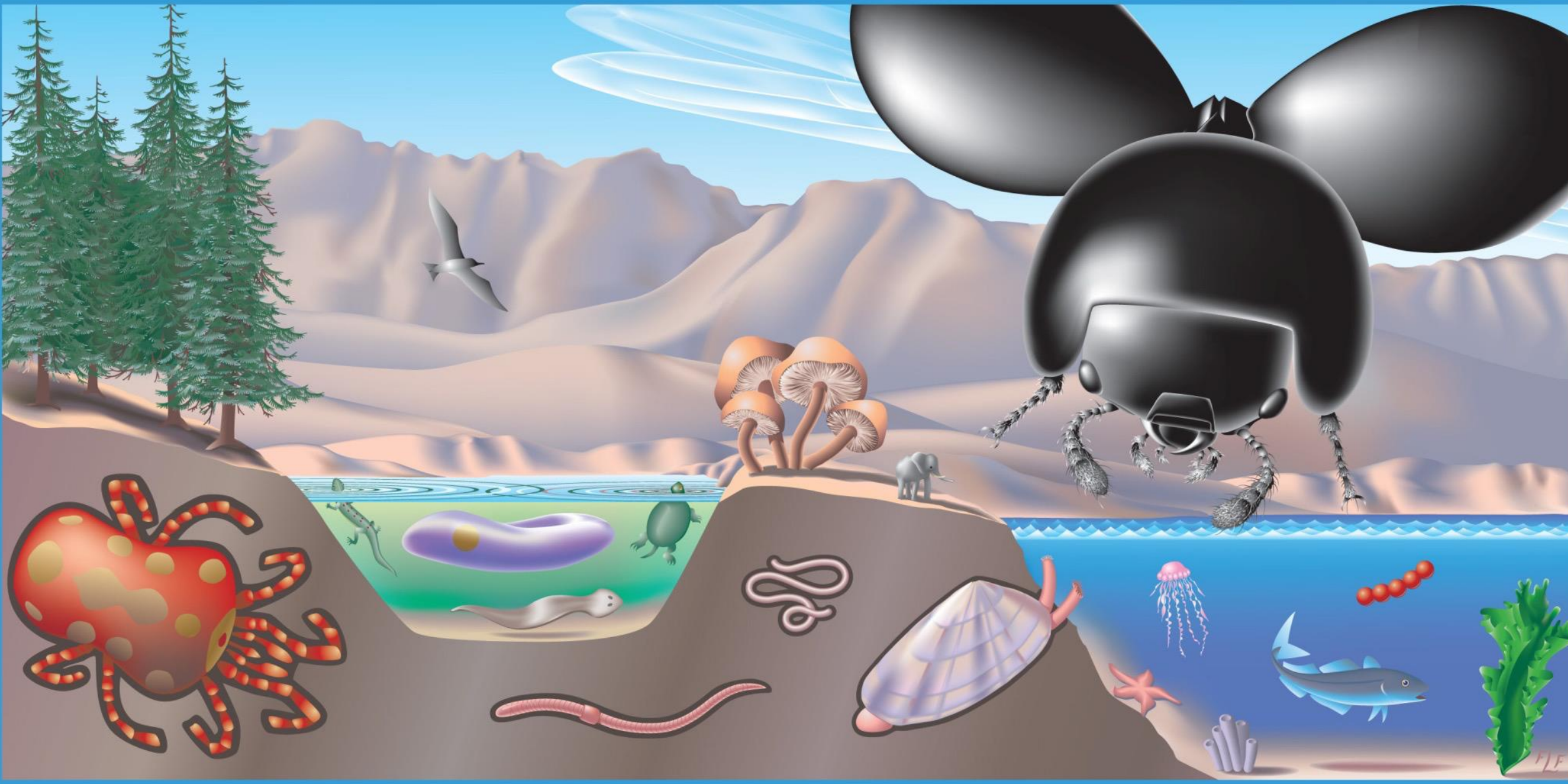
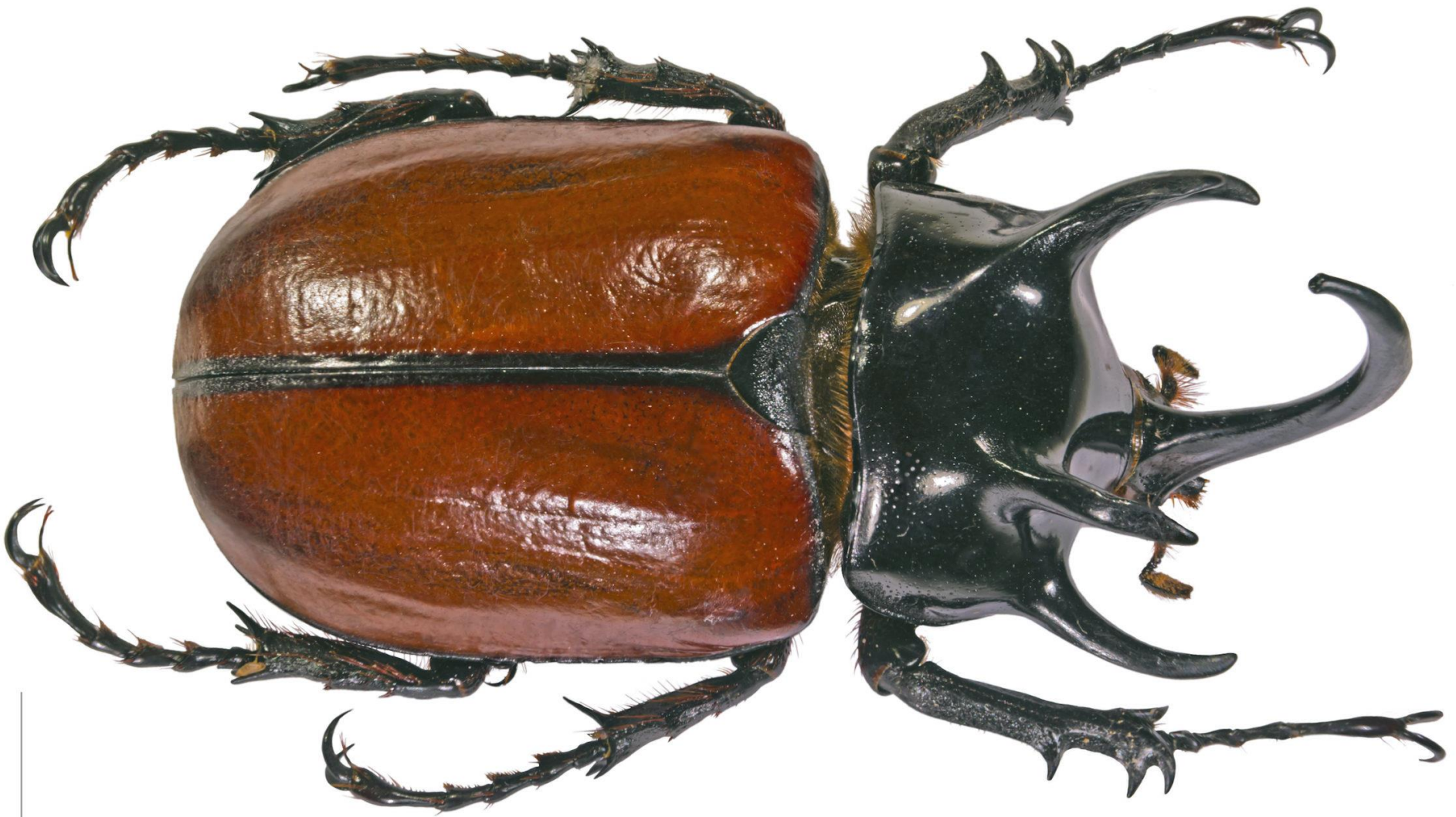


Coleoptera

Diversity and Identification







1 cm

How can you distinguish
different beetle families?

THINK

PAIR

SHARE

- Find a partner or two (If you see someone without a partner, invite them to join you!)
- Discuss:
How many Coleoptera families are present in this slide?





Carabidae



Passalidae



Scarabaeidae



Oedemeridae



Lucanidae



Trogossitidae



Tenebrionidae



Pythidae

THINK

PAIR

SHARE

- Find a partner or two (If you see someone without a partner, invite them to join you!)
- Discuss:
How many Coleoptera families are present in this slide?



Cerambycidae



Cucujidae



Cerambycidae



Cerambycidae



Cerambycidae



THINK

PAIR

SHARE

- Find a partner or two and discuss:
- How many Coleoptera families are present in this slide?



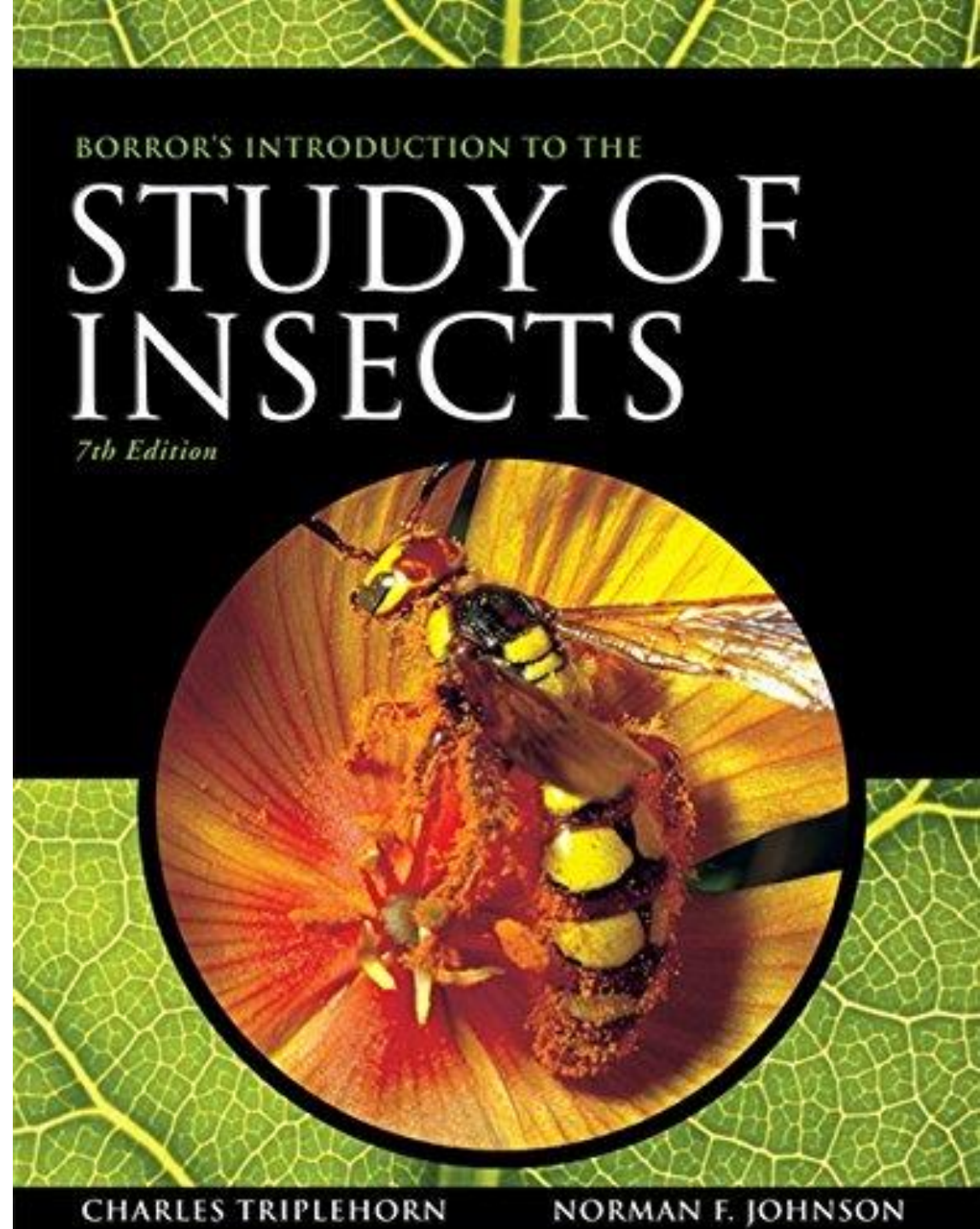
Only one – Chrysomelidae!

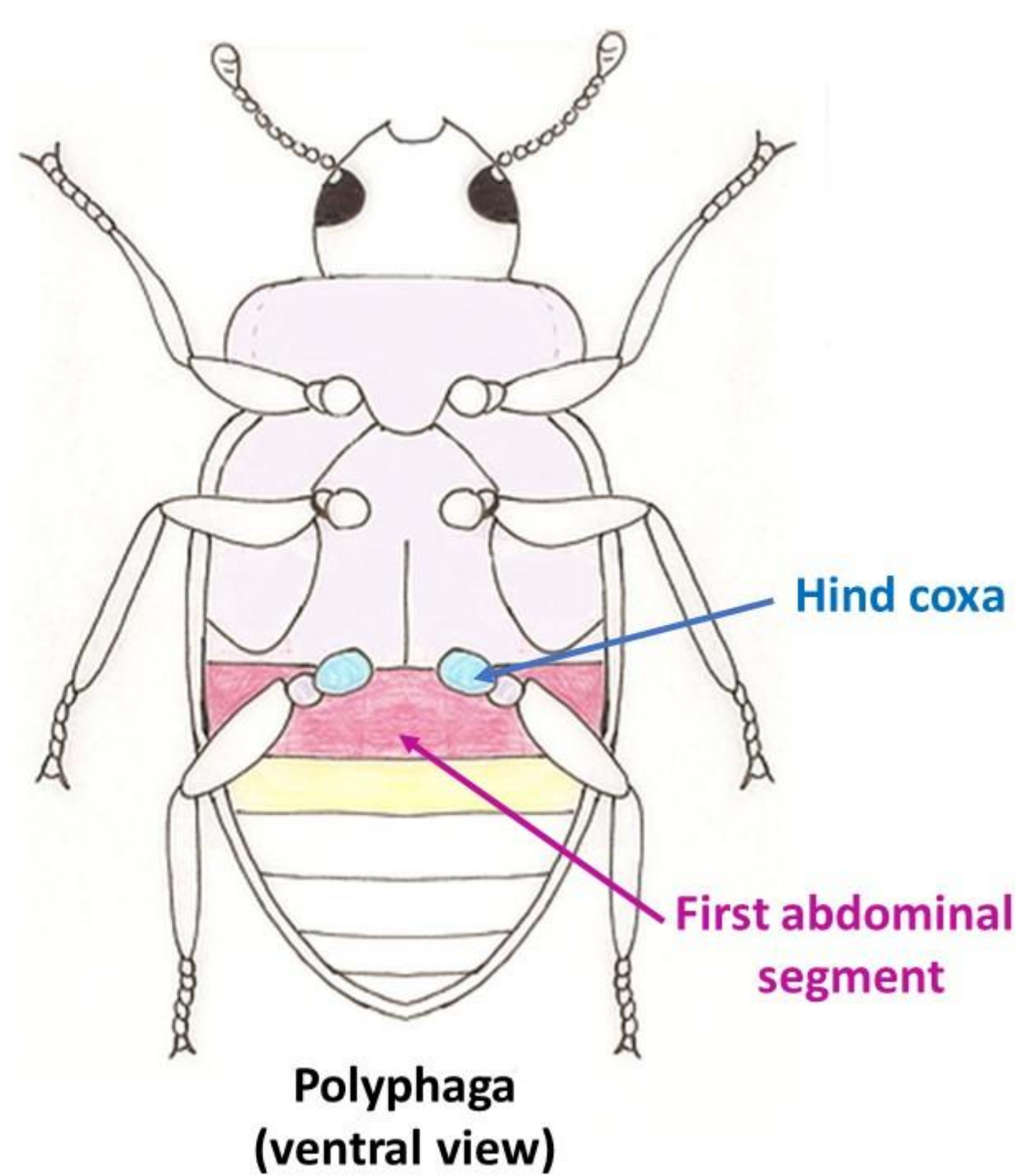
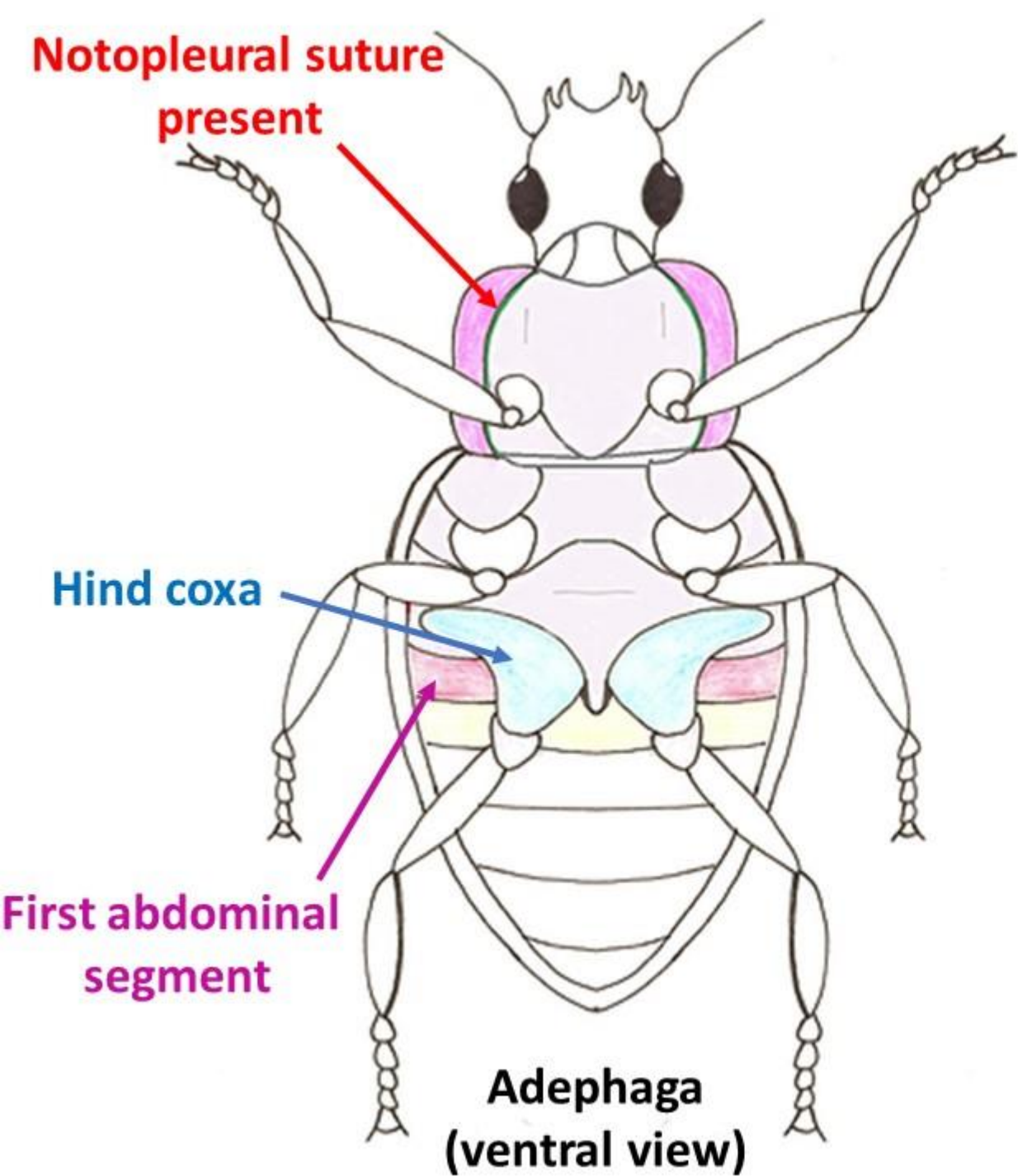


How can you distinguish
different beetle families?

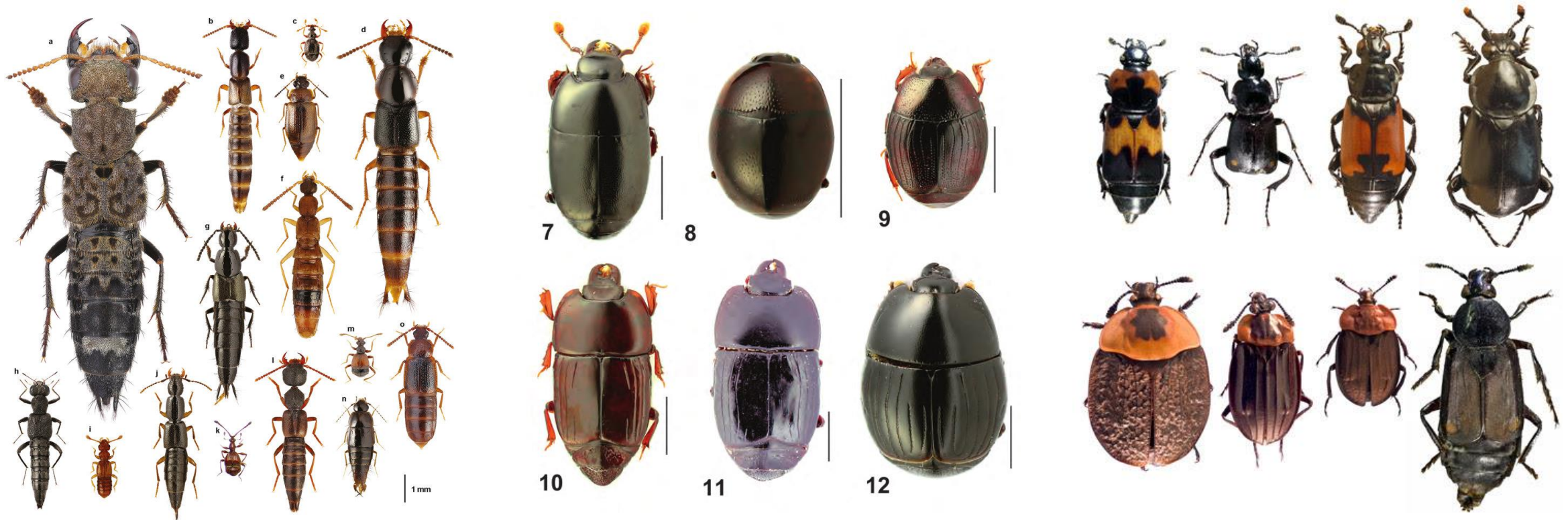
Identification Key

- Coleoptera divided into **four** suborders
- Archostemata and Myxophaga exceedingly **rare**
- Focus on **Adephaga** and **Polyphaga**



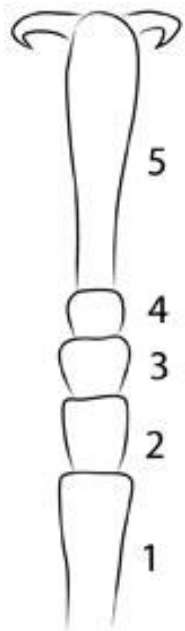


- “Elytra short and truncate”
- “Elytra very short, leaving 3 or more abdominal tergites exposed”
- “One or more abdominal terga exposed beyond elytra”

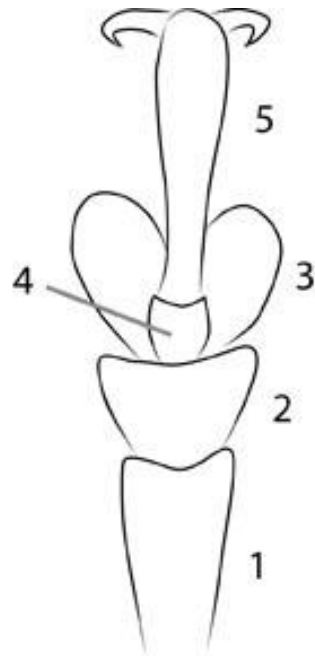


- “Tarsi apparently 4-4-4”
- “Tarsi pseudotetramerous”
- “Apparent penultimate tarsomere lobed below, enclosing and nearly hiding true fourth tarsomere”

Fig. 1.1. Pseudotetramerous tarsi of *Brachysomida californica*. The fourth tarsal segment is reduced and hidden within the lobed third tarsomere, giving the appearance that there are just four total tarsal segments instead of five.



pentamerous
tarsus



pseudotetramerous
tarsus



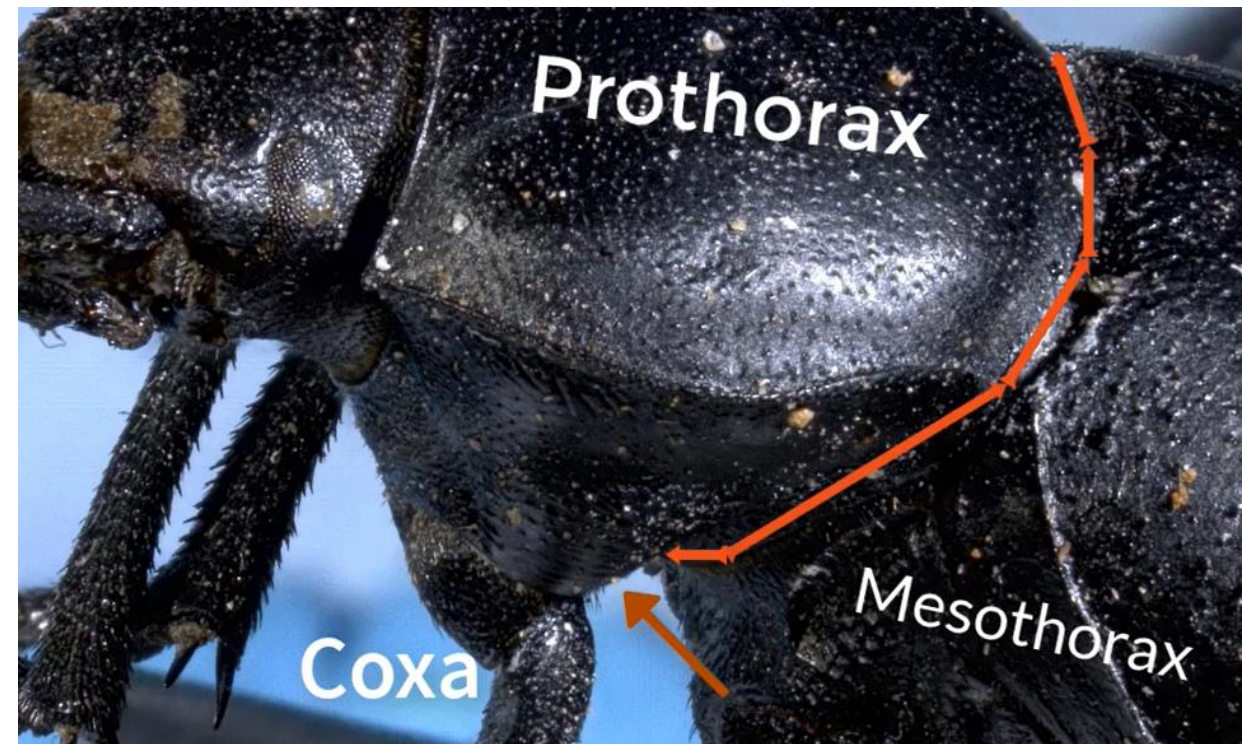
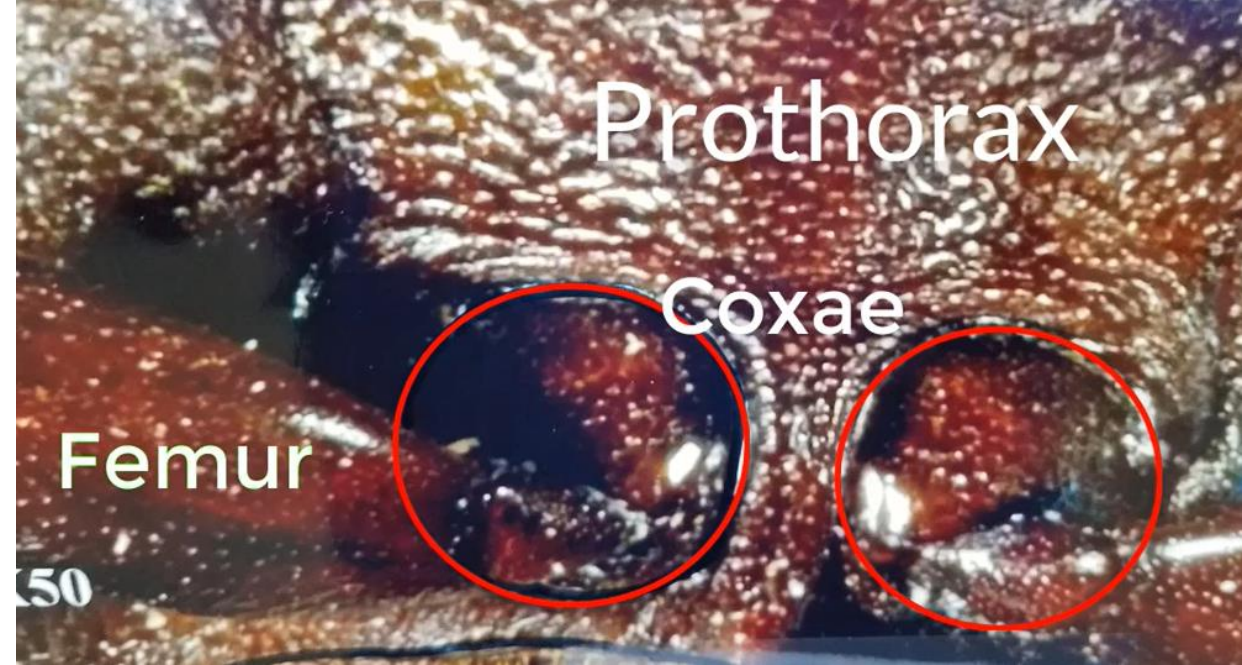
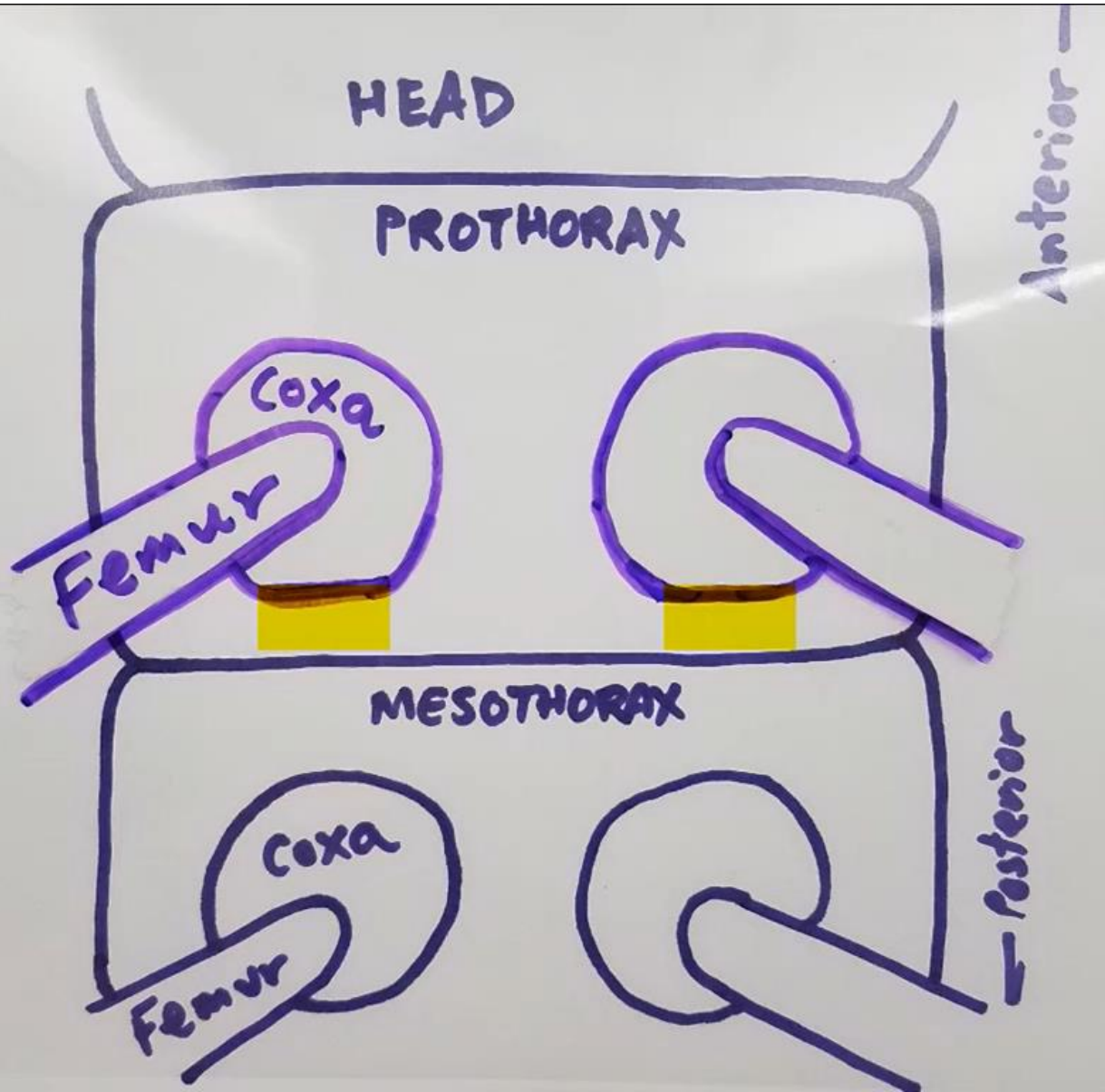
- Head rostrate



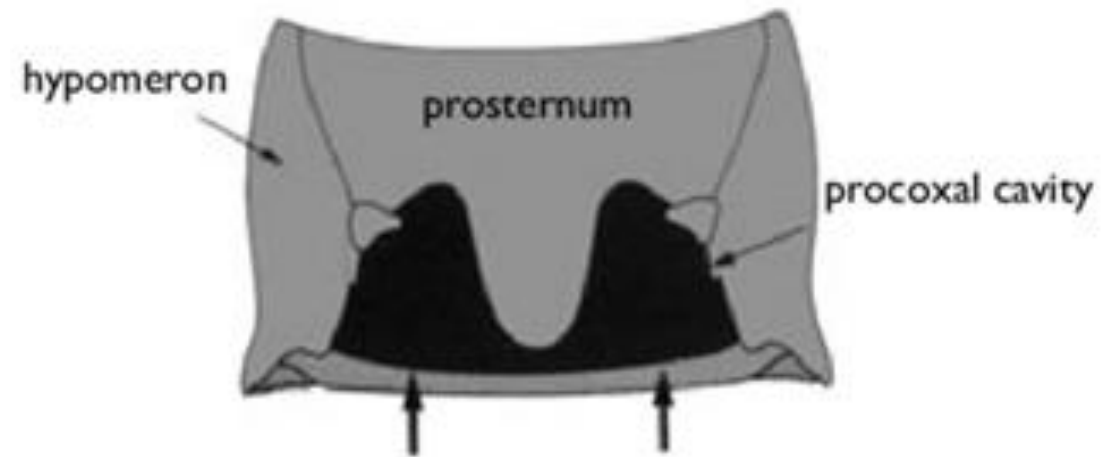
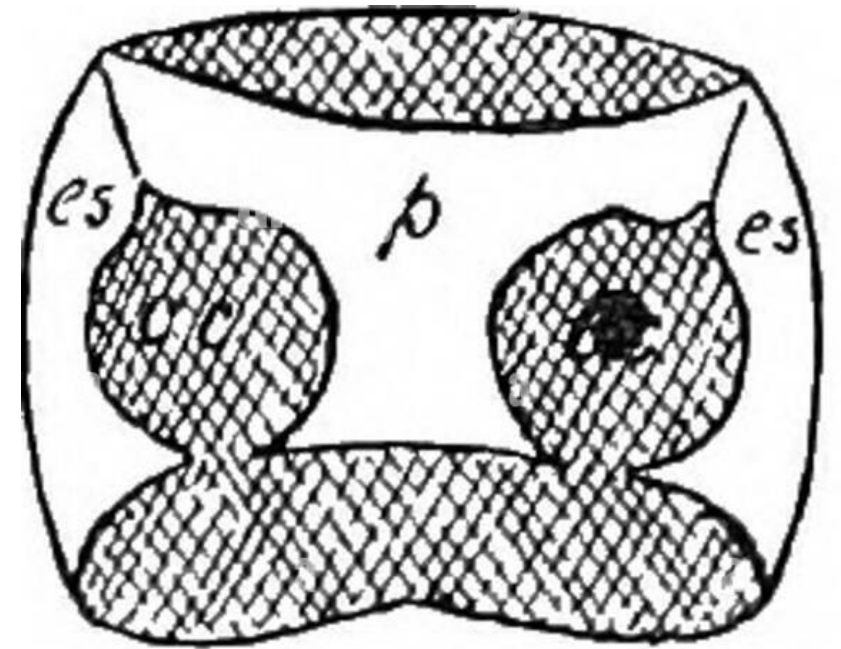
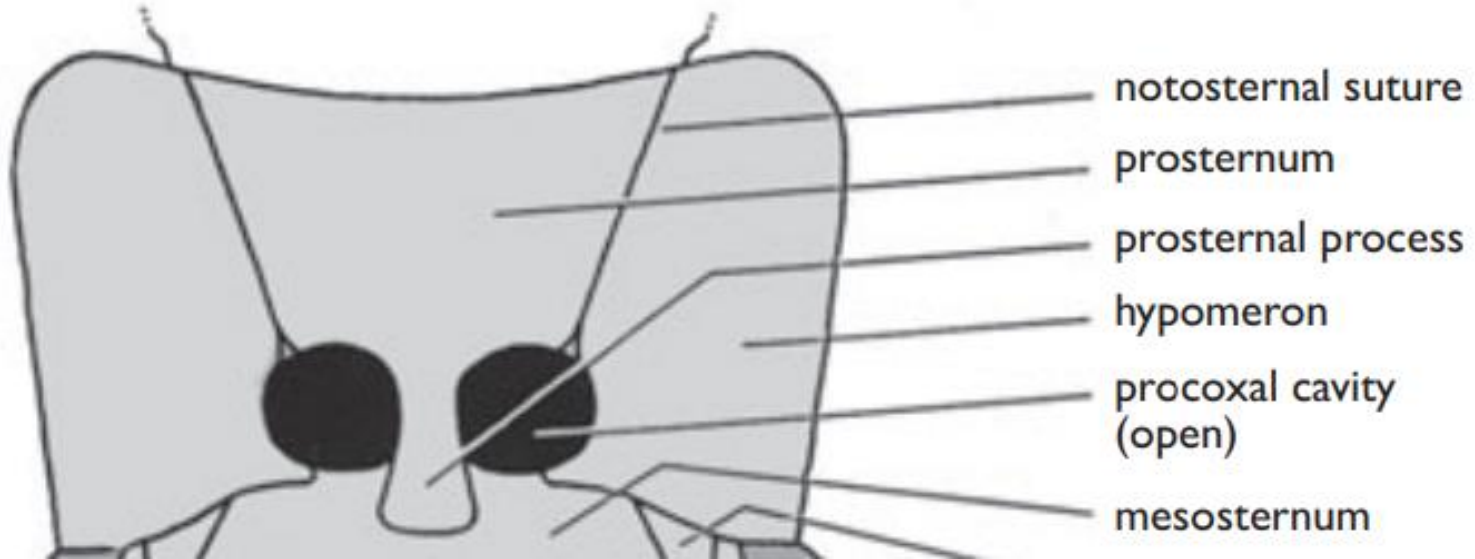
- Head concealed from above



- Fore coxal cavity closed



- Fore coxal cavity open



- Punctate

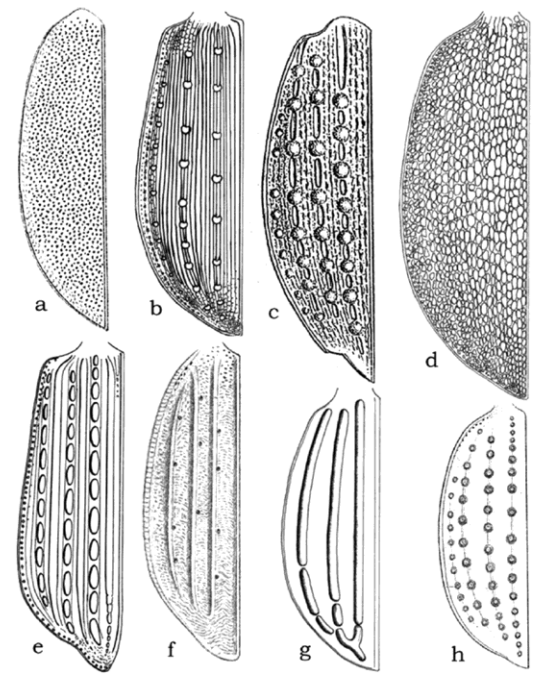


- Pubescent (hair)

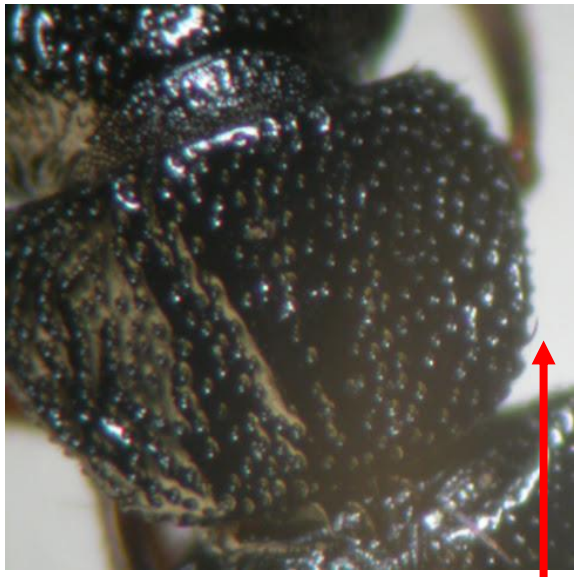


- Sculptured

- Often used synonymous with or alongside "punctate"



- Crenulate



Group activity

- Groups of 3-4 students
- Use the key to ID the specimens provided to you
- Be prepared to discuss your observations

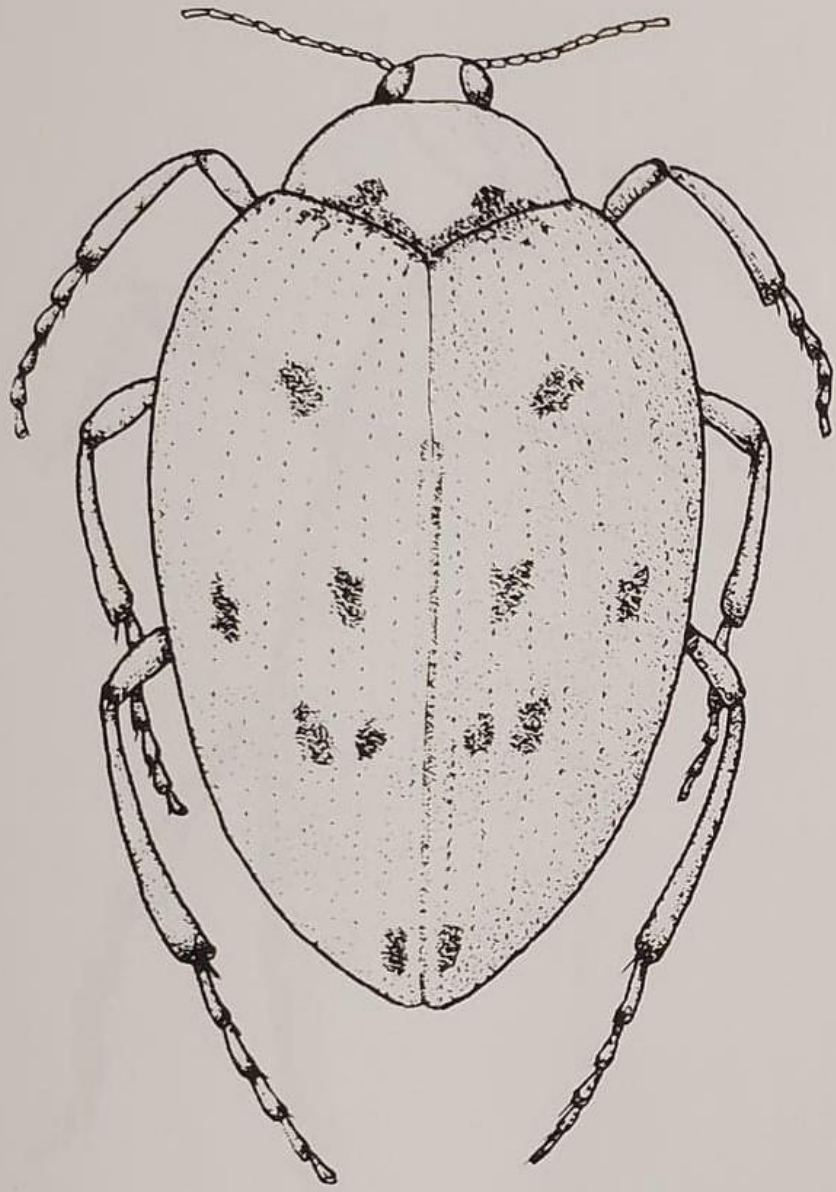
Specimen A:

Suborder:

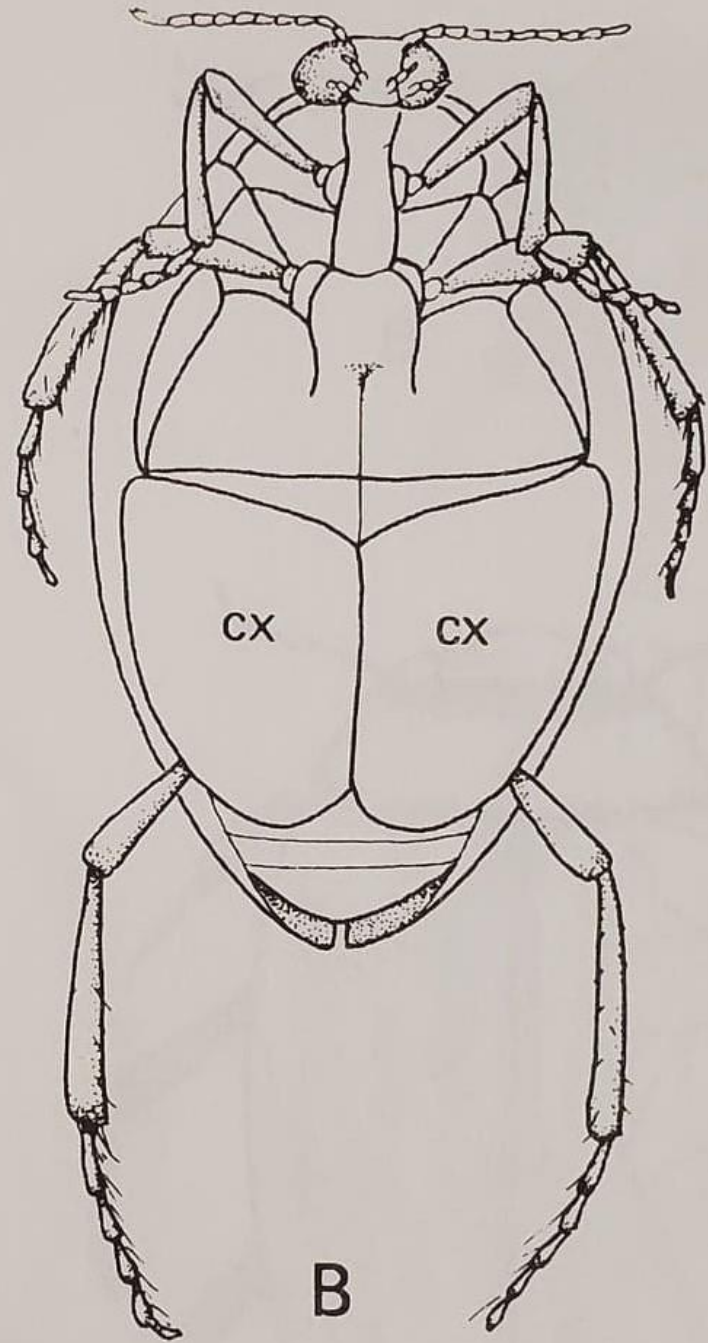
Family:

Steps on the key:

Diagnostic characters:



A

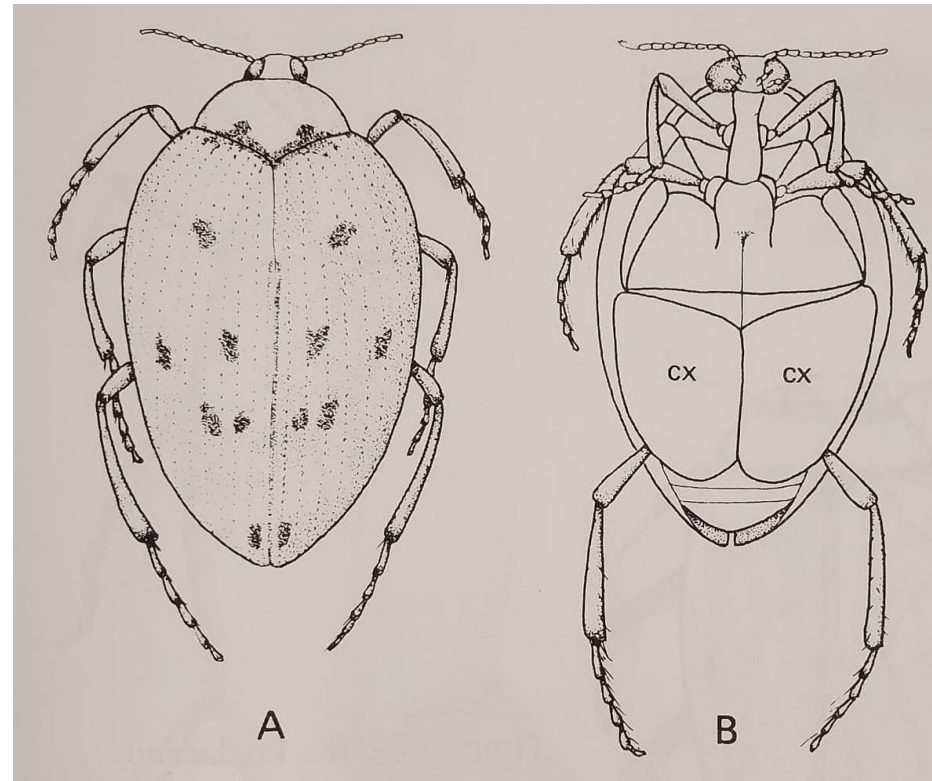


B

Steps on the key

1. Elytra present, complete, short, or reduced to flaplike stubs on the thorax.....**2**
- 1'. Elytra totally absent.....**193**

Notes:

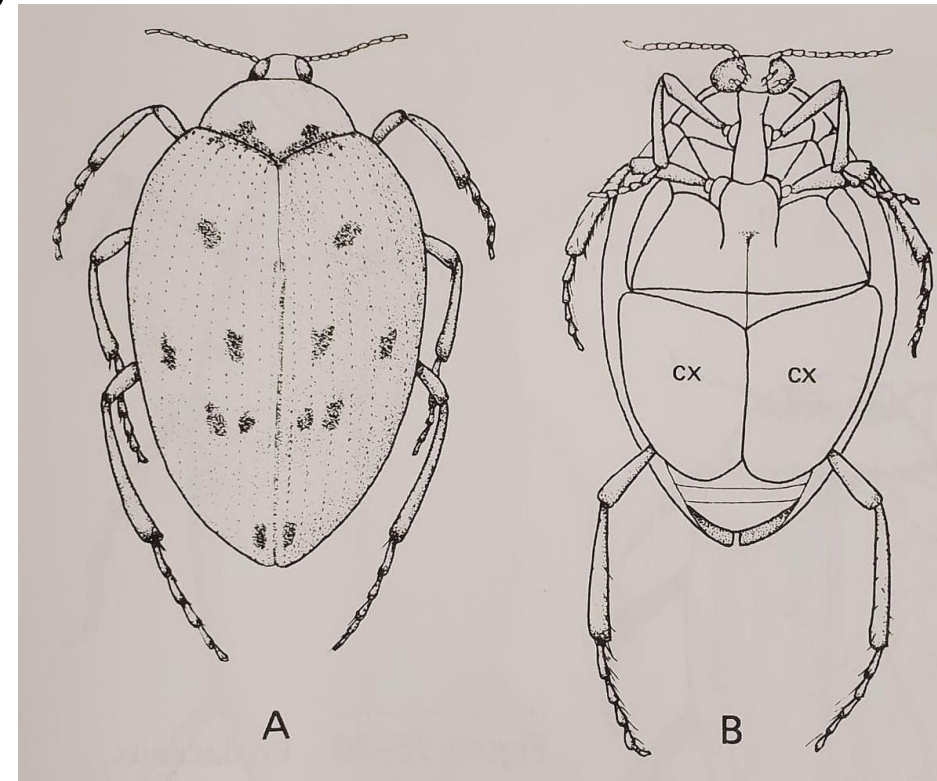


Steps on the key

1. Elytra present, complete, short, or reduced to flaplike stubs on the thorax.....**2**
- 1'. Elytra totally absent.....**193**

Notes:

1 – 2

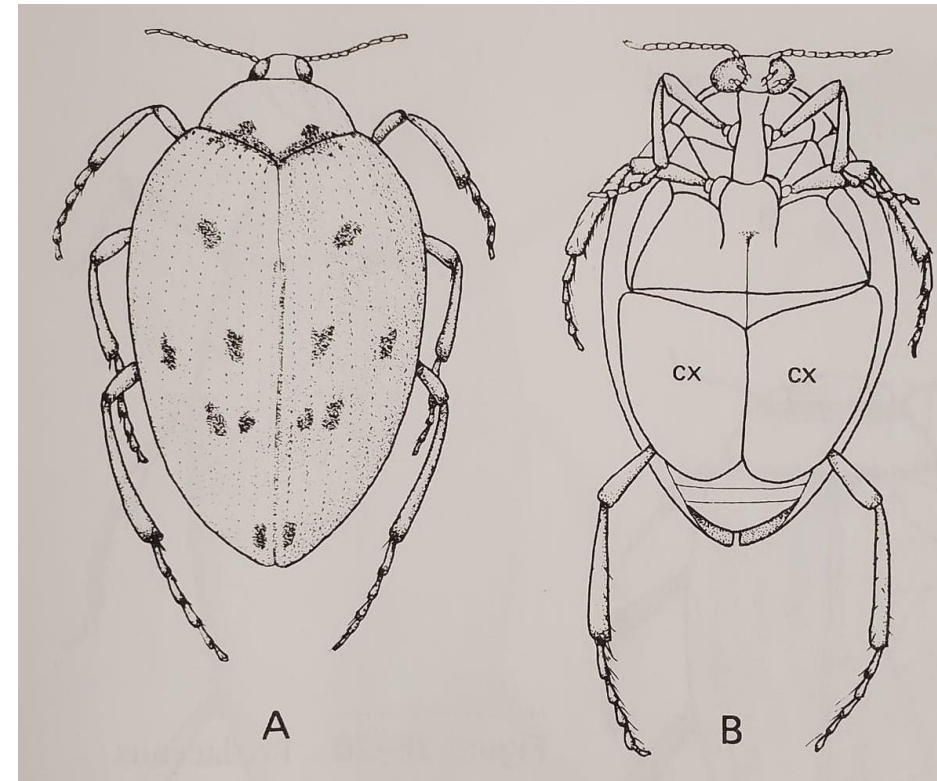


Steps on the key

- 2. Notopleural sutures present.....**3**
- 2'. Notopleural sutures absent.....**12**

Notes:

1 – 2

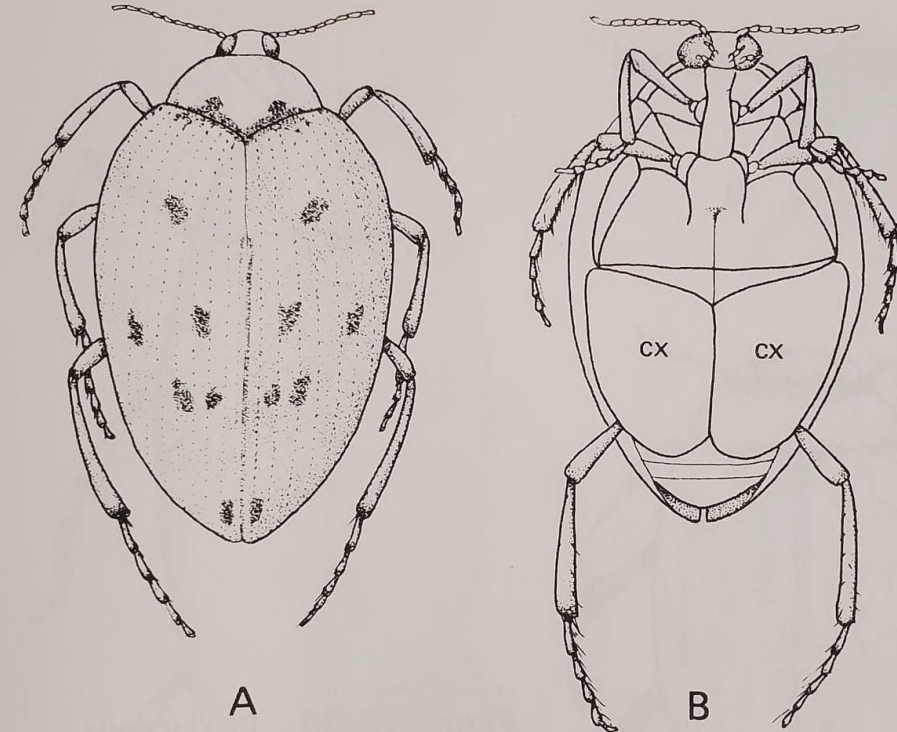


Steps on the key

3. Hind coxa immovably fused to metasternum
[...]4
- 3'. Hind coxa free[...]10

Notes:

1 – 2 – 3

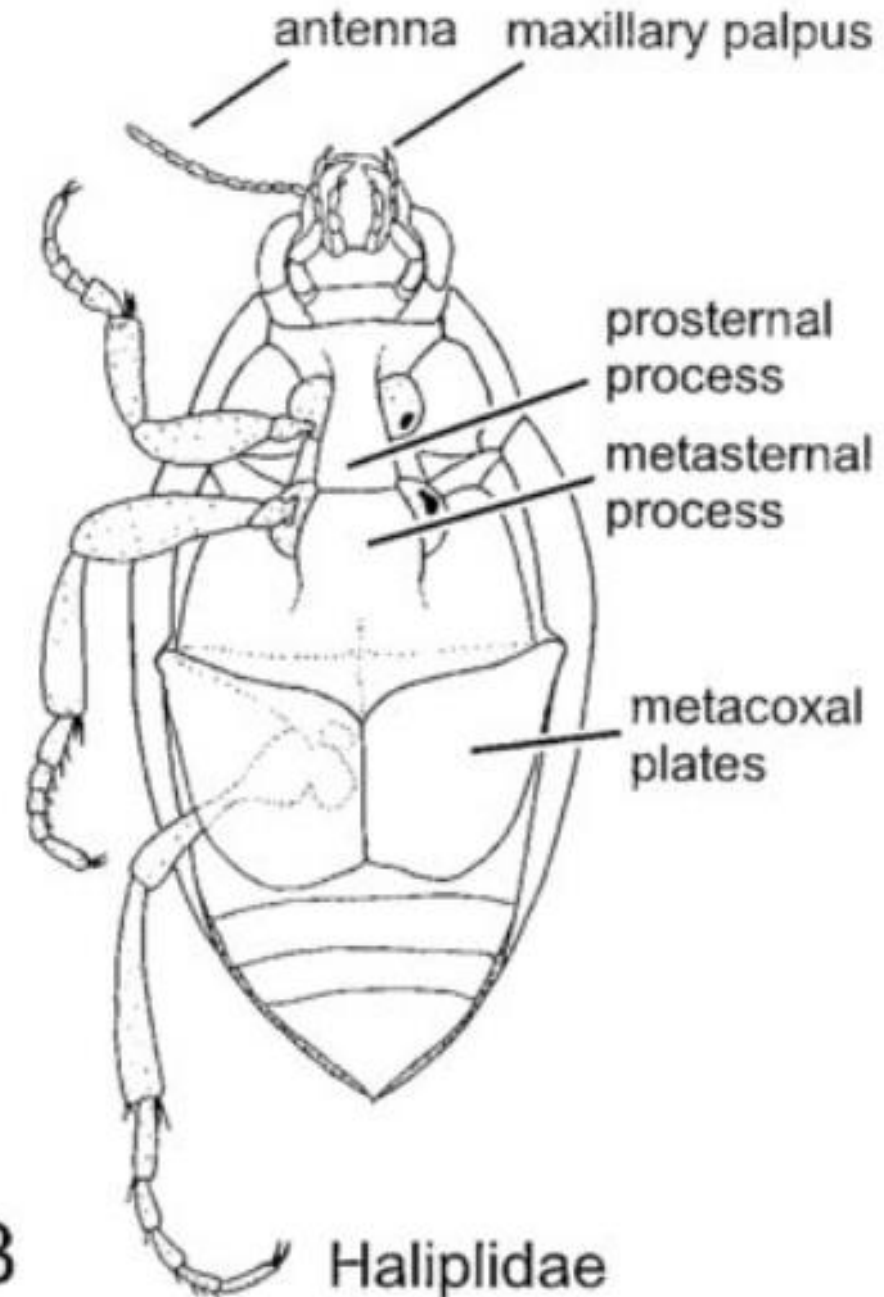


Steps on the key

4. Hind coxa greatly enlarged, a ventral plate concealing trochanter and basal half of femur, covering most of 3 basal ventrites.....**Haliplidae**
4'. [Other combination of characters].....5

Notes:

1 – 2 – 3 – 4

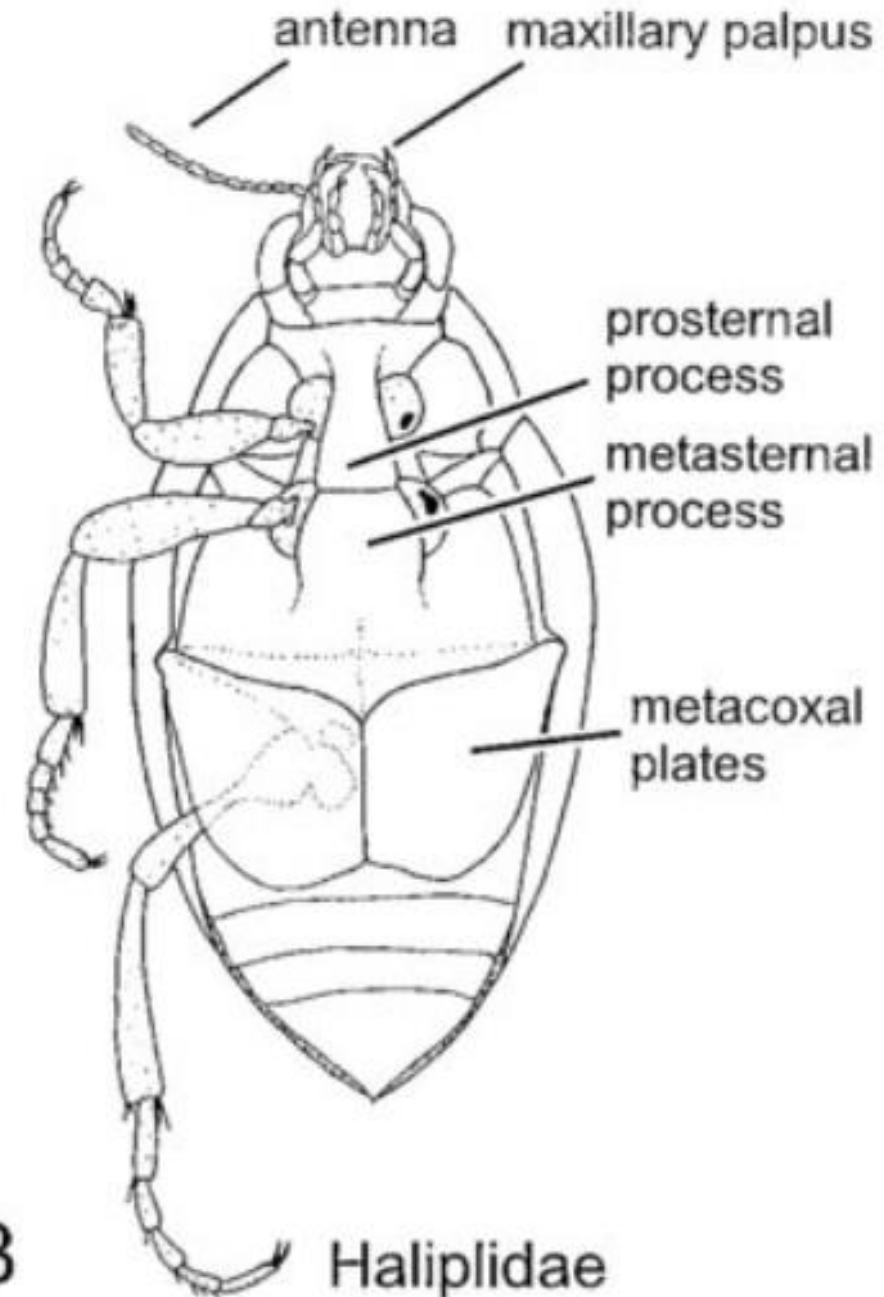


Steps on the key

4. Hind coxa greatly enlarged, a ventral plate concealing trochanter and basal half of femur, covering most of 3 basal ventrites.....**Haliplidae**
4'. [Other combination of characters].....5

Notes:

1 – 2 – 3 – 4 – Haliplidae



Steps on the key



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Notes:

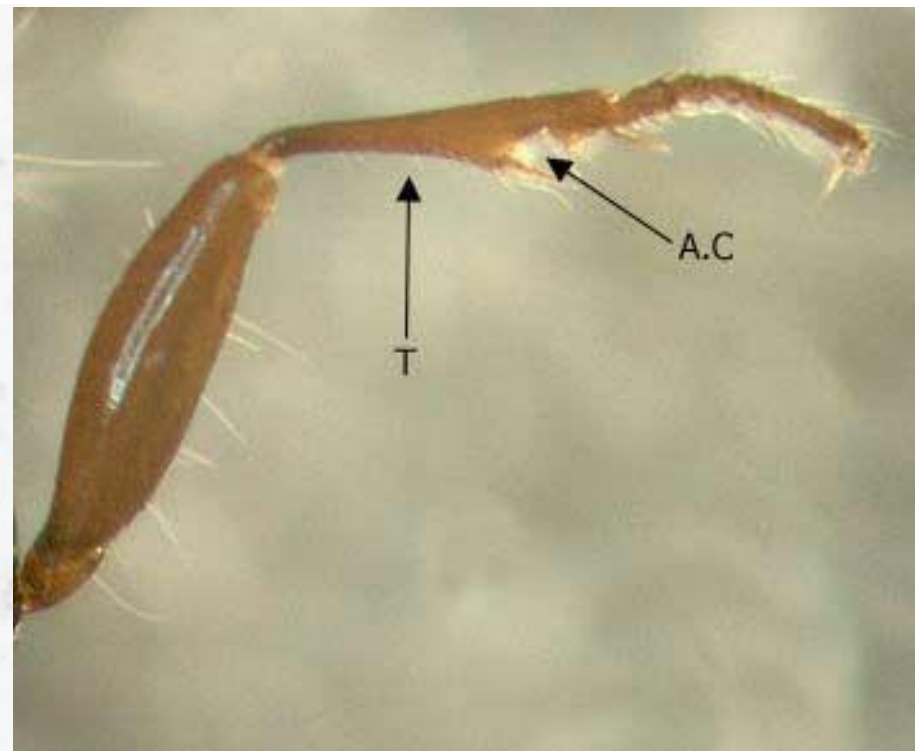
1 – 2 – 3 – 4 – Haliplidae

Discussion – Specimen A



Discussion – Specimen A

- Suborder: Adephaga
- Family: Carabidae



Discussion – Specimen B



Discussion – Specimen B

- Suborder: Polyphaga
- Family: Staphylinidae

K



Discussion – Specimen C

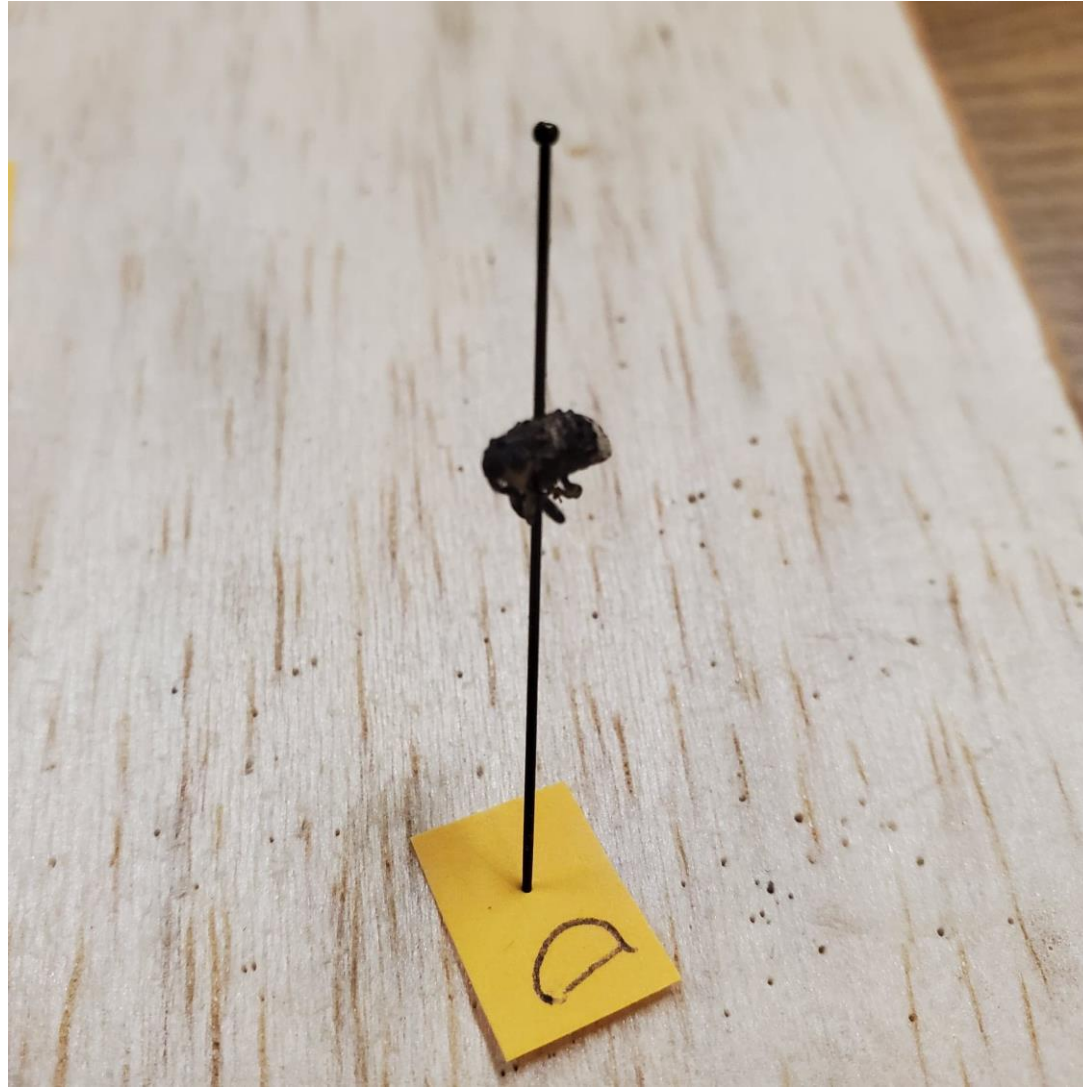


Discussion – Specimen C

- Suborder: Polyphaga
- Family: Meloidae

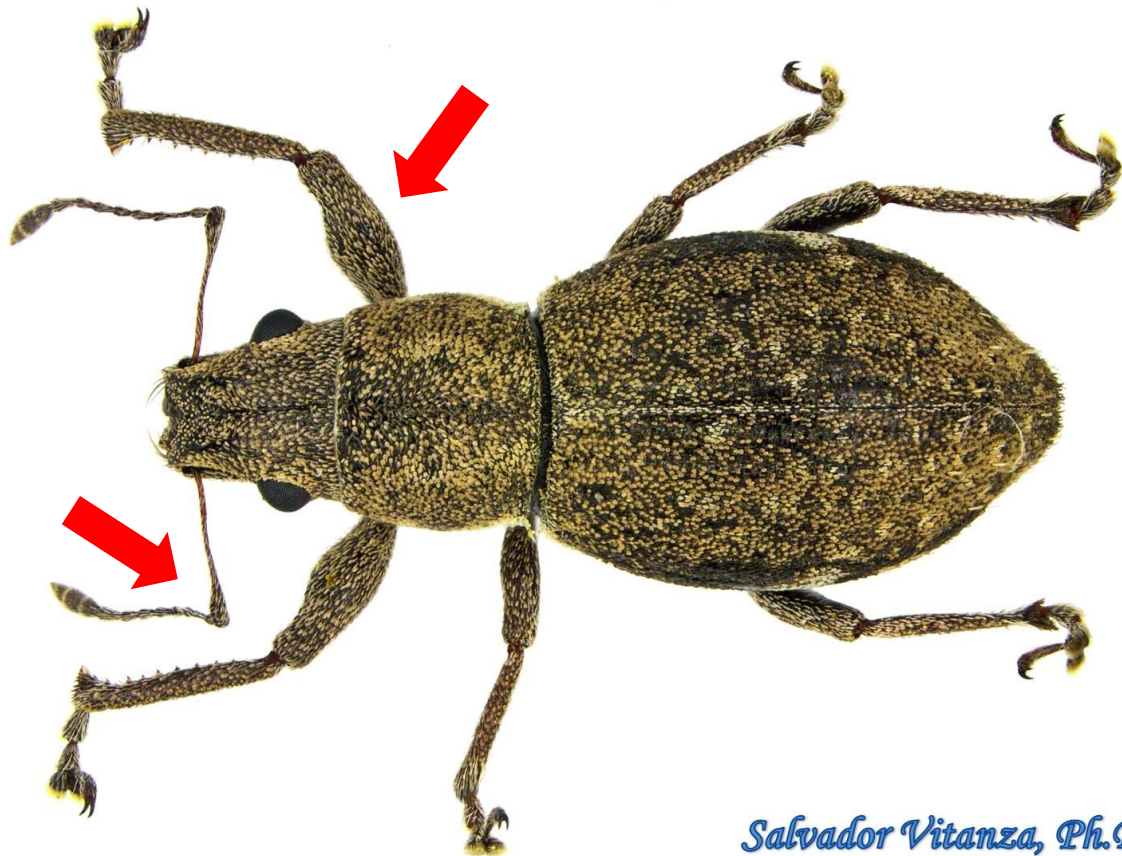


Discussion – Specimen D (bonus)



Discussion – Specimen D (bonus)

- Suborder: Polyphaga
- Family: Curculionidae



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