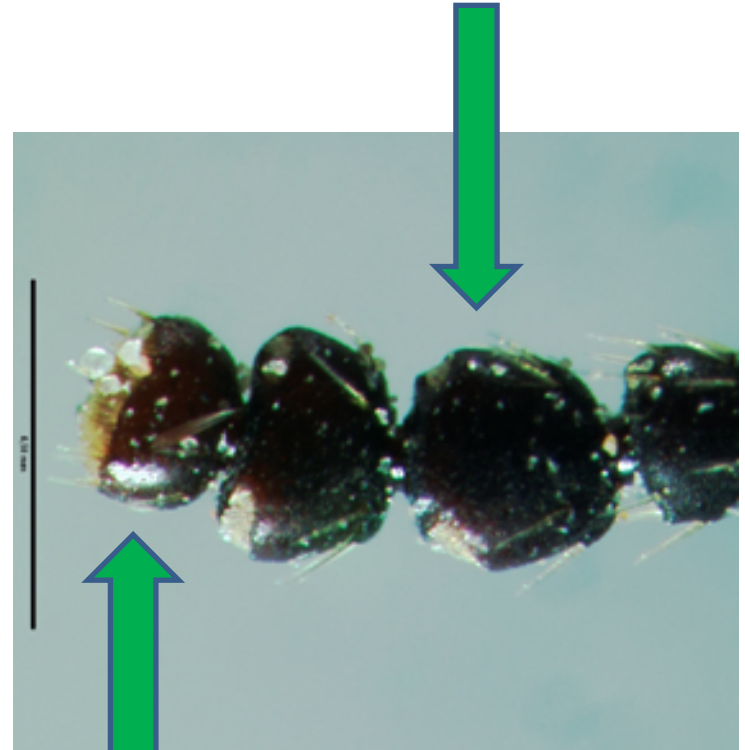
4) antennomere 9:
B) equal length to 10



5) antennomere 11: A) longer
than antennomere 10,

C) equal length to antennomere 10

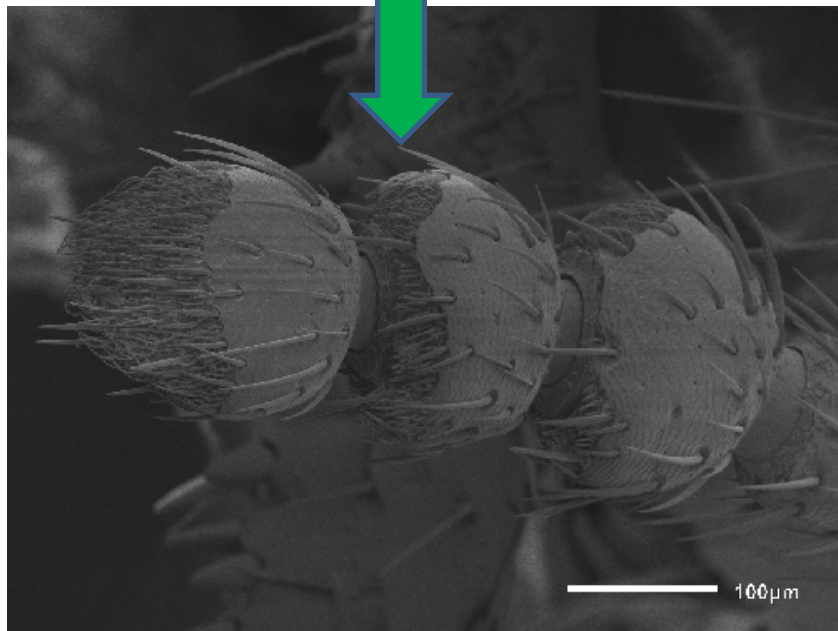
A) longer than antennomere 10



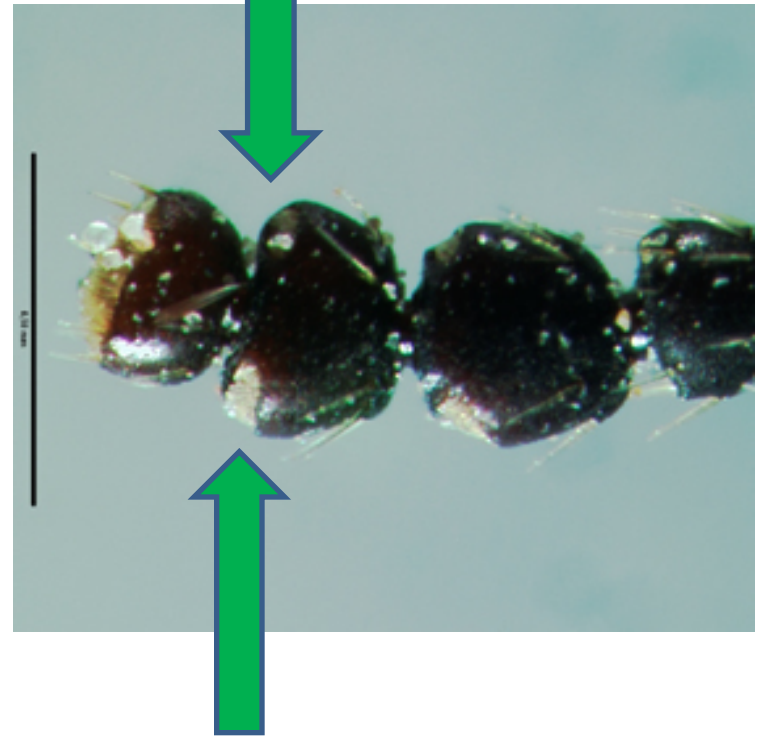
B) shorter than antennomere 10

6) apical tomentose sensory patches on antennomere 10:

B) in a semicircle dorsally continuous

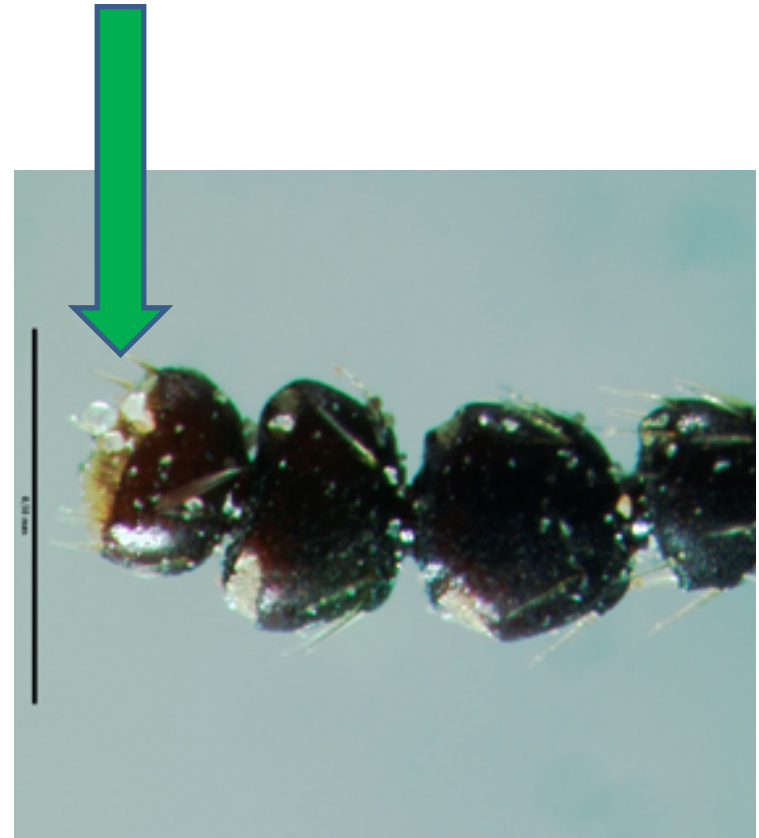
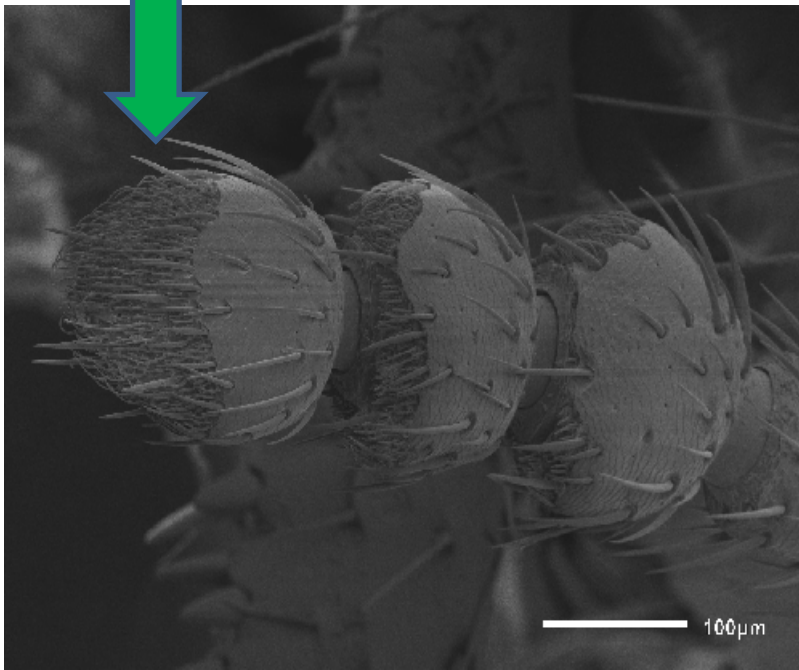


A) in two areas subequal in size



7) apical tomentose sensory patches
on antennomere 11: A) on distal third

B) on distal half



8) prosternum:

- A) with a narrow edge on anterior margin
- B) without edge on anterior margin,

9) lateral margin of elytron:

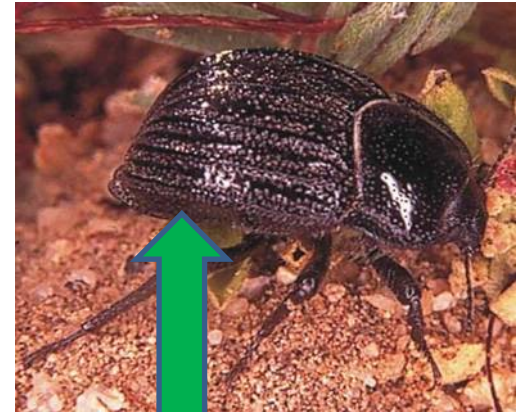
- A) well defined
- B) not defined

10) ventral surface of profemora:

- A) with a row of setae on anterior edge
- B) without a row of setae on anterior edge

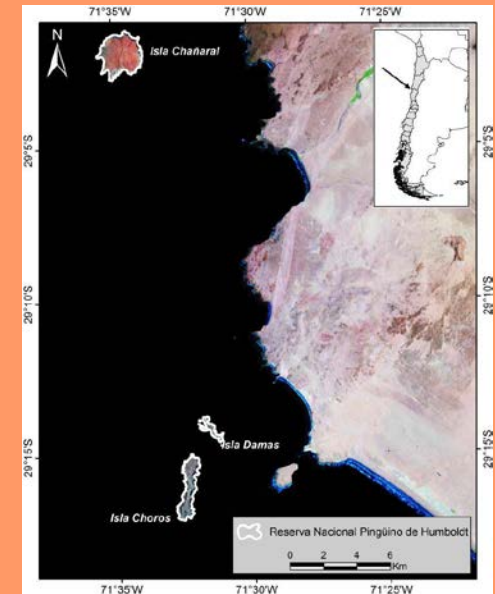
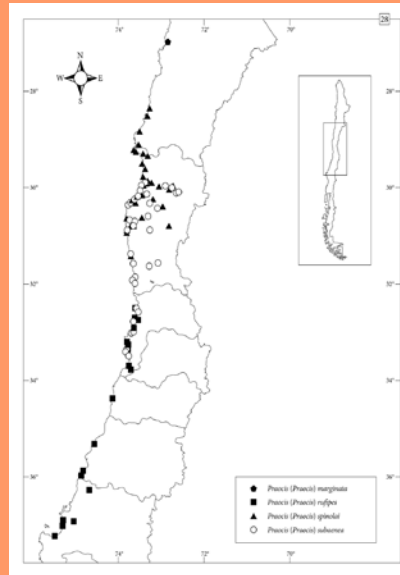
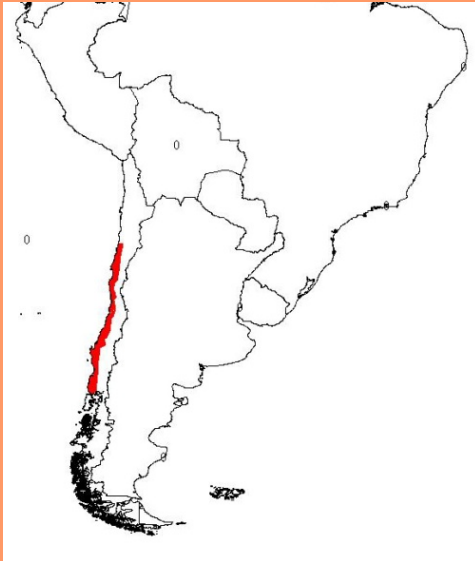
11) protibiae:

- A) explanate
- B) not explanate




I. *Praocis (Praocis)* Eschscholtz, 1829 (endemic to Chile)

New record: Pacific islands



16 spp + 2 spp recently described = 18 spp (12.5 % increasing)

For *Praocis* s. str. 29 names have been proposed, of which 16 are valid and 13 (45 %) are synonymous.

 Zootaxa 2386: 65–68 (2010)
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ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

Two new synonymies in the genus *Praocis* (Coleoptera: Tenebrionidae)

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 Zootaxa 3336: 1–35 (2012)
www.mapress.com/zootaxa/
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Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

Systematic revision of the South American genus *Praocis* Eschscholtz, 1829 (Coleoptera: Tenebrionidae). Part 1: Introduction and subgenus *Praocis* s. str.

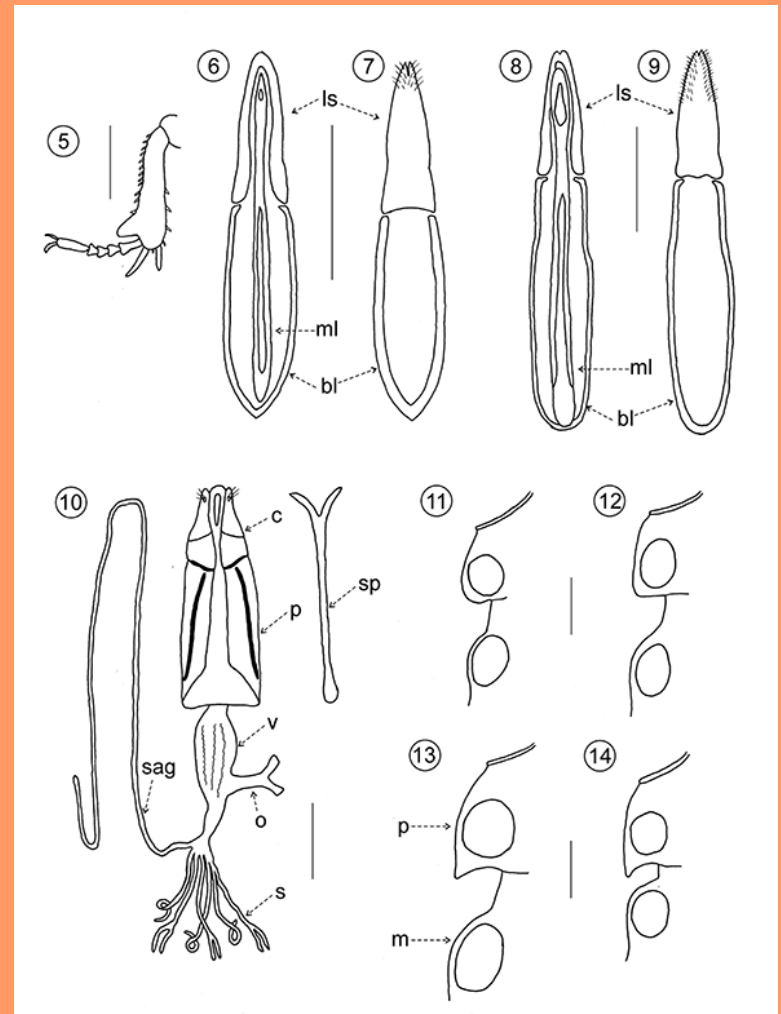
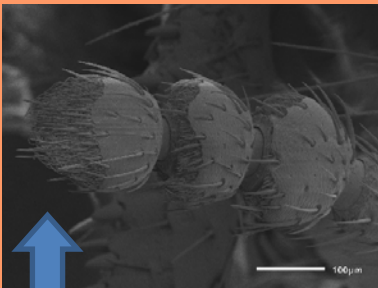
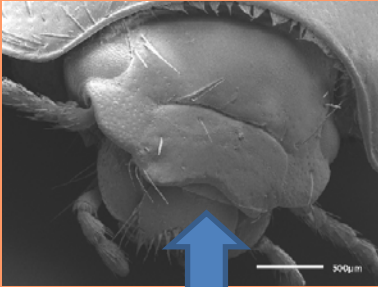
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Character states of *Praocis* (*Praocis*)

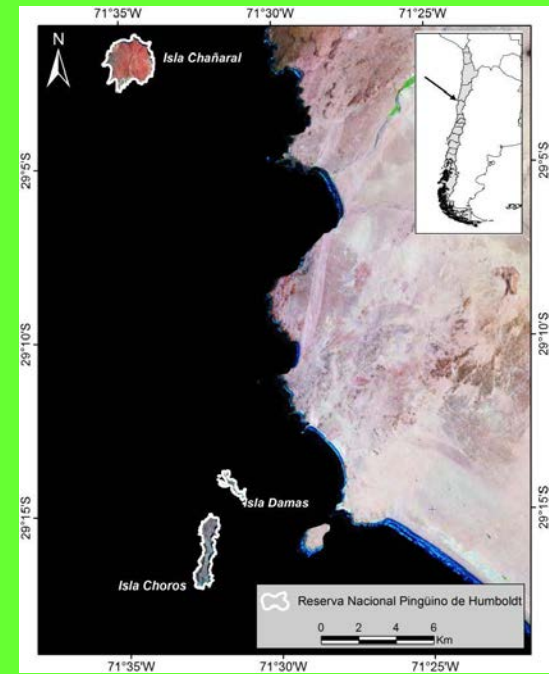
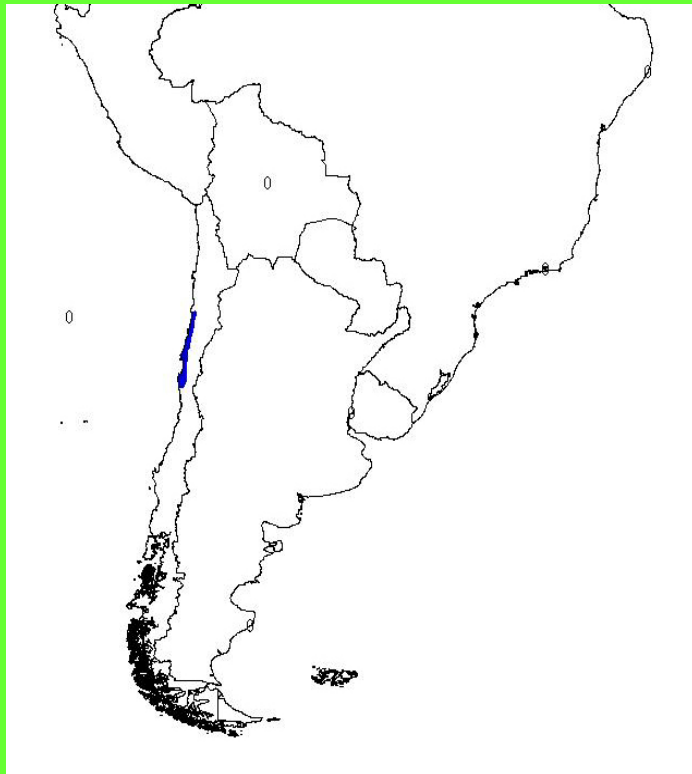


II. *Praocis (Mesopraocis)* Kulzer, 1958

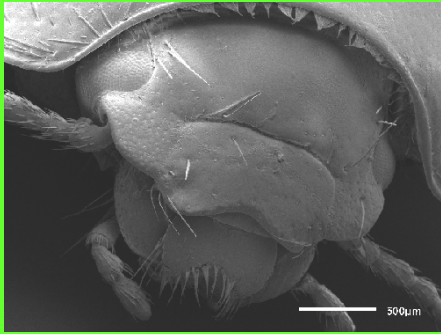
(endemic to Chile)

New record: Pacific islands

4 spp + 1 n. sp = 5 spp (25 % increasing)



II. *Praocis* (*Mesopraocis*) Kulzer, 1958



Coastal dunes; Chañaral de Aceituno (Atacama Region, Chile)



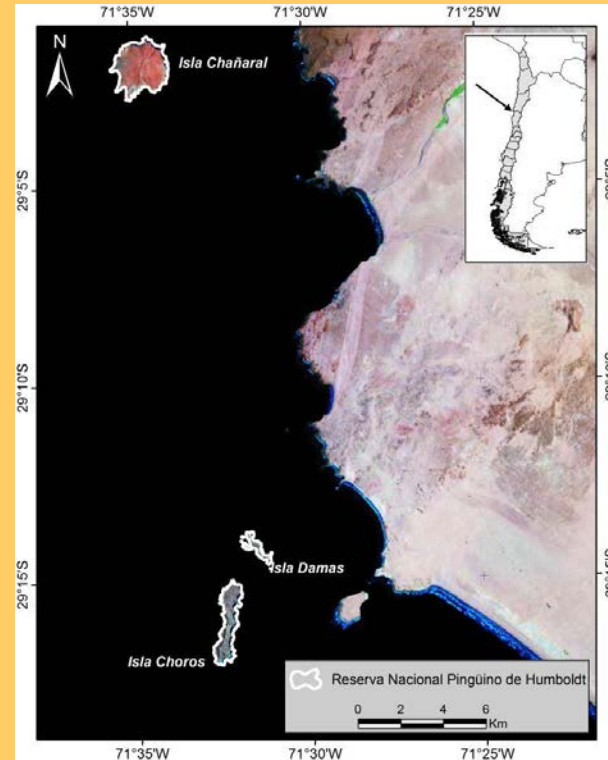
III. *Praocis (Postpraocis)* Kulzer, 1958

(Argentina, Chile)

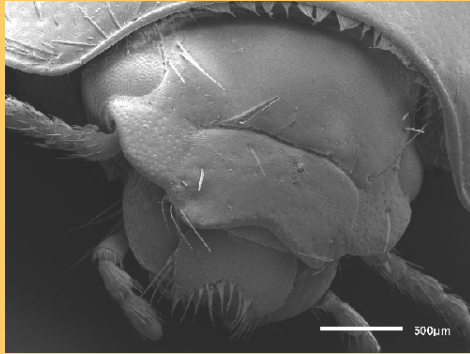
New records: Bolivia and Pacific islands

6 spp, 1 ssp + 2 n. sp = 9 spp/ ssp

(28.5 % increasing)



III. *Praocis* (*Postpraocis*) Kulzer, 1958



Damas Island;
Pingüino de Humboldt National Reserve, Chile



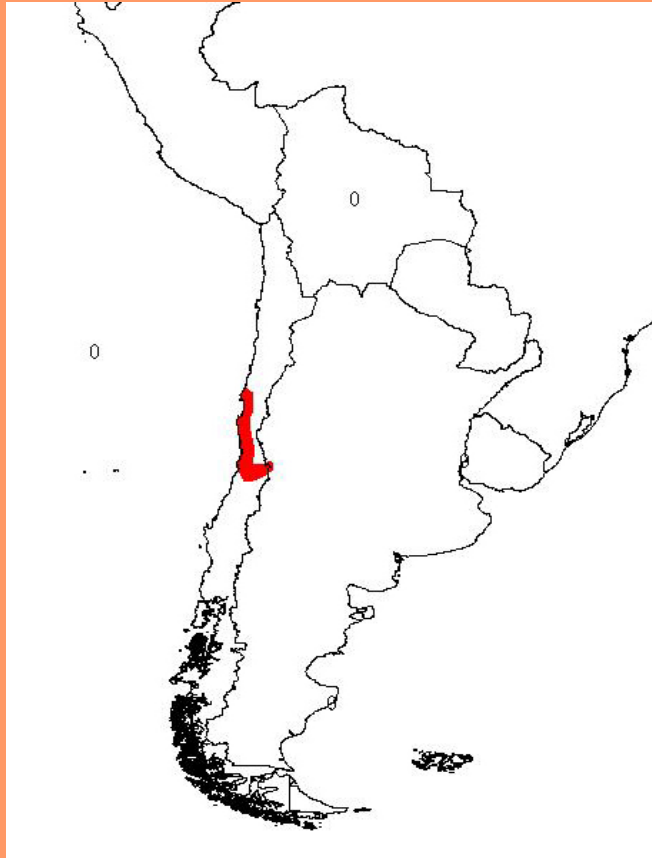
IV. *Praocis* (*Anthrasomus*)

Guérin-Ménéville, 1834

(Chile)

New record: Argentina

3 spp, 2 ssp + 1 n. sp = 6 spp/ ssp (20 % increasing)



***V. Praocis (Filotarsus)* Gay & Solier, 1840**

(Argentina, Chile, Bolivia, Peru)

14 spp + 6 n. sp Chile = 20 spp (43 % increasing)



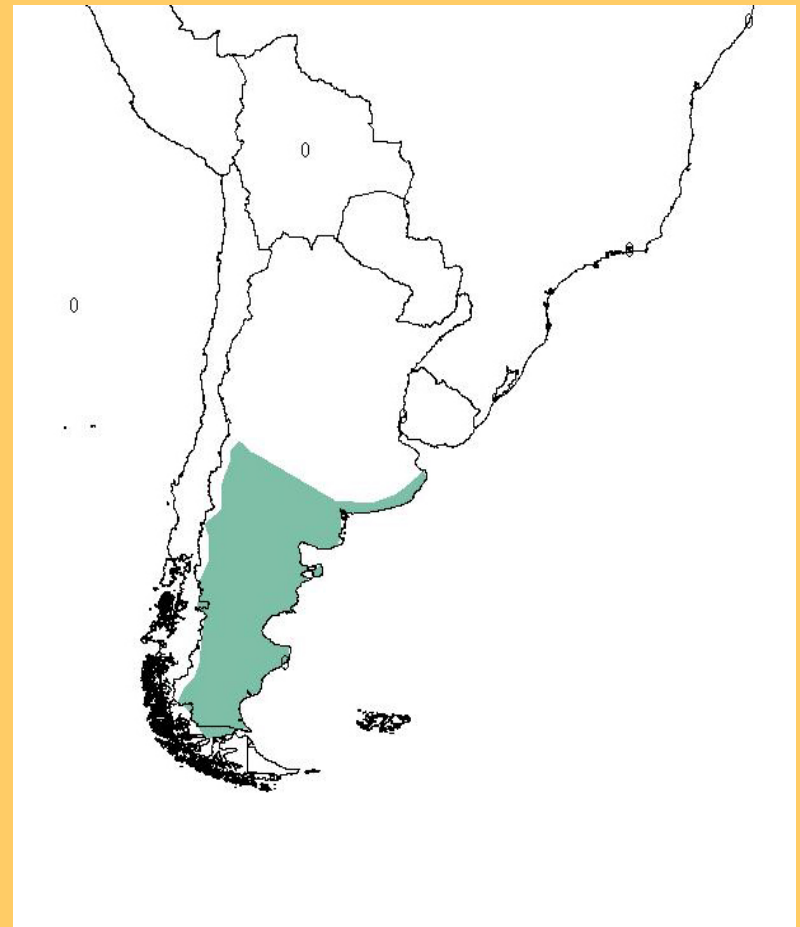
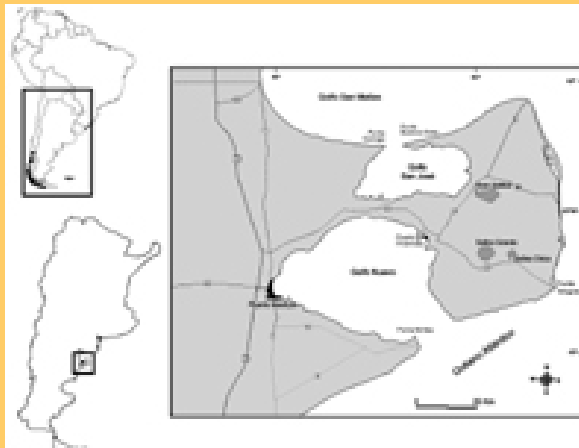
Uspallata Valley, Mendoza, Argentina


VI. *Praocis* (*Hemipraocis*) Kulzer, 1958

(Argentina, Chile)

New records: Atlantic islands and
Peninsula Valdes

4 spp, 2 ssp + 2 spp recently described
+ 8 n. sp Argentina = 16 spp/ ssp
(167 % increasing)



 Zootaxa 2965: 39–50 (2011)
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Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

Three new Praociini (Coleoptera: Tenebrionidae) from Peninsula Valdés (Argentina), with zoogeographical and ecological remarks

GUSTAVO E. FLORES^{1,3}, RODOLFO CARRARA¹ & GERMÁN H. CHELF²

VI. *Praocis* (*Hemipraocis*) Kulzer, 1958



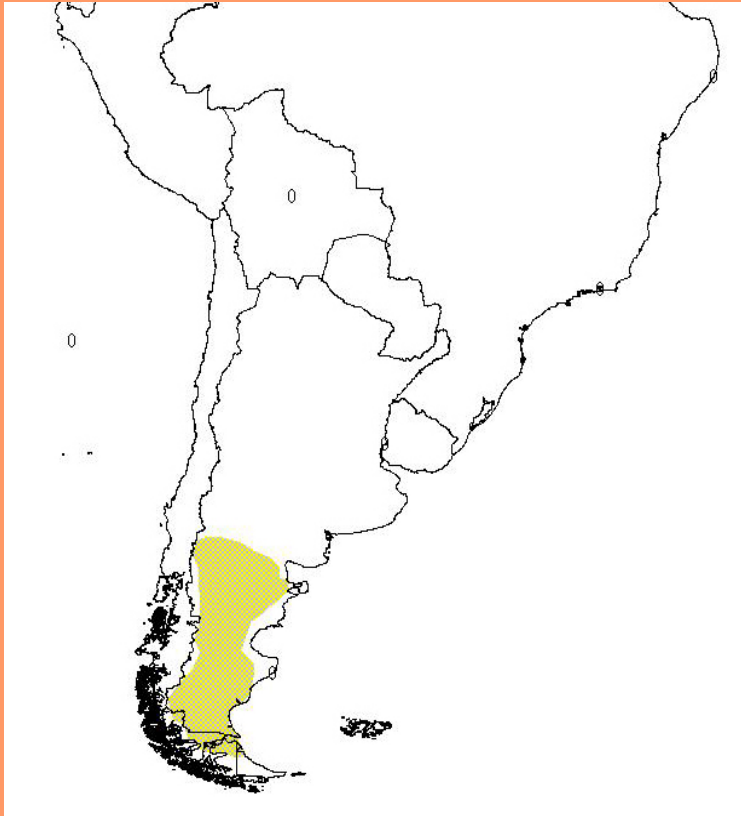
Protected Natural Area Península Valdés, Argentina

VII. *Praocis* (*Praonoda*) Kulzer, 1958

(Argentina, Chile)

2 spp + 2 n. sp. Argentina = 4 spp

(100 % increasing)



VIII. *Praocis* (*Orthogonoderes*) Gay & Solier, 1840

(Argentina, Bolivia, Chile, Peru)

New records: Atlantic coast in Argentina and
mountains in Buenos Aires province

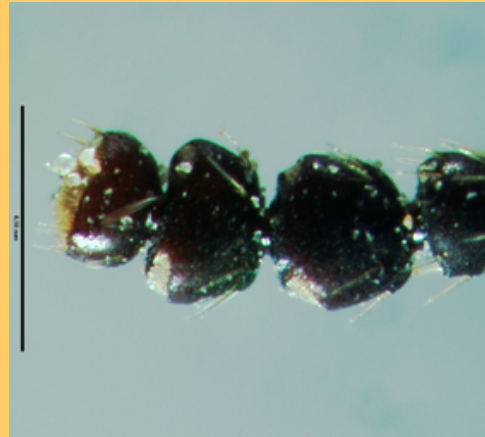
22 spp, 1 spp + 4 n. sp. Argentina + 3 n. sp

Chile + 3 n. sp Peru (10 species to be
described) = 33 spp/ spp (43 % increasing)



Praocis (*Orthogonoderes*) *chilensis* (Gray)

Character states of (*Orthogonoderes*)



Rio Grande Valley, Mendoza, Argentina



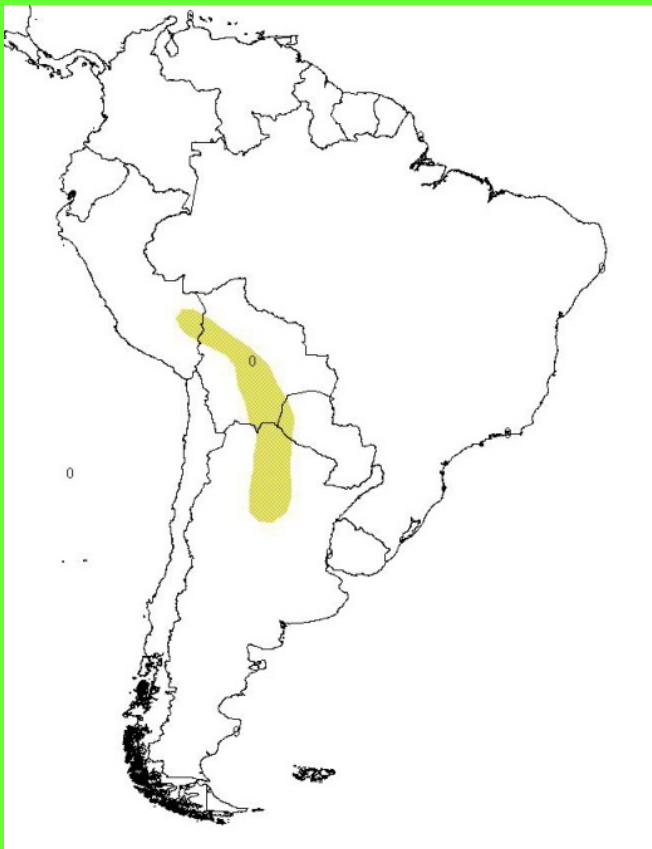
IX. *Praocis (Praocida)* Kulzer, 1958

(Argentina, Bolivia, Peru)

New record: Paraguay

(Chaco)

4 spp + 3 n. sp. Argentina, Bolivia, Paraguay = 7 spp (75 % increasing)



Biogeography



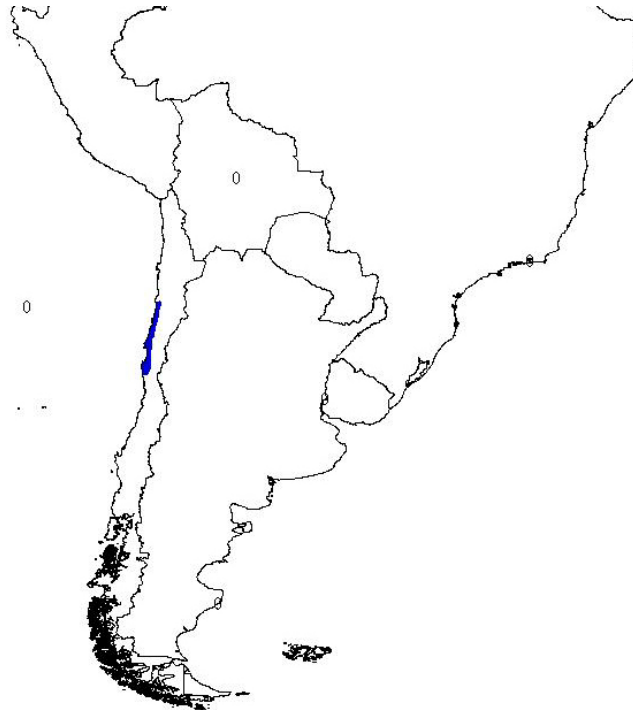
Subgenera

	<i>Praocis s. str.</i>	<i>Mesopraocis</i>	<i>Postpraocis</i>	<i>Anthrasomus</i>	<i>Filotarsus</i>	<i>Hemipraocis</i>	<i>Praonoda</i>	<i>Orthogonoderes</i>	<i>Praocida</i>	
Distribution, affected or not by uplift of Andes										
A) west of Andes		X	X		X					
B) east of Andes							X	X		X
c) widely distributed on both sides of the Andes			X		X				X	

Praocis s. str.



Mesopraocis



Anthrasomus



Biogeography



Subgenera

Praecis s. str. *Mesopraecis* *Postpraecis* *Anthrasomus* *Filotarsus* *Hemipraecis* *Praonoda* *Orthogonoderes* *Praecida*

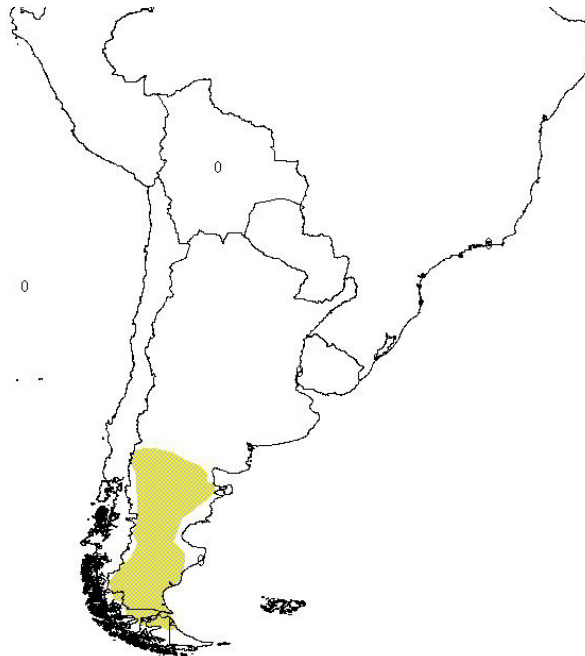
Distribution,
affected or not by
uplift of Andes

A) west of Andes	X	X		X					
B) east of Andes						X	X		X
c) widely distributed on both sides of the Andes			X		X			X	

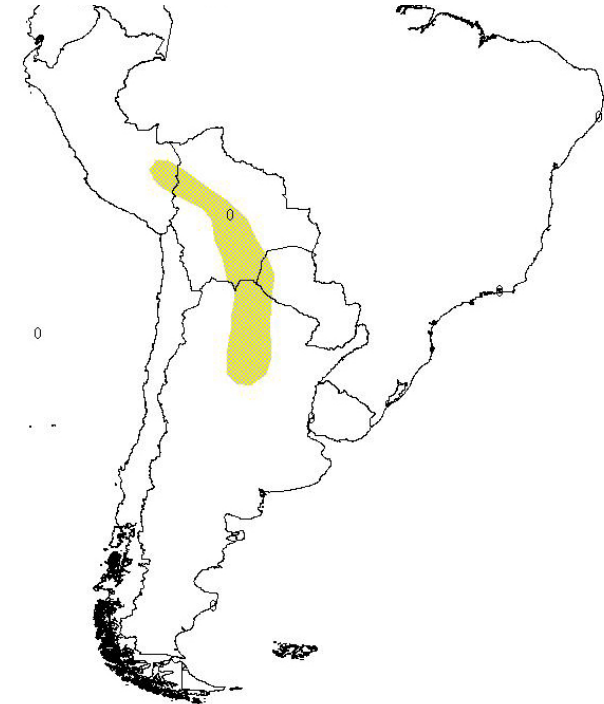
Hemipraecis



Praonoda



Praecida



Biogeography



Subgenera

Praocis s. str. *Mesopraocis* *Postpraocis* *Anthrasomus* *Filotarsus* *Hemipraocis* *Praonoda* *Orthogonoderes* *Praocida*

Distribution,
affected or not by
uplift of Andes

A) west of Andes

X

X

X

B) east of Andes

X

X

X

c) widely distributed on
both sides of the Andes

X

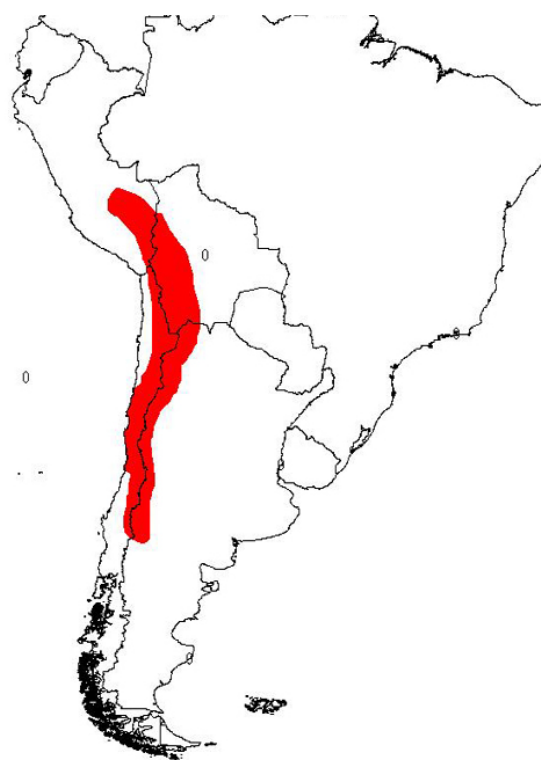
X

X

Postpraocis



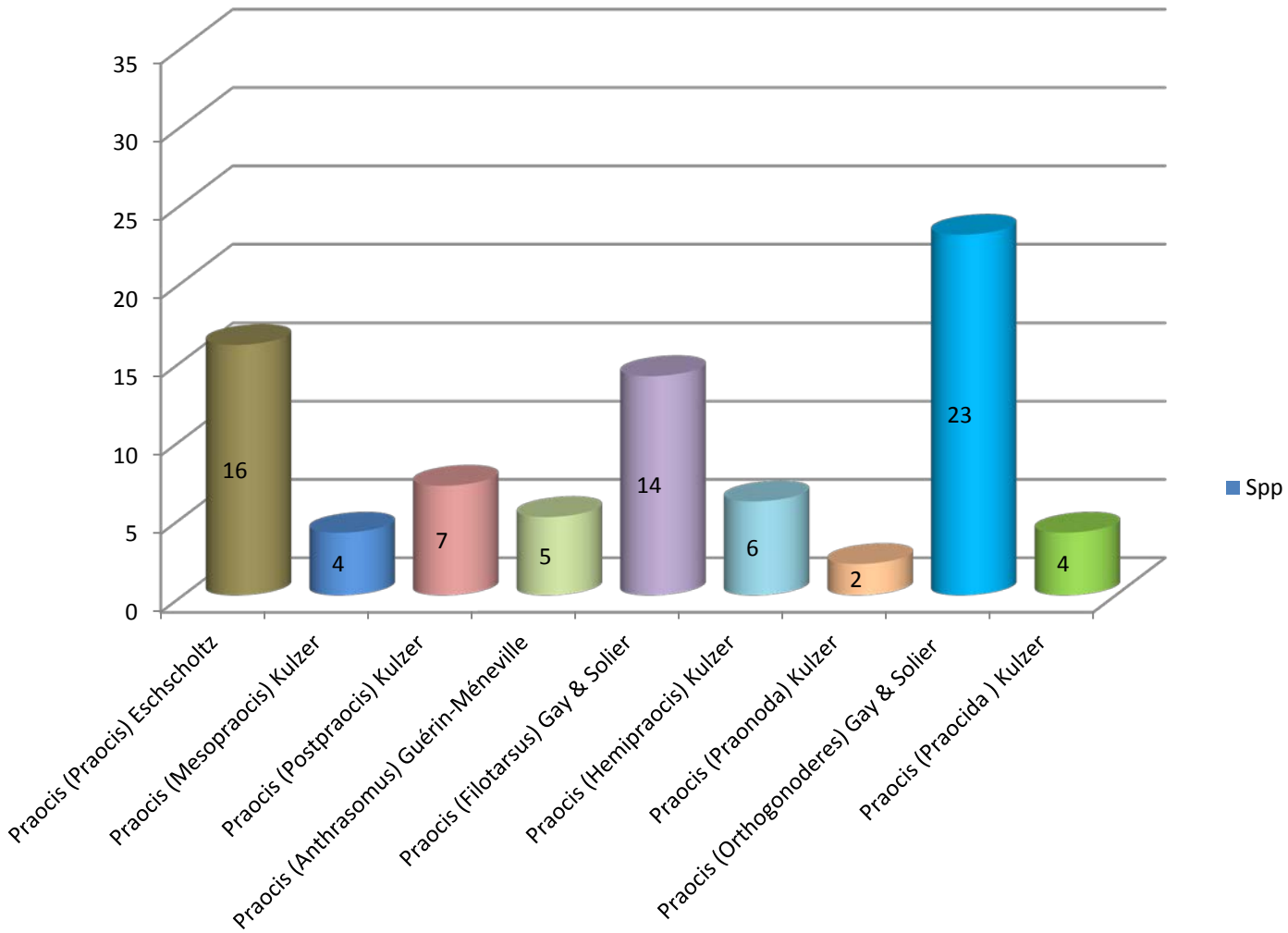
Filotarsus



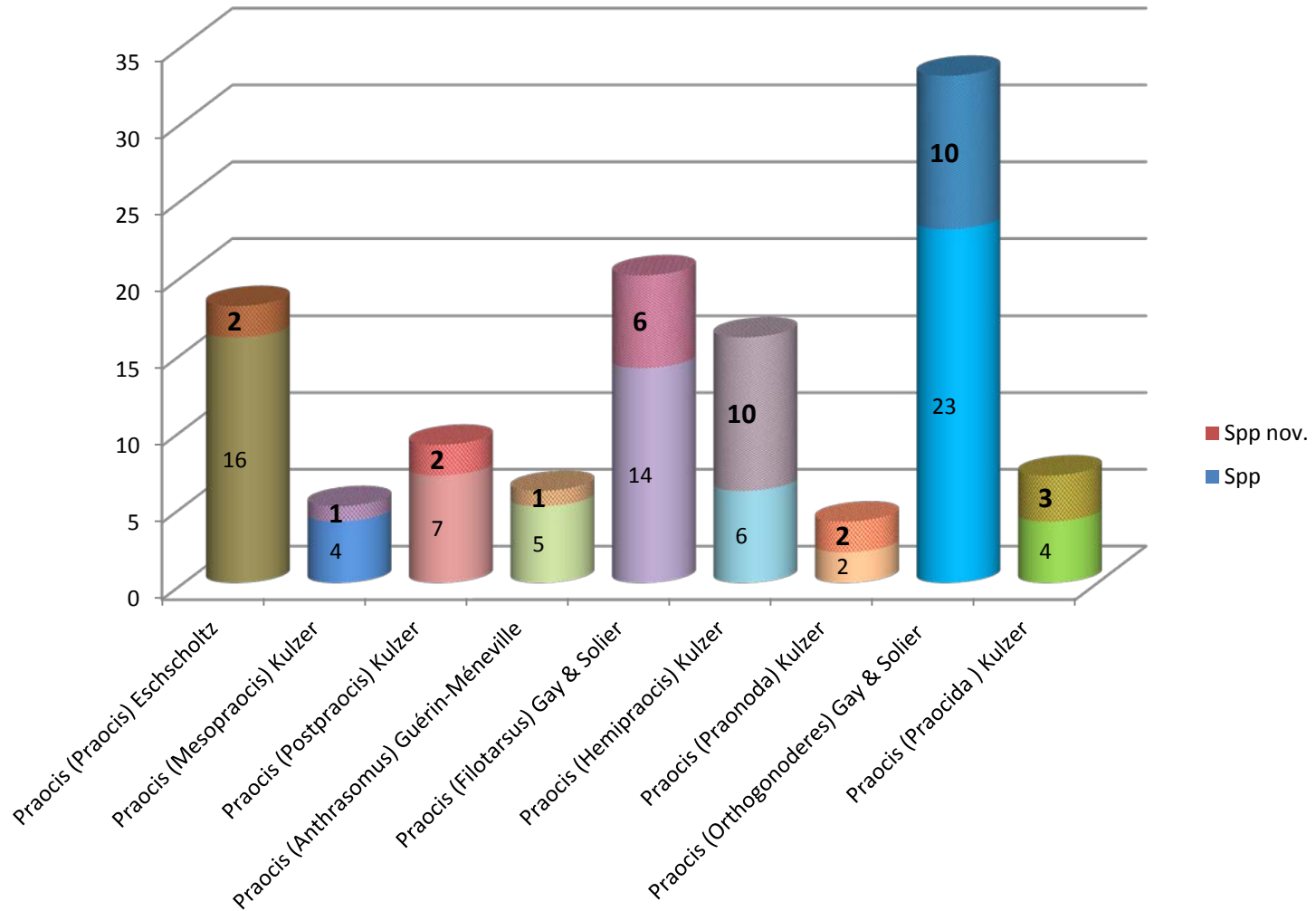
Orthogonoderes



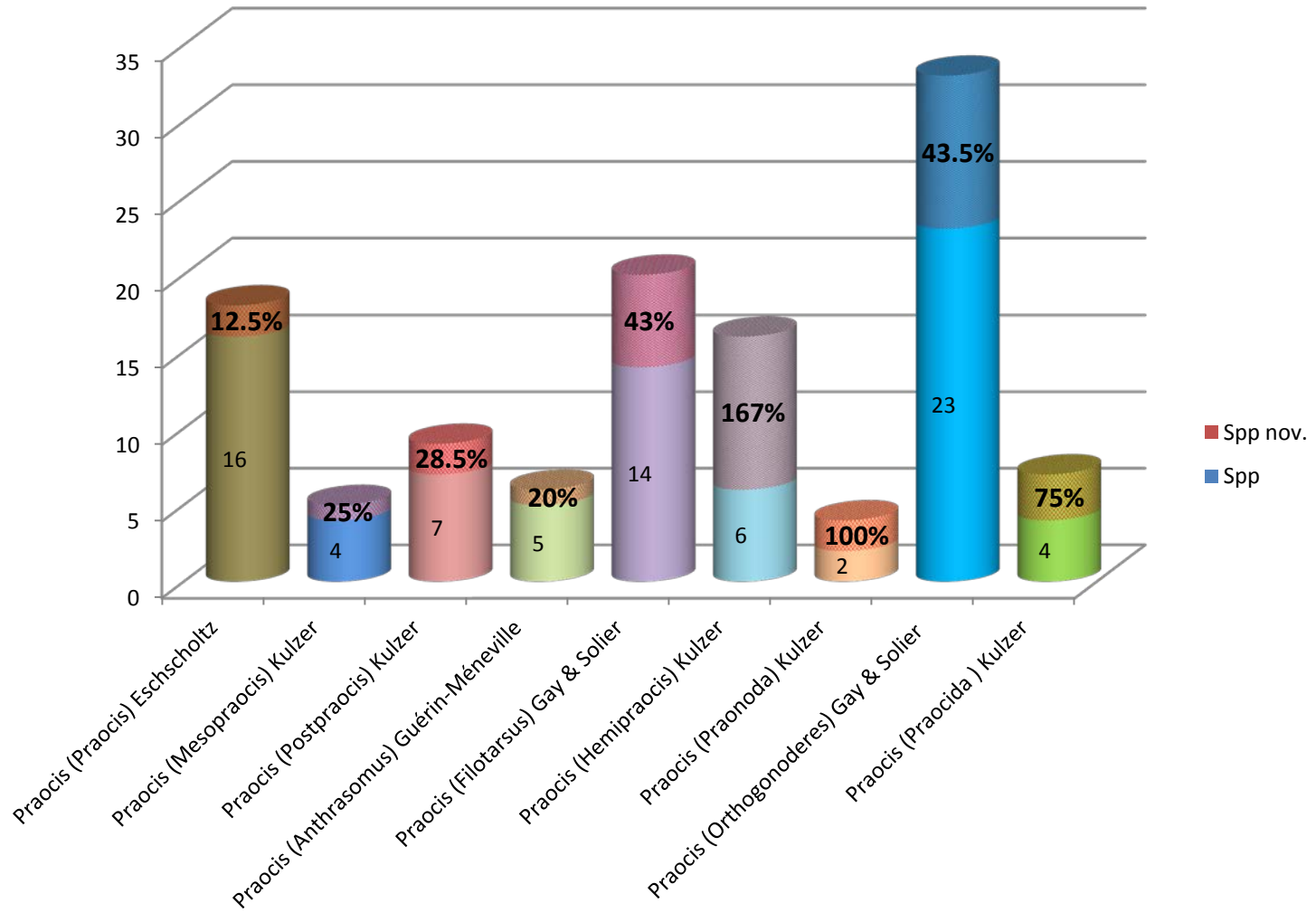
Current number of known species by subgenus



Number of new species to be described by subgenus



Percentage of increasing the number of species by subgenus



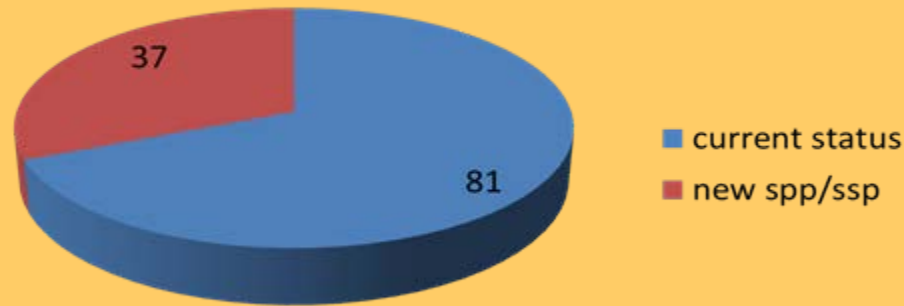
Current status of genus *Praocis*:

81 species/subspecies (74 species and 7 subspecies) arranged in 9 subgenera

Future status:

With the 37 species to be described/ recently described = 118 species/subspecies

46% increasing the number of species of genus



Problems:

- For 18 (half) of the 37 undescribed species we have only 1 specimen or less than five
- 7 species are incertae sedis for which the types are lost (Lacordaire, Laporte)

Good news:

- Good accessibility to the types: Paris, London, Berlin, Basel, Chicago, Santiago, Buenos Aires, La Plata

Future research:

Trips to collecting

Descriptions of larvae *Praocis* (*Praocis*)

Research on the kind of legs adapted to environments

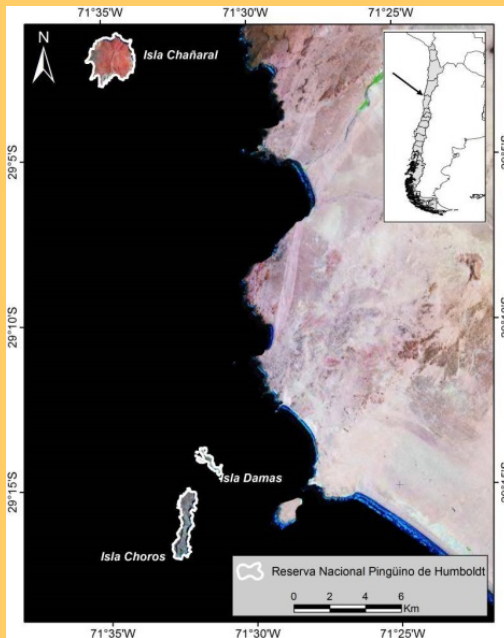
Do the revisions of 8 subgenera establishing characters and describing the 37 n. sp.

Do a key for identification of the 9 subgenera

Do the phylogeny of the 9 subgenera to test if

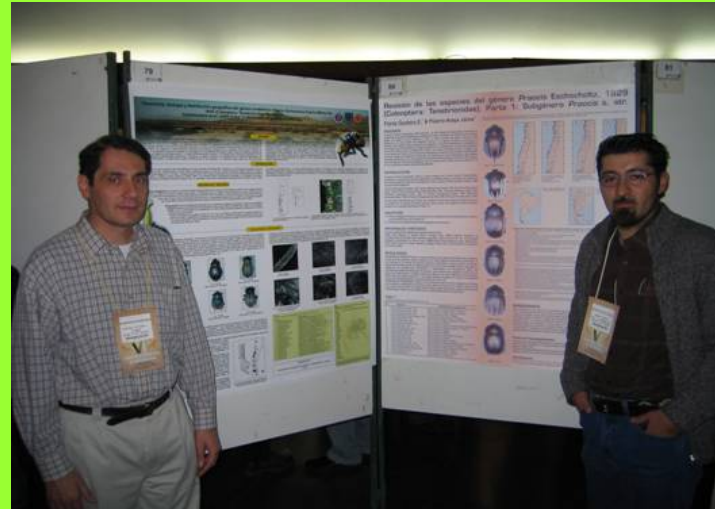
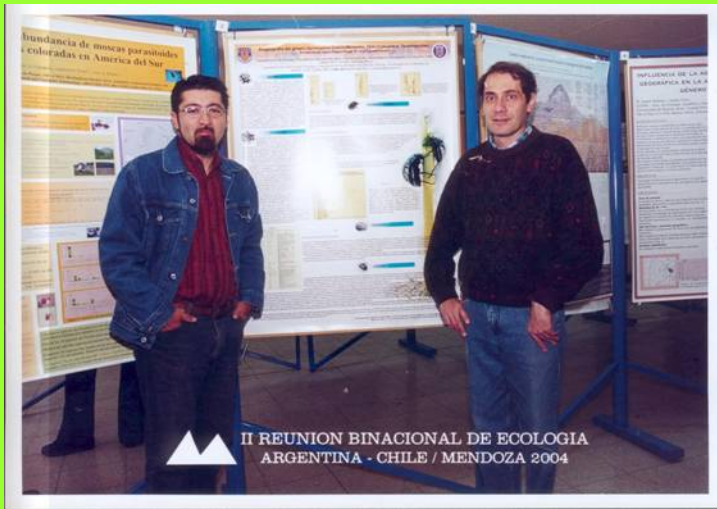
Praocis is monophyletic establishing its relationships

Next revision: *Mesopraocis* (in progress)



Acknowledgments

- To the organizers of this symposium for the invitation.
- To the CONICET (The National Council for Science and Technology, Argentina).
- To a grant from Dirección de Investigación, Universidad de La Serena, Chile.





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