



**Dancing with dorids: Phylogenetic
systematics of discodorid nudibranchs
in the genus *Rostanga***

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Terrence M. Gosliner



**SAN DIEGO STATE
UNIVERSITY**



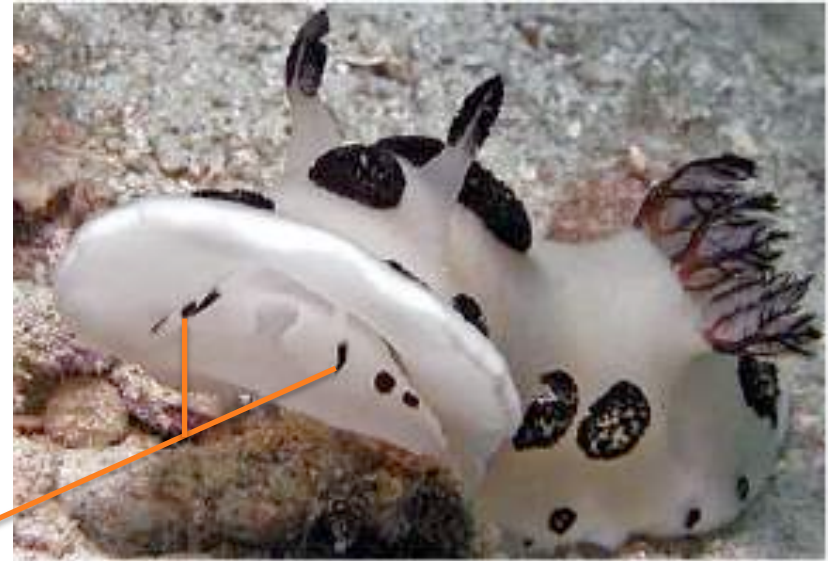
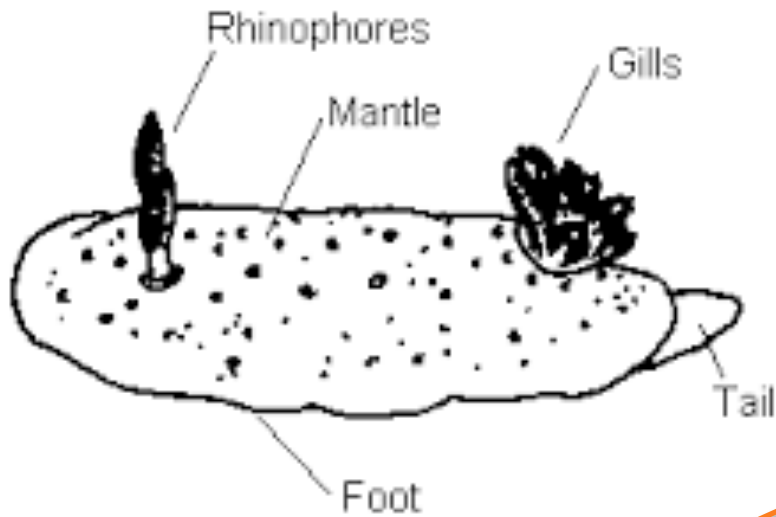
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Nudibranchs



Discodorid biology

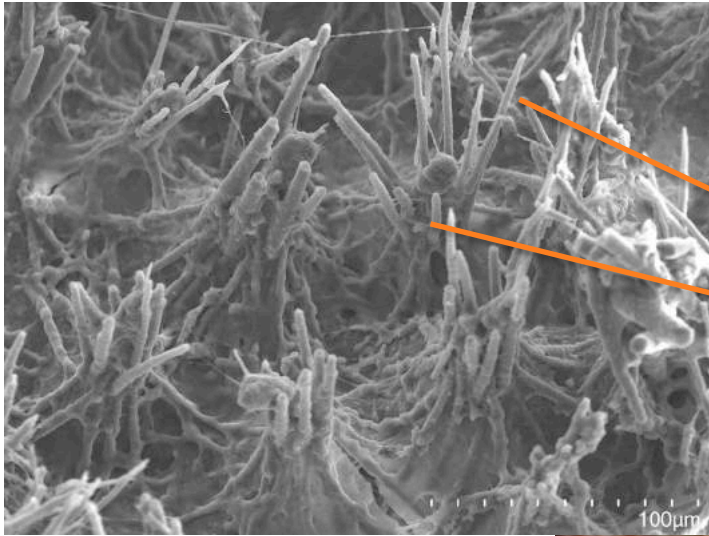
- Gill plume around anus
- A pair of finger-like oral tentacles



Oral tentacles

Rostanga Bergh 1879

- Red-orange to orange coloration
- Feed on sponges
- Possess caryophyllidia



Research Questions

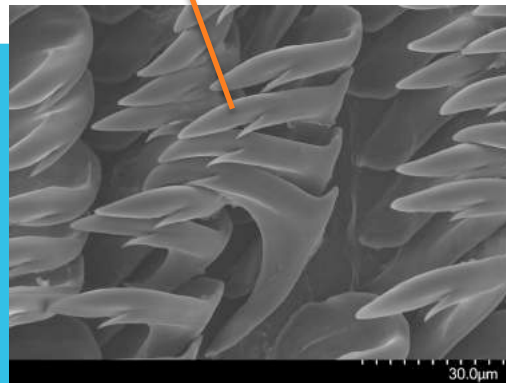
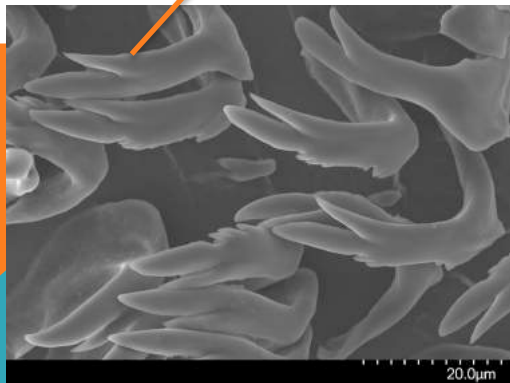
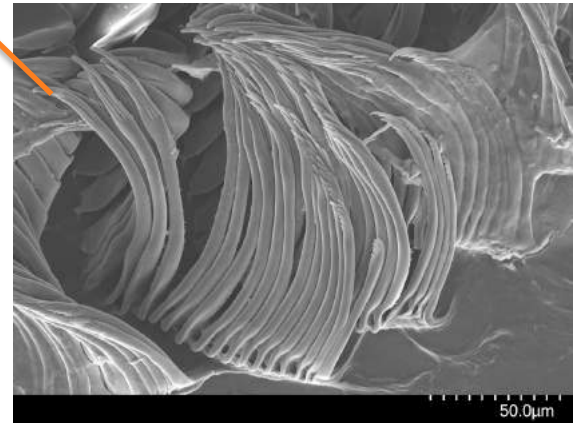
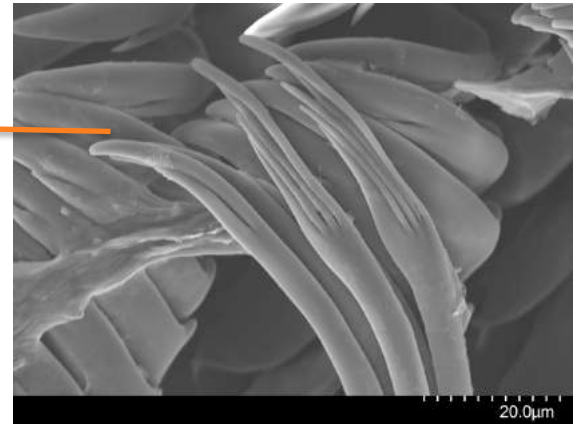
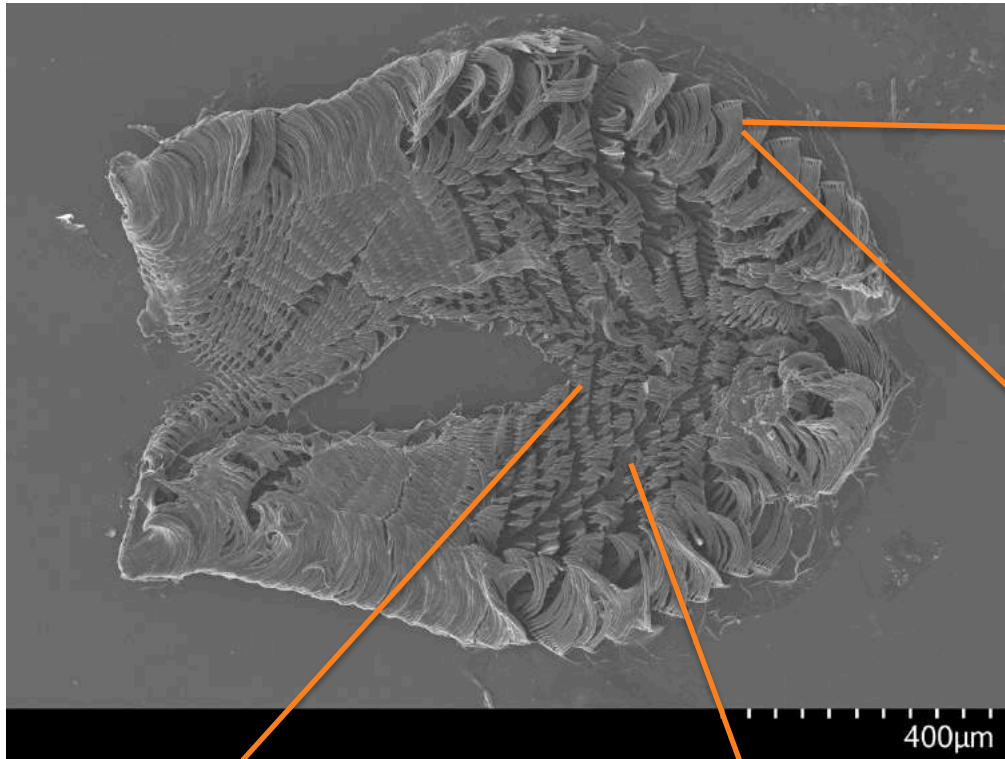
- 1) How are species within the genus *Rostanga* related?
- 2) How do morphological characteristics vary based on evolutionary relationships?
- 3) How effective are these characteristics at predicting the placement of taxa in the phylogeny?

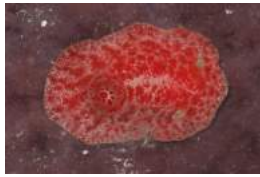
Methods

Morphology

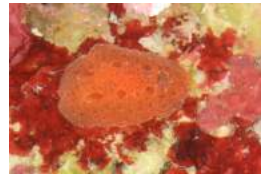
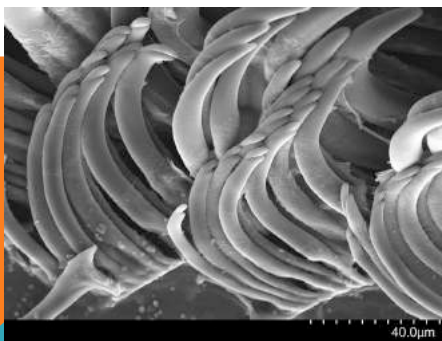
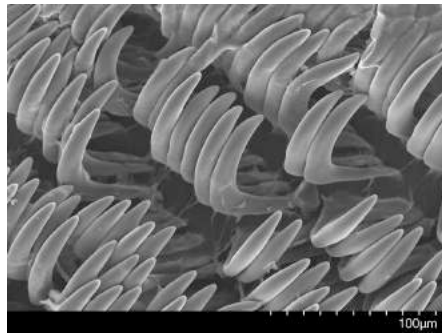
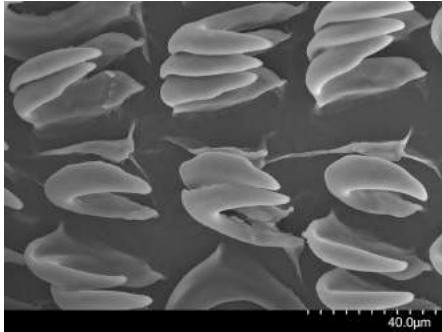
- Scanning Electron Microscope
 - Radula
 - Caryophyllidia
- Dissecting Microscope
 - Reproductive system

Radula under SEM

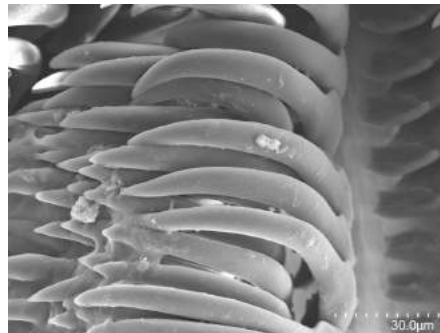
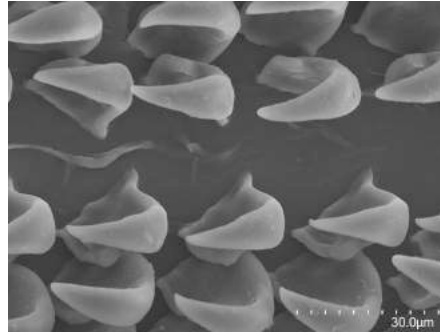




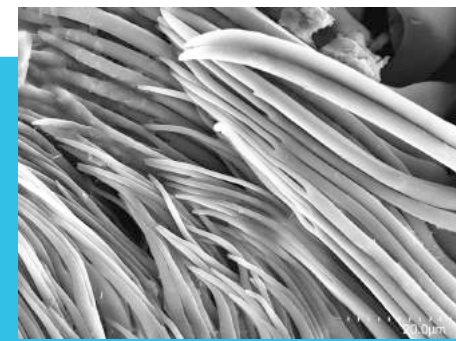
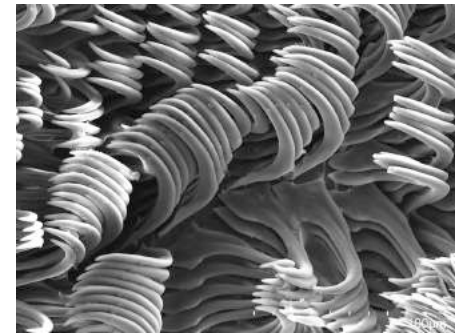
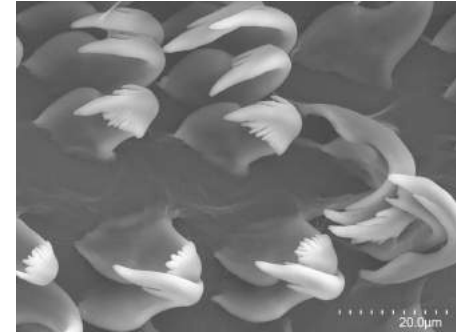
Rostanga sp. 1



Rostanga sp. 2

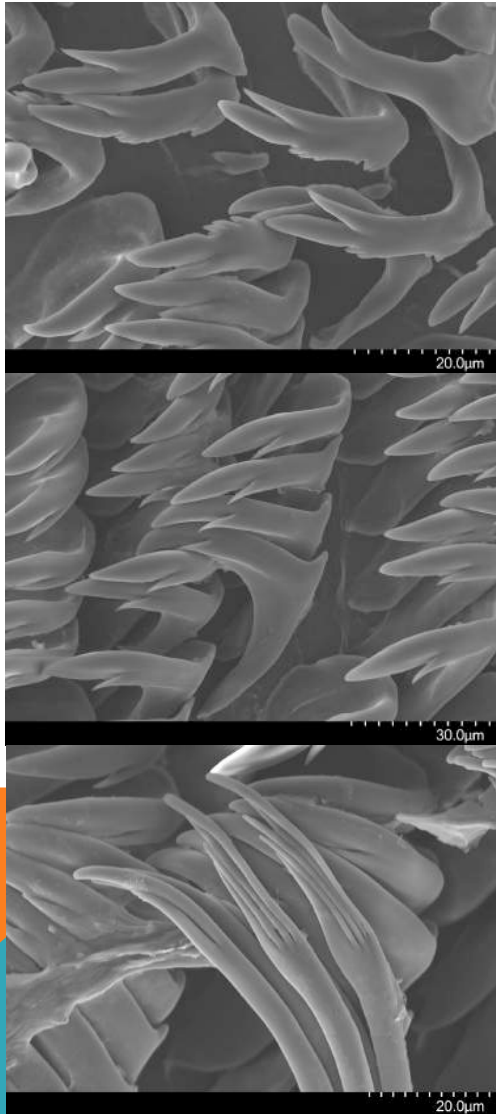


Rostanga sp. 3

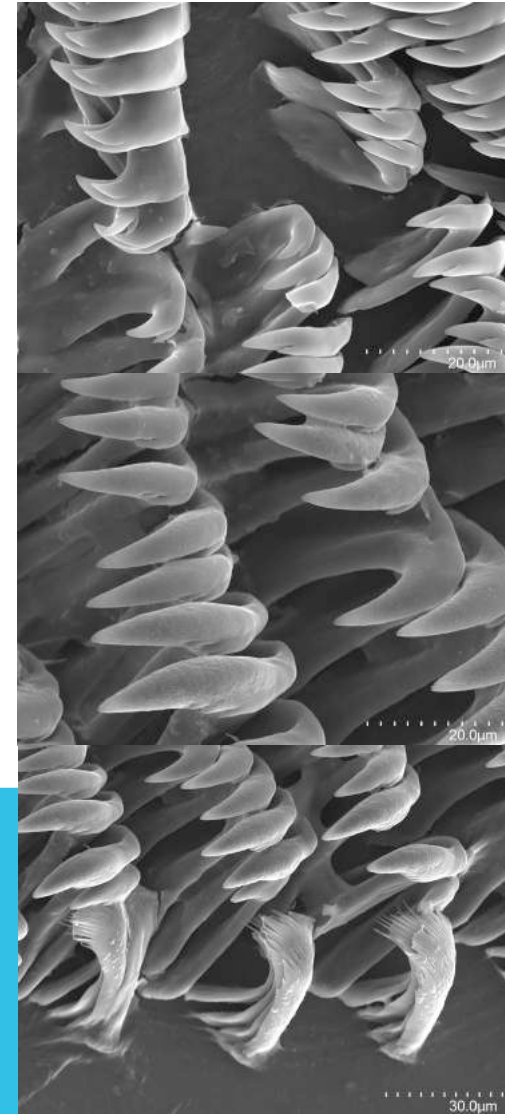


Radulae under SEM

Rostanga lutescens

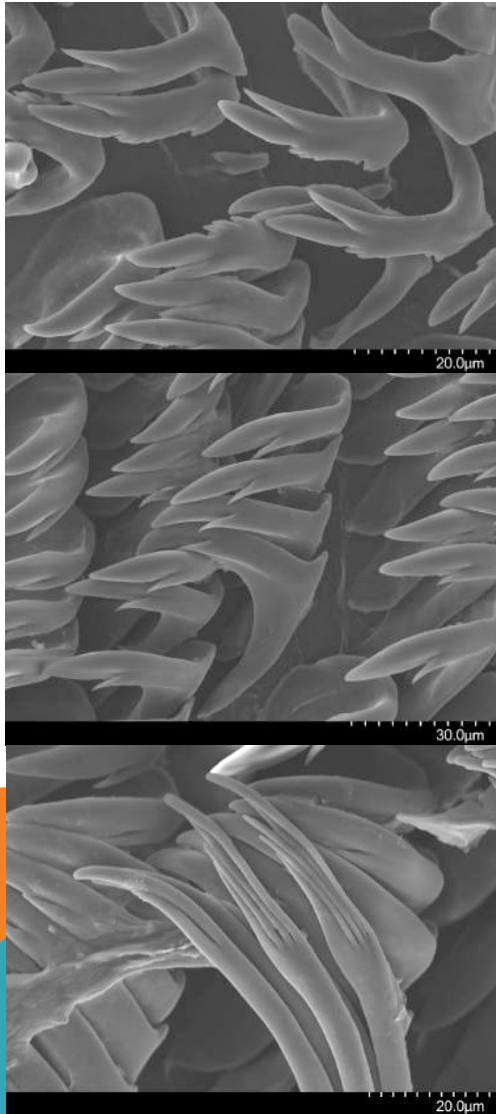


Rostanga sp.

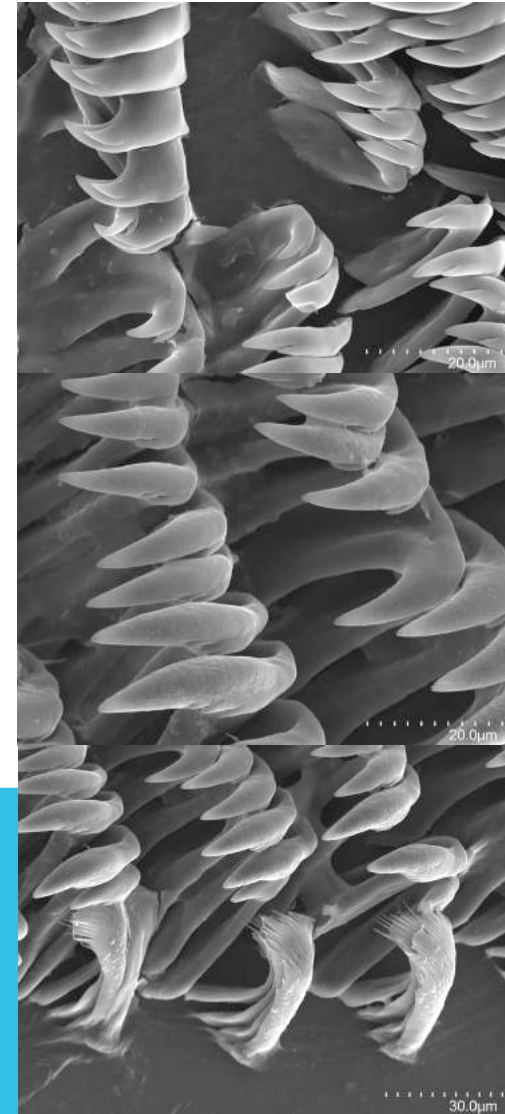


Radulae under SEM

Rostanga lutescens

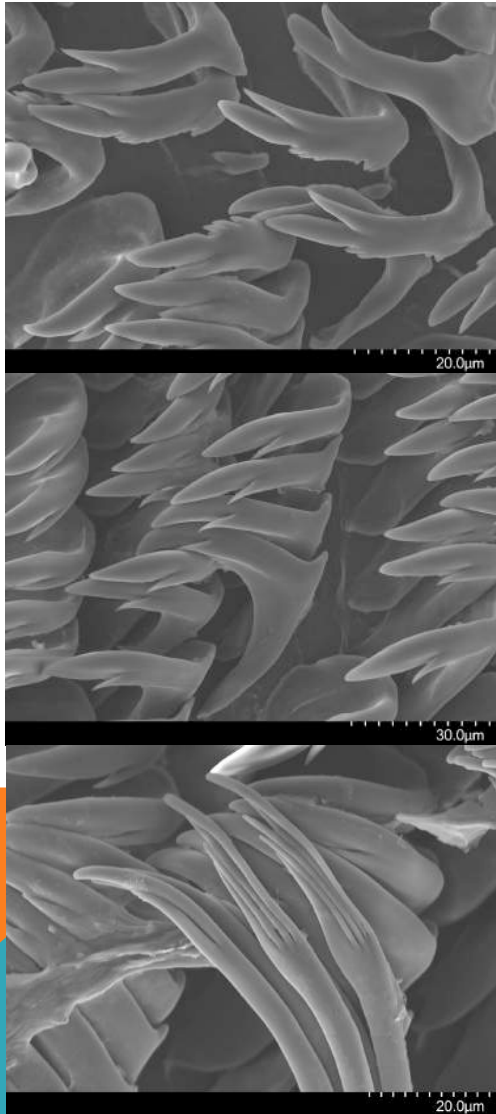


Thordisa sp.

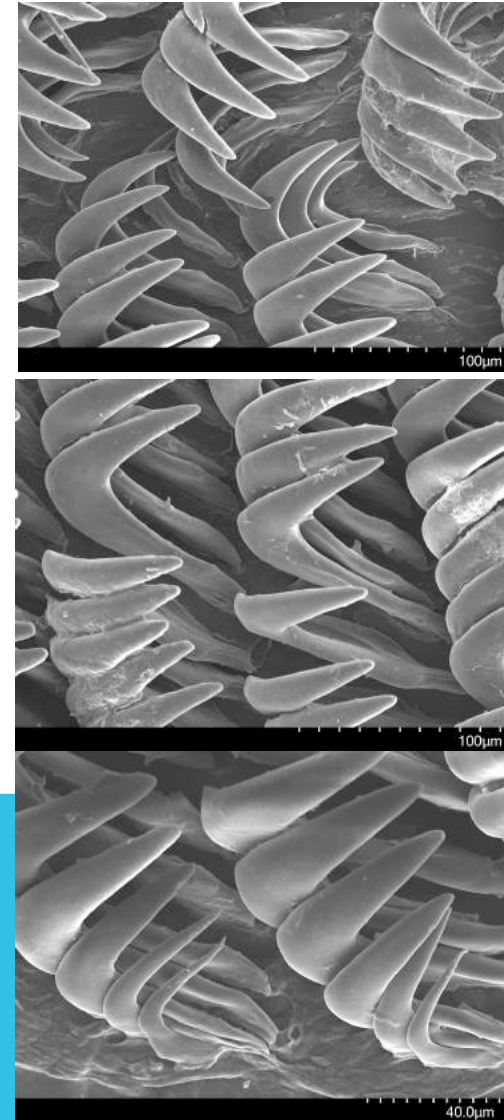


Radulae under SEM

Rostanga lutescens

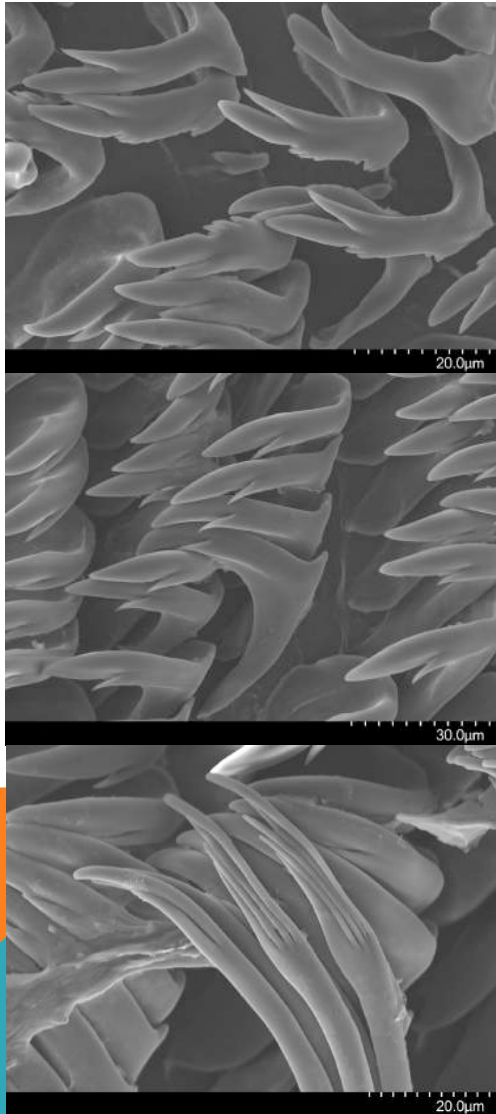


Rostanga sp.

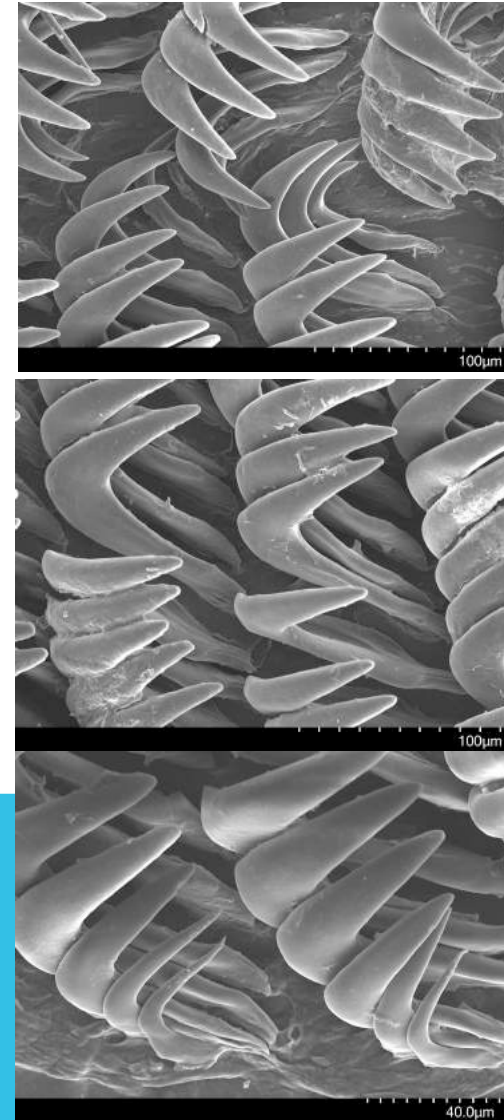


Radulae under SEM

Rostanga lutescens



Jorunna sp.



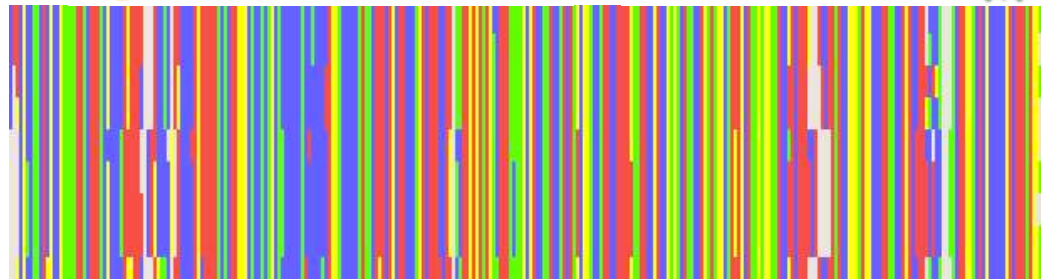
Methods

Molecular

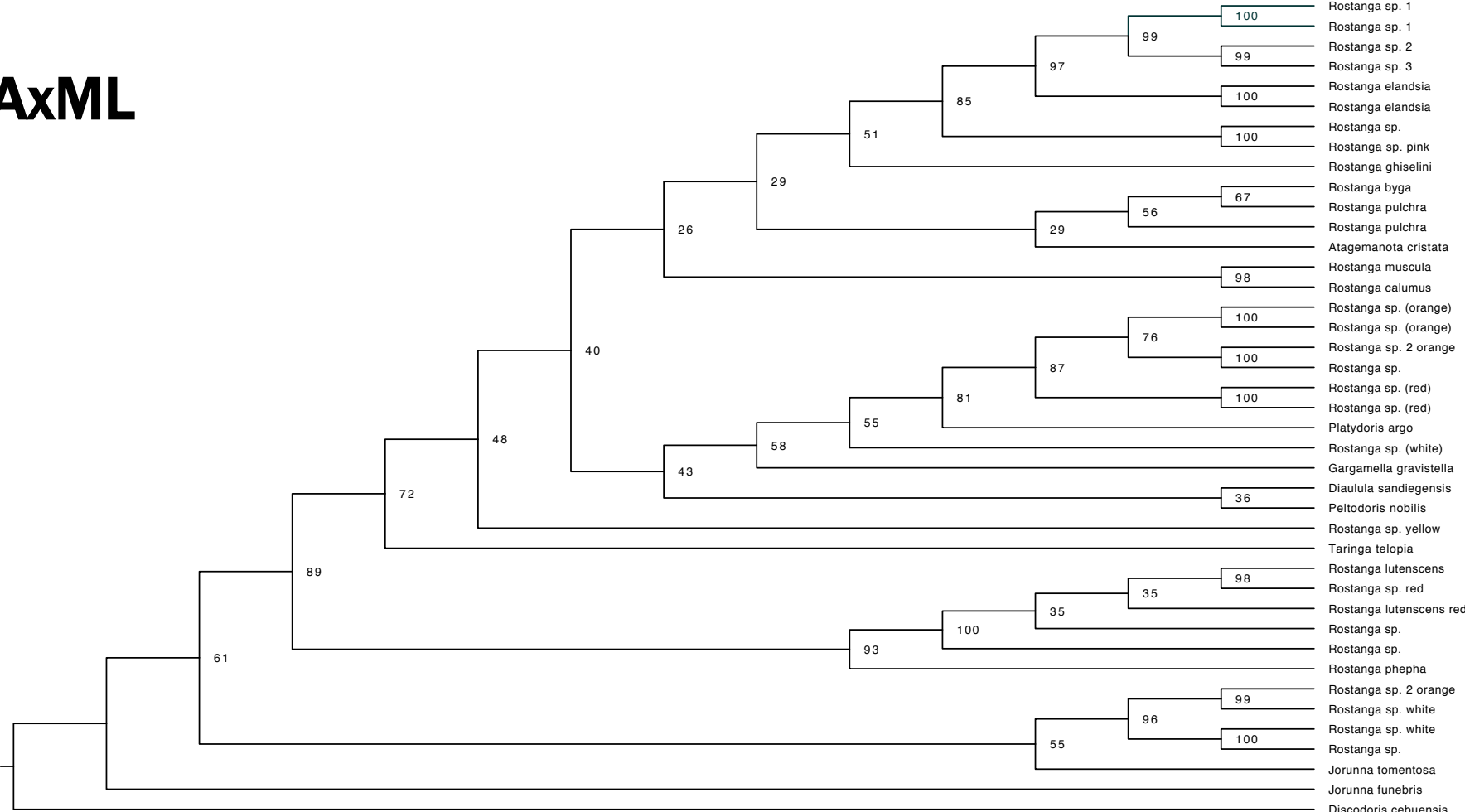
- Genes COI, 16S, H3
 - Sanger Sequencing
- RAxML
- MrBayes



geneIOUS

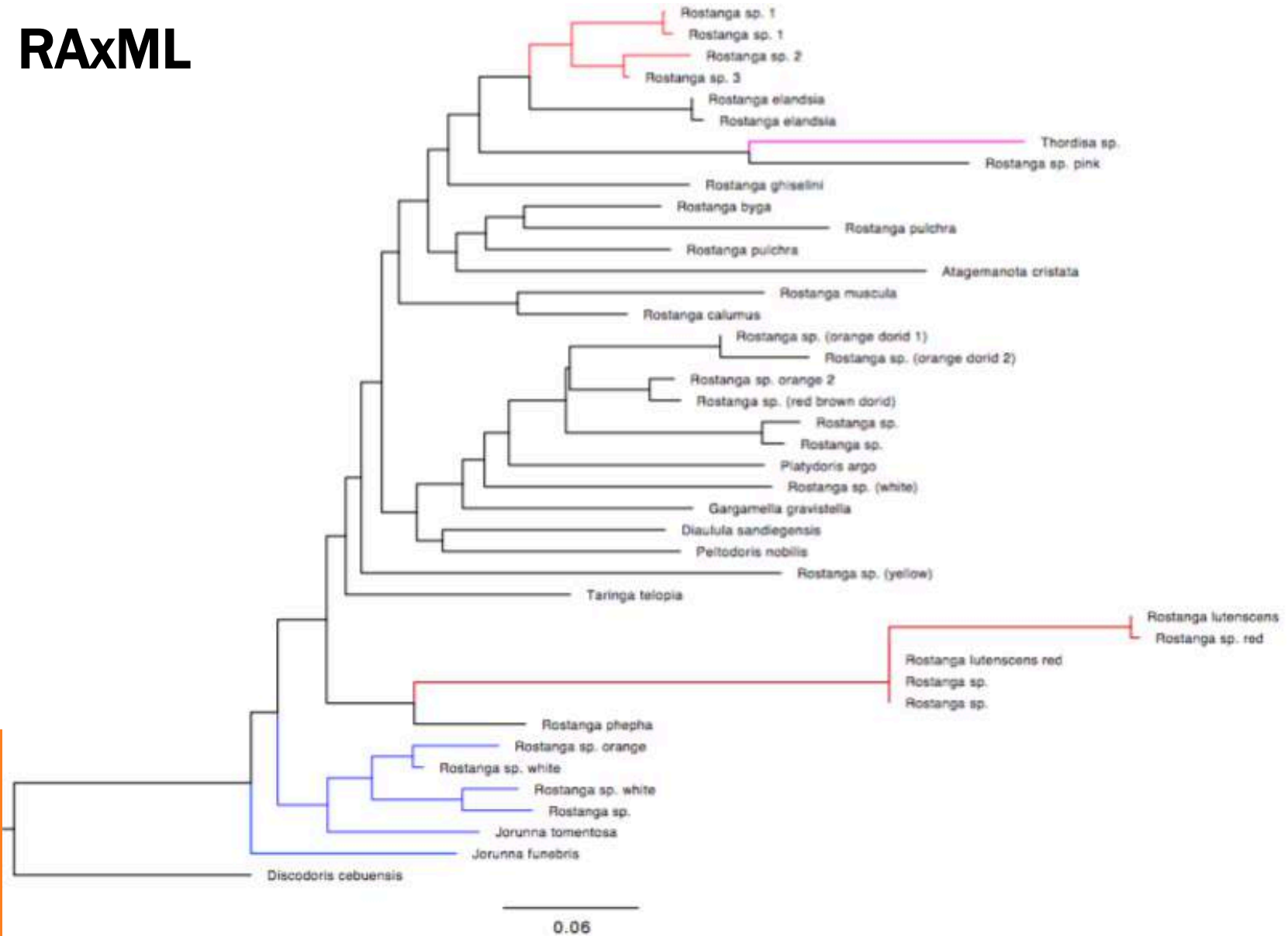


RAXML

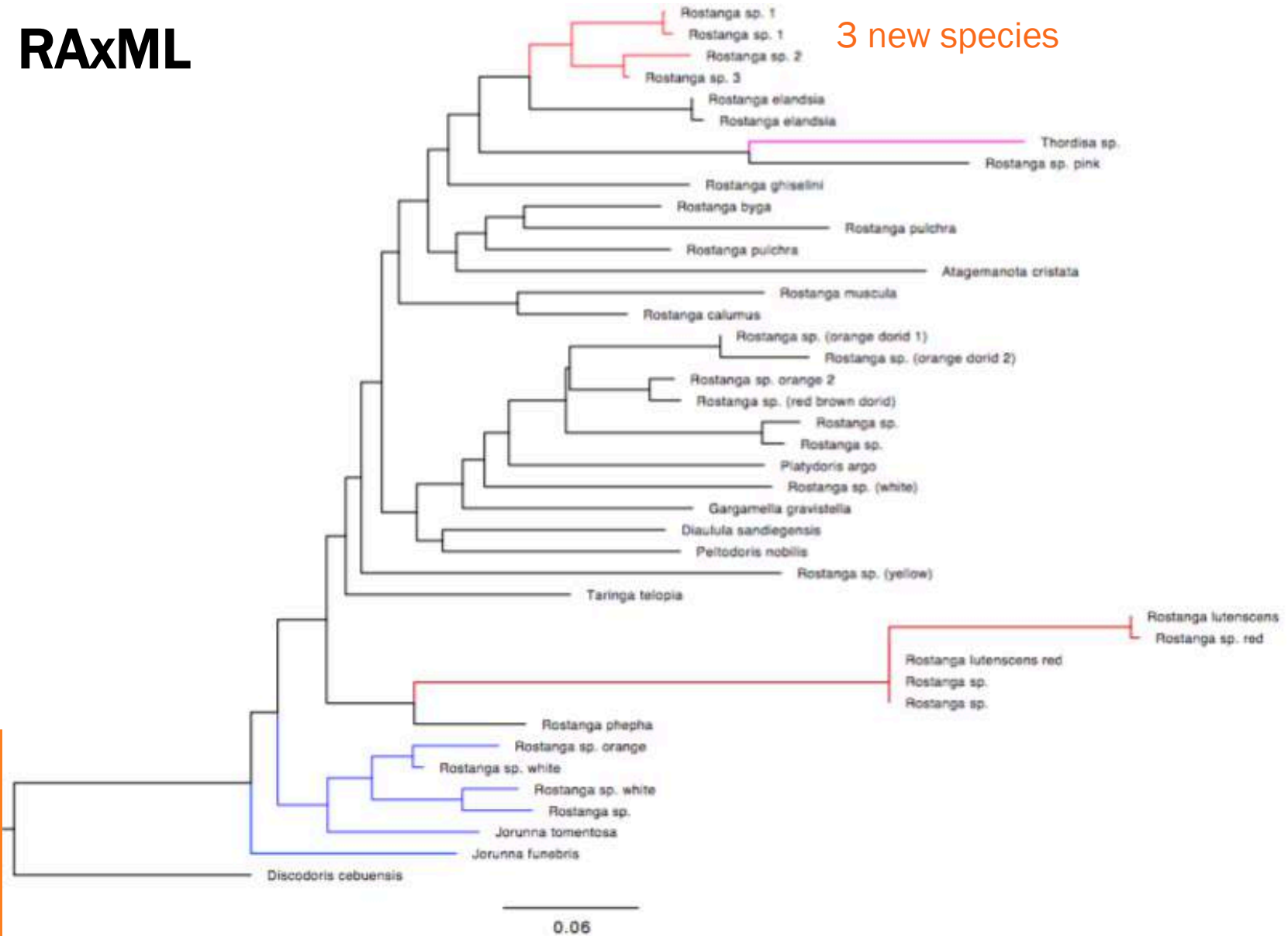


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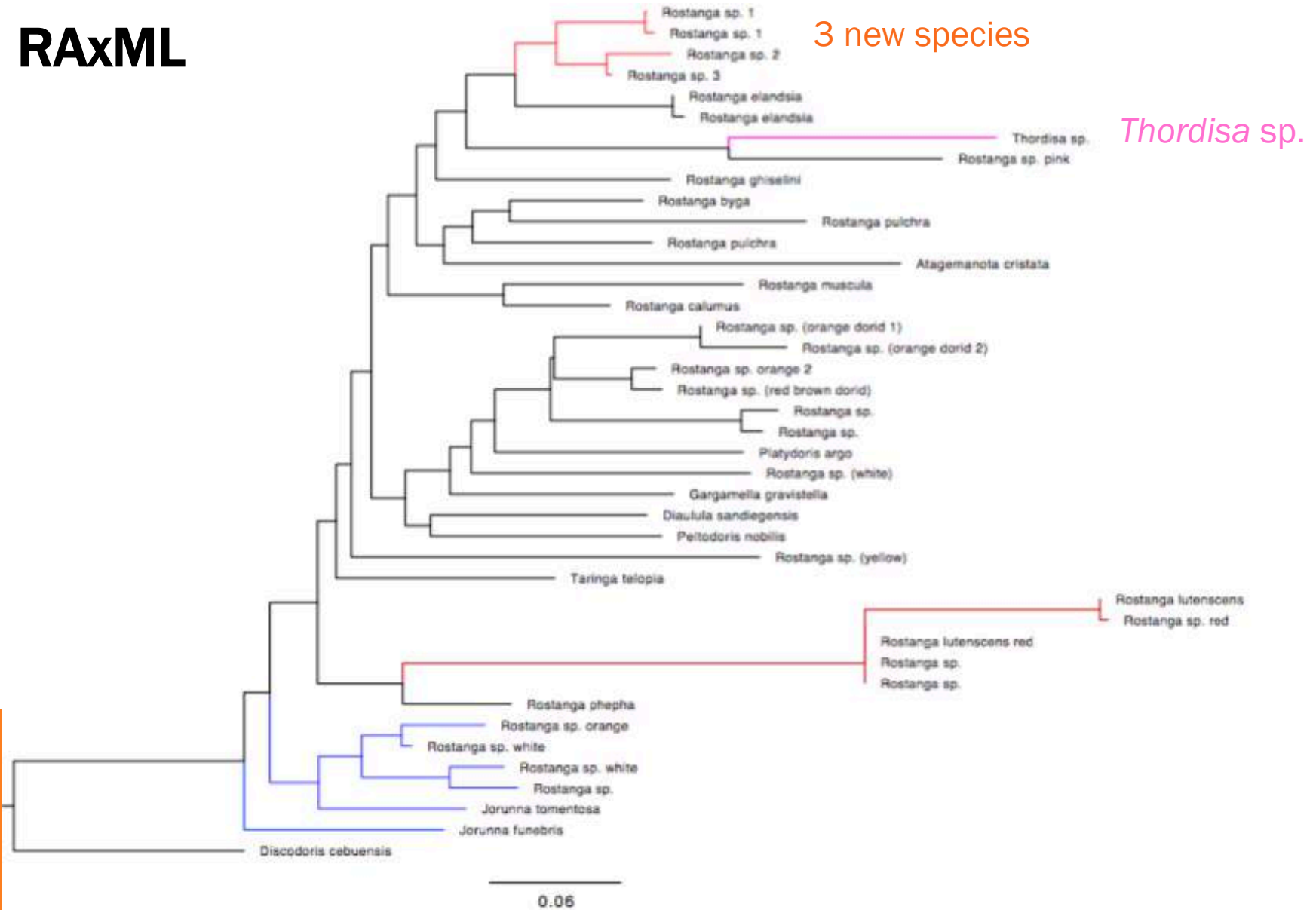
RAxML



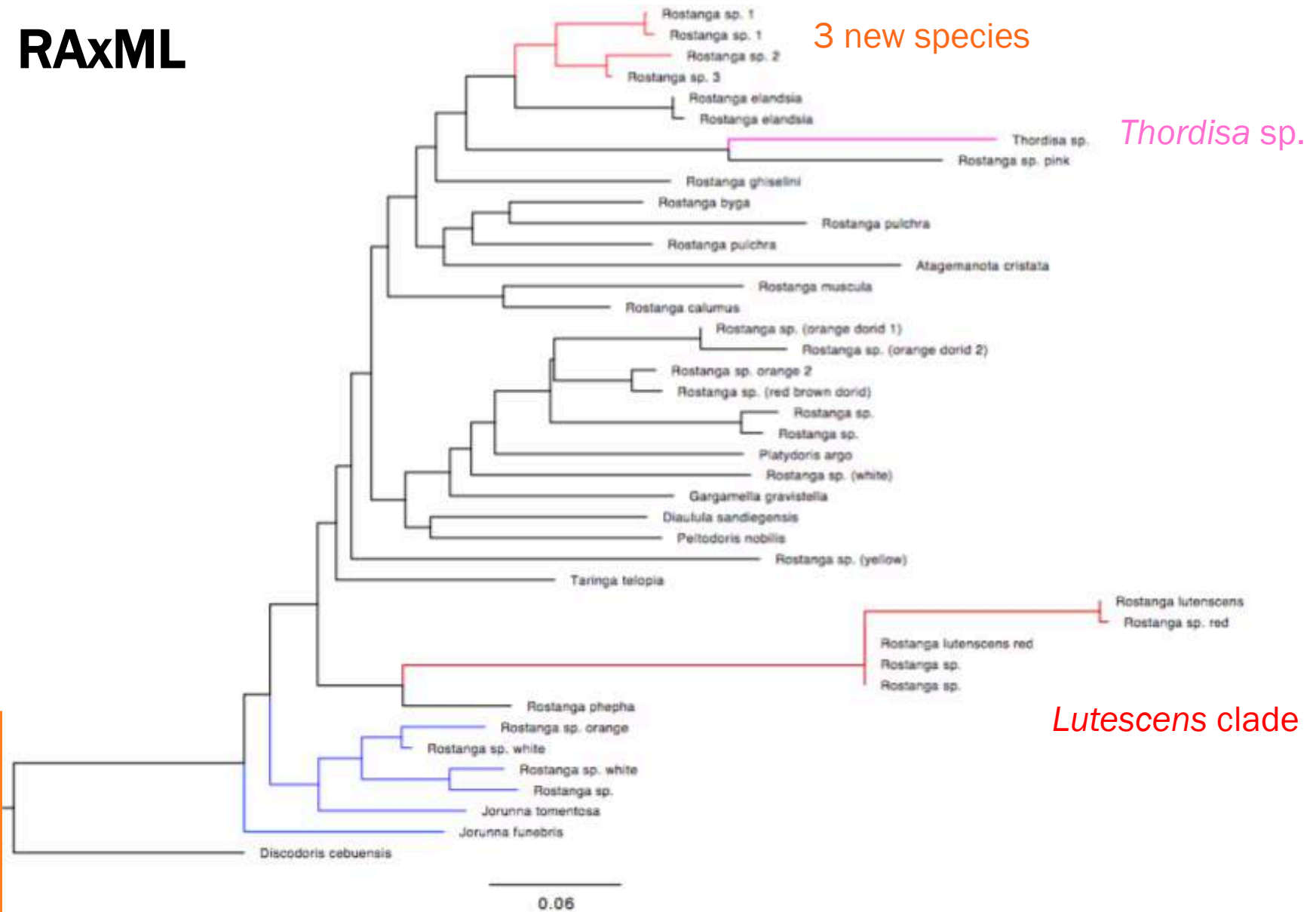
RAxML



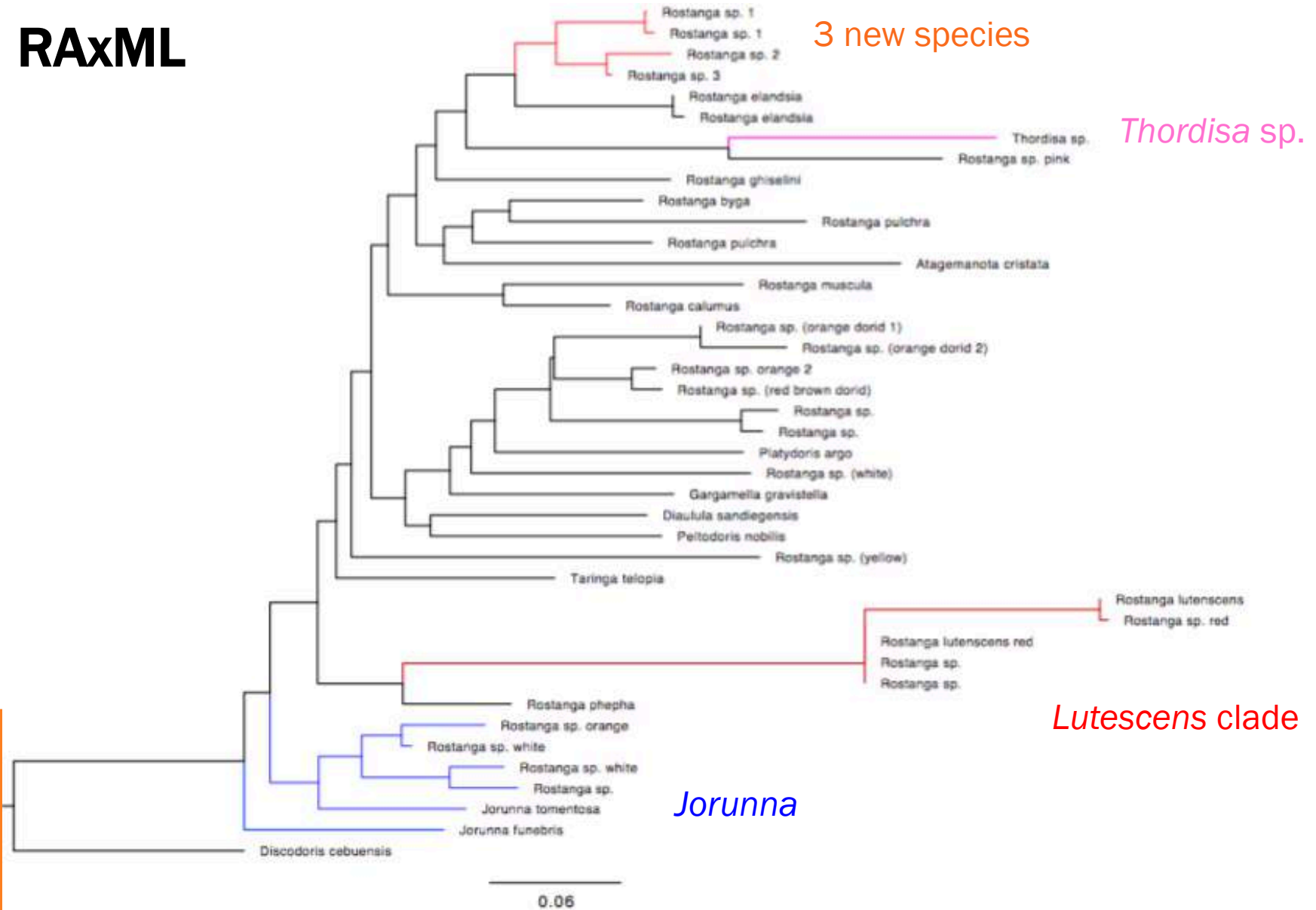
RAxML



RAxML

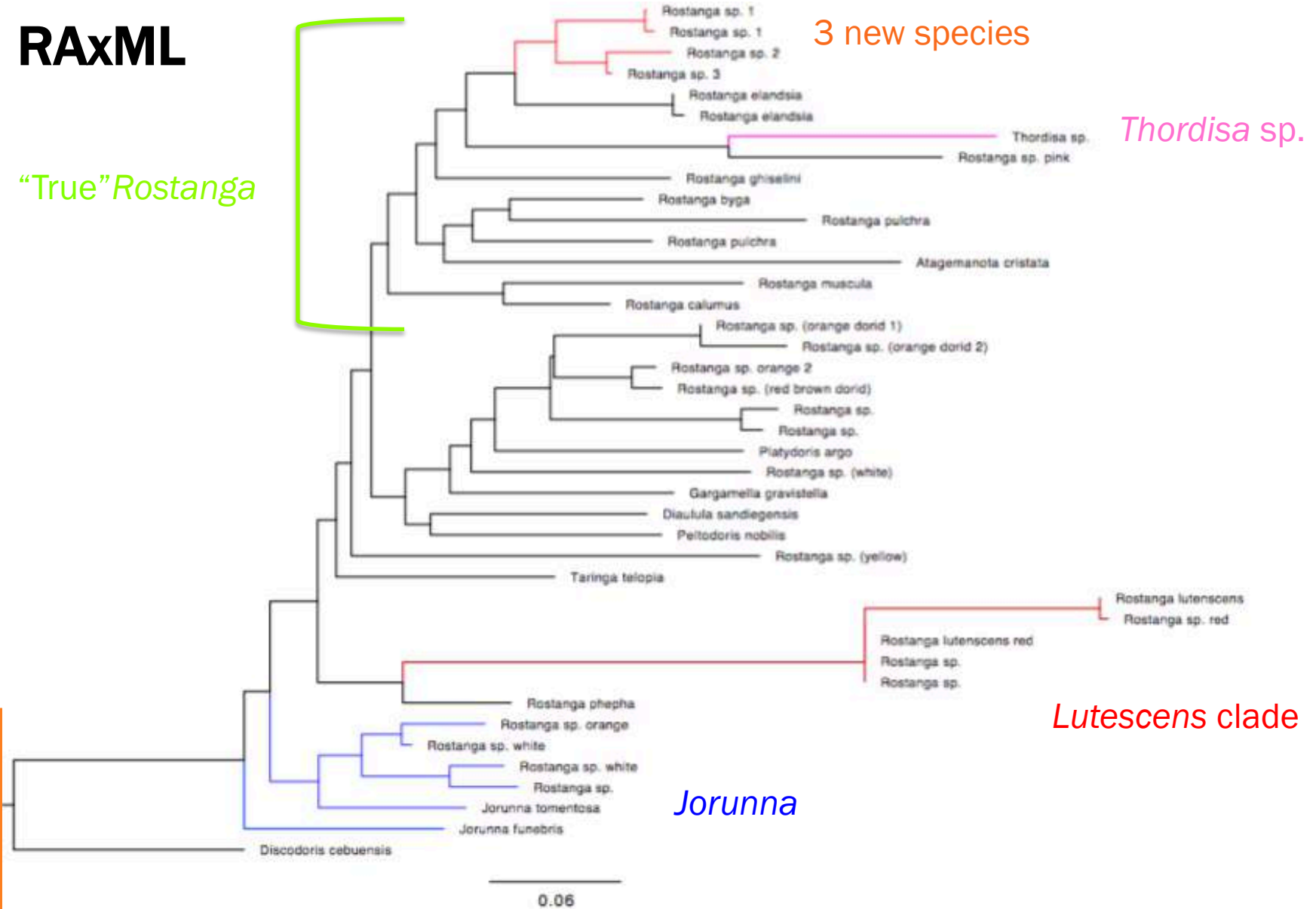


RAxML



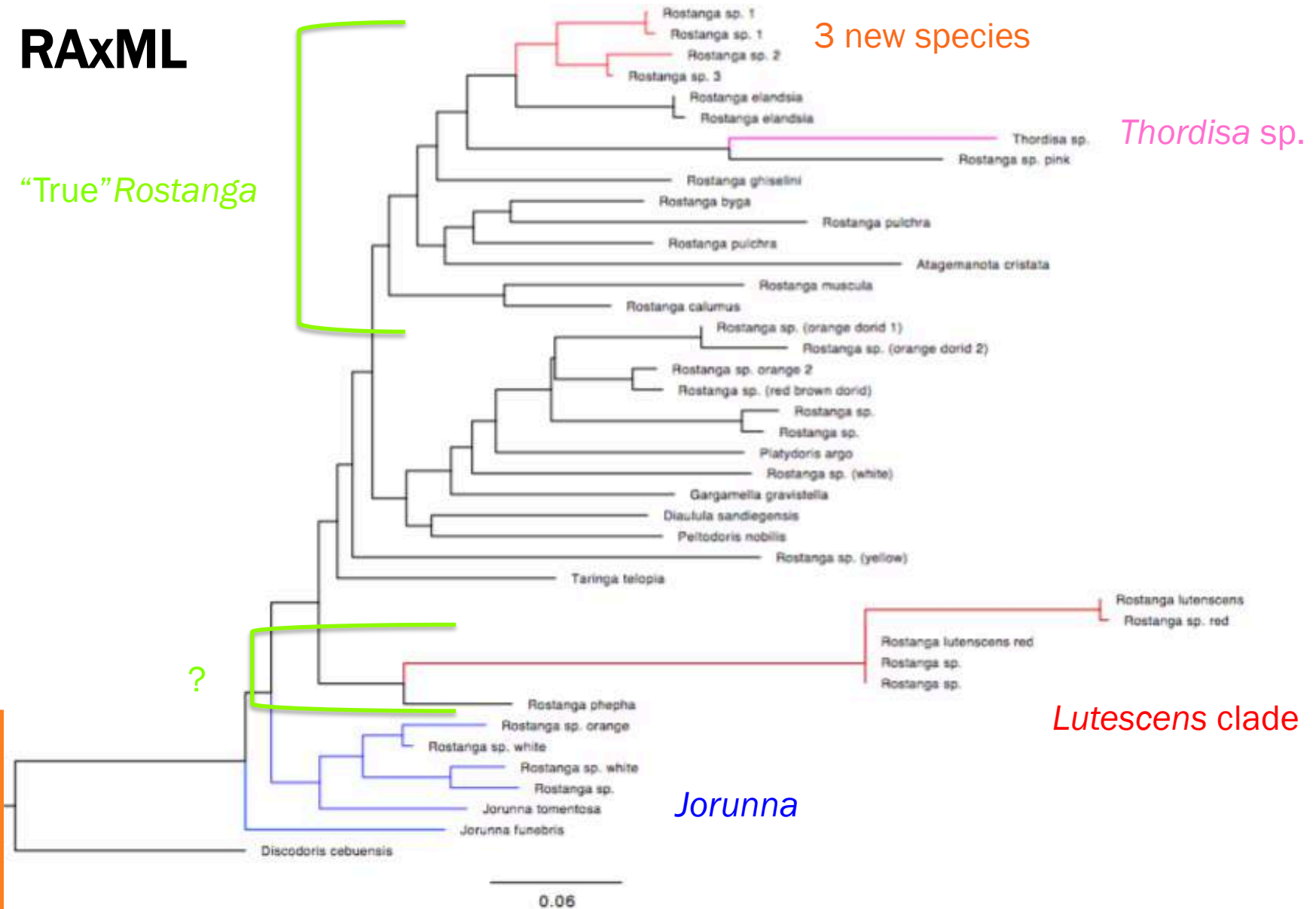
RAxML

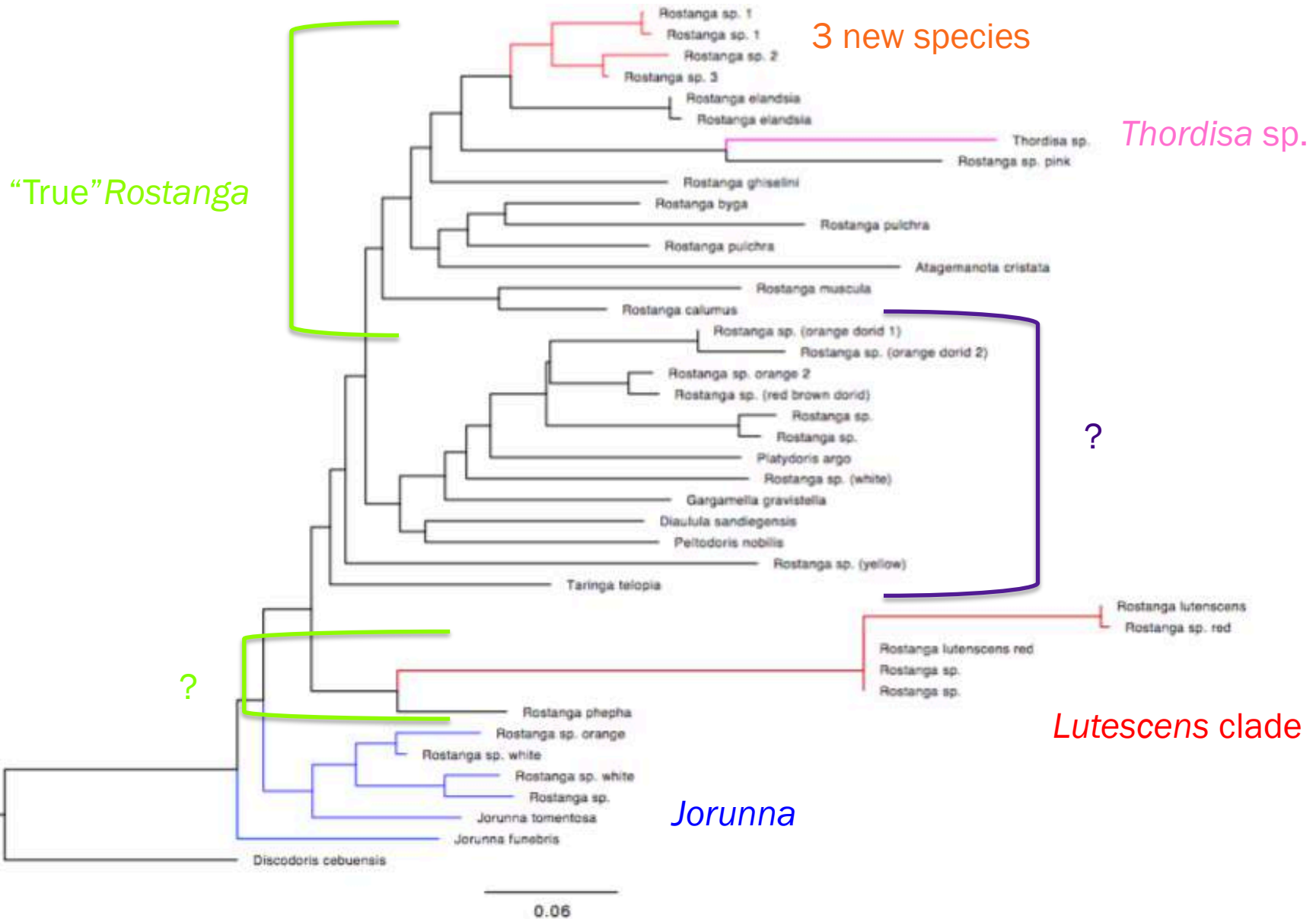
“True” *Rostanga*



RAxML

“True” *Rostanga*





Conclusions

- 1) There is some support for a grouping of “true” *Rostanga* that possess elongate outer teeth with divided tips.
- 2) The morphological and molecular data seem to support each other in determining new species and relationships.

Future directions

- 1) Look more into reproductive systems and compare those to the phylogeny.
- 2) Resolve issues with CO1.
- 3) Increase taxon sampling across the genus especially for taxa that have never been sequenced.

Acknowledgements

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