Background

https://www.essa.com/bcs-most-wanted-assessing-the-impacts-of-invasive-species-on-species-at-risk-in-bc-at-the-2021-invasive-species-research-conference/

- Once introduced, can it be established?
- Rise or fall under climate change?

Background

Eleutherodactylus coqui
(iNaturalist © Flaxington)

Eleutherodactylus johnstonei
(iNaturalist © Dave Mangham)

Eleutherodactylus planirostris
(iNaturalist © revasius)

- **Three closely related invasive frogs from the Caribbean islands**
- **Introduced to Hawaii, Florida, South America, Southeast Asia, etc.**

Method Summary

Data collection

GBIF

Occurrence points of three species

WorldClim

Bioclim variables of the present and the future (~2100)
SSP1-2.6 = best-case
& SSP5-8.5 = worst-case

Data processing

ArcGIS® Pro

Correcting sampling bias

Removing correlation
Applying dispersal ability

Data analysis

biomod2

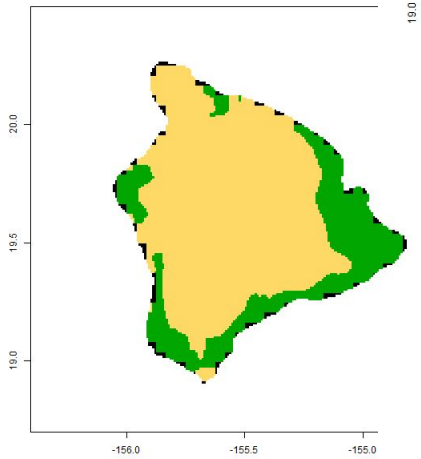
MAXENT

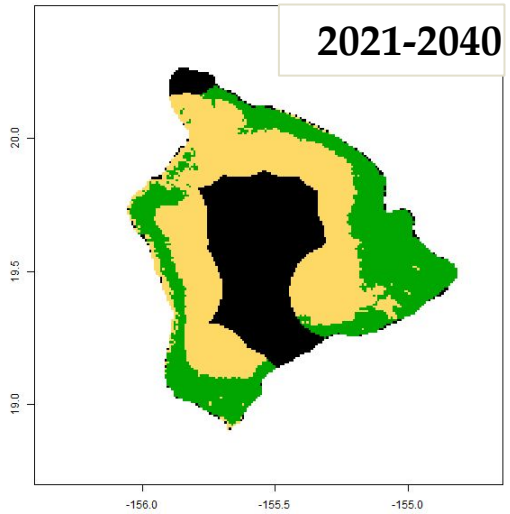
Ecological niche modeling (the present)

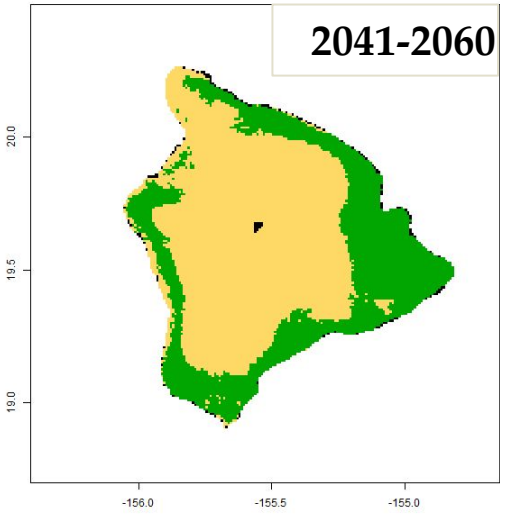
Future projection
(~2040)
(~2060)
(~2080)
(~2100)

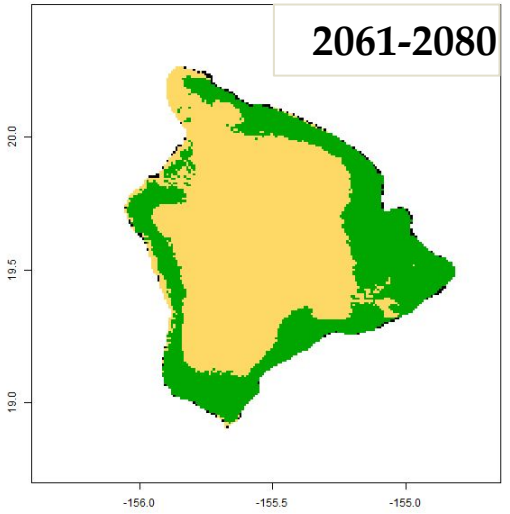
Results: *E. coqui* (Hawaii)

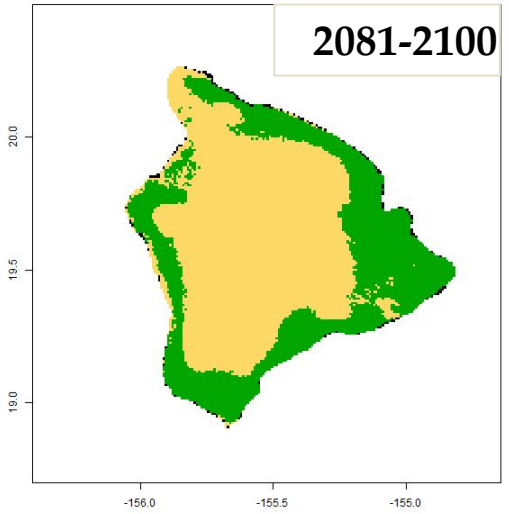
Best case

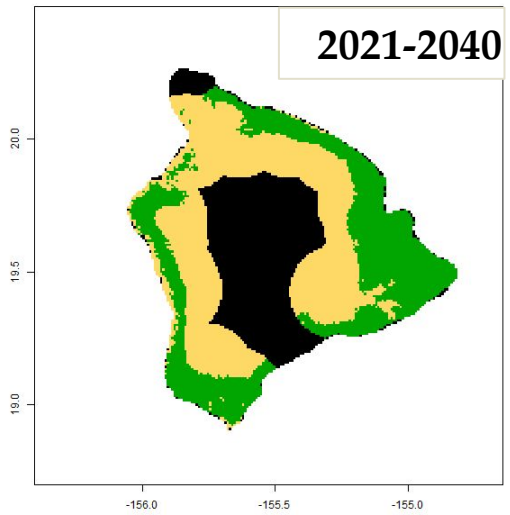


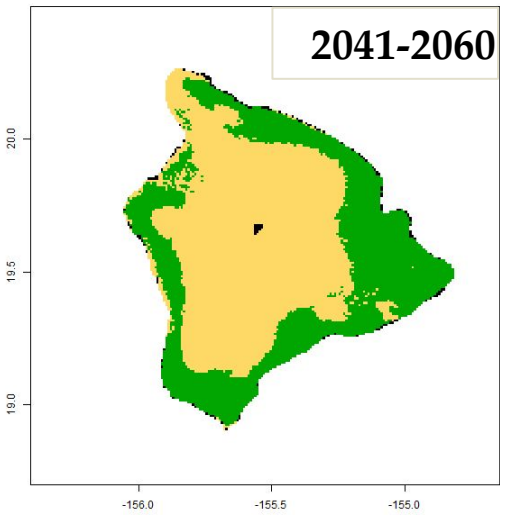


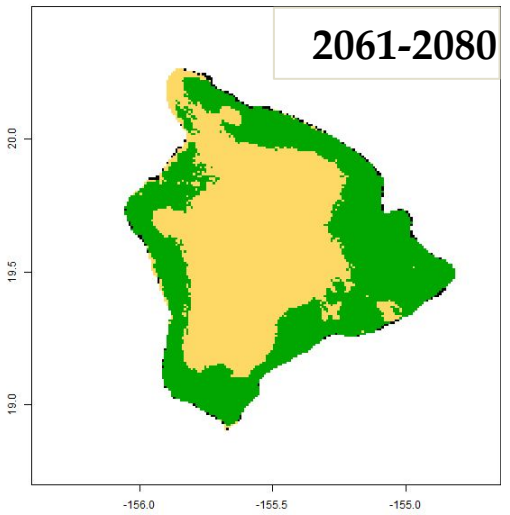


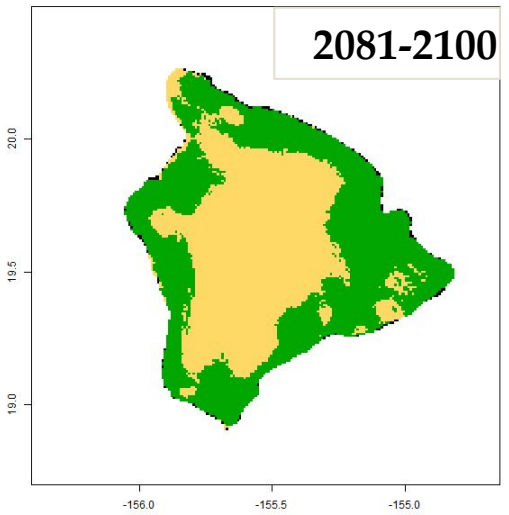








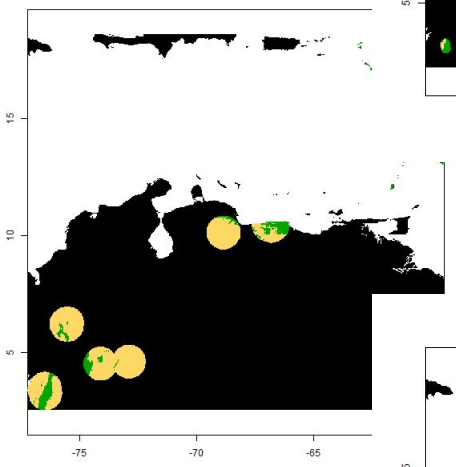


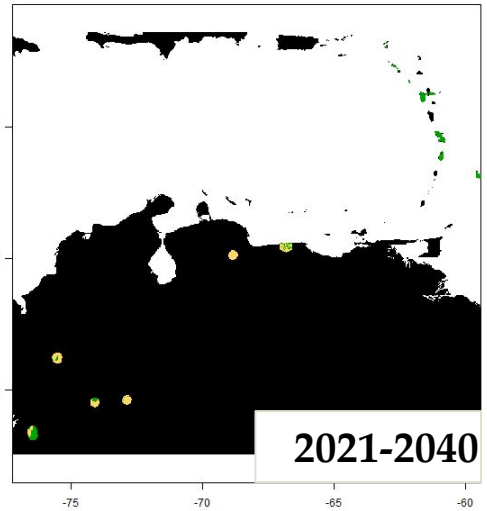


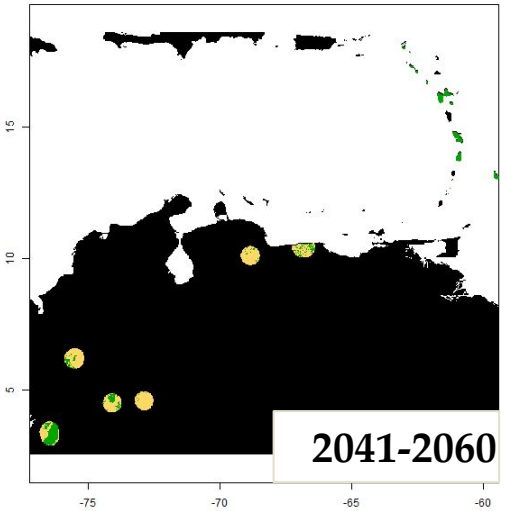
Worst case

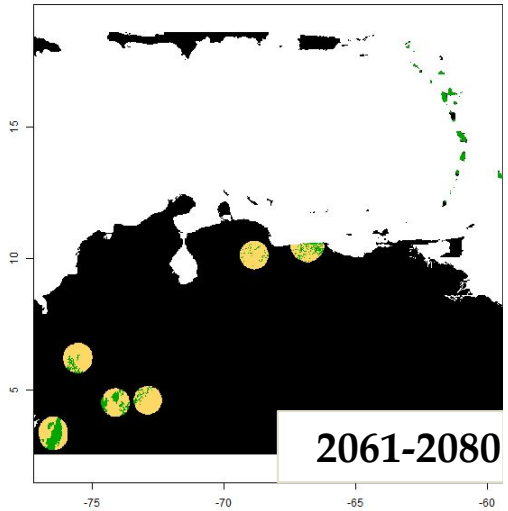
Results: *E. johnstonei* (South America)

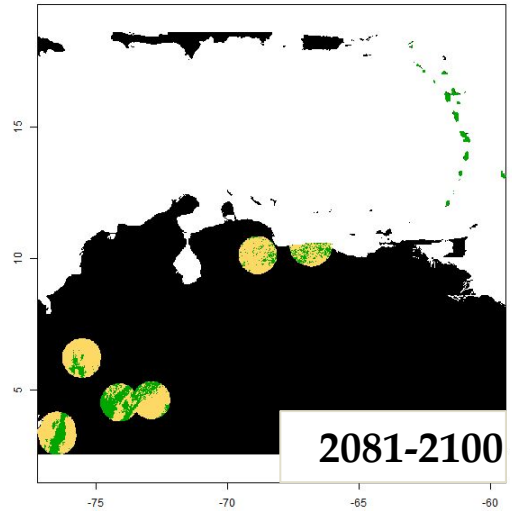
Best case



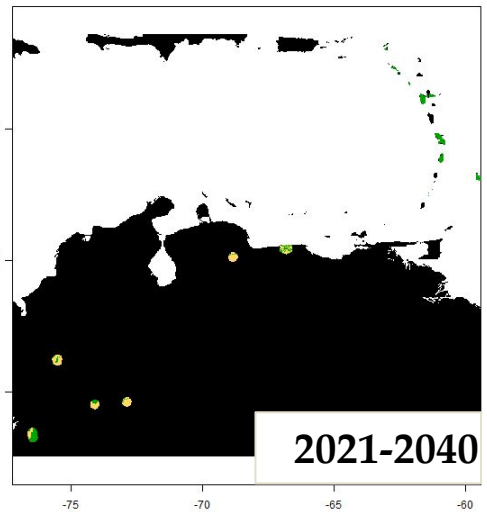


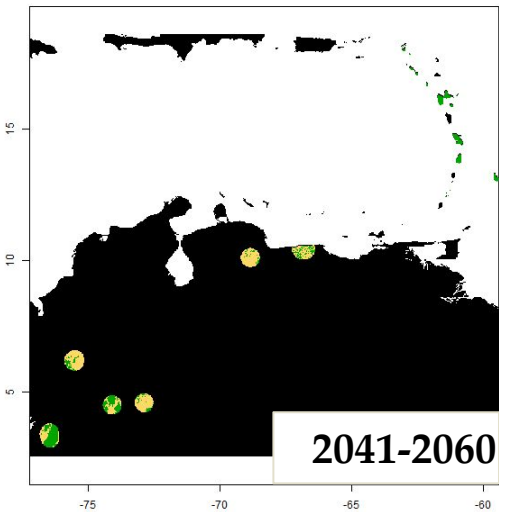


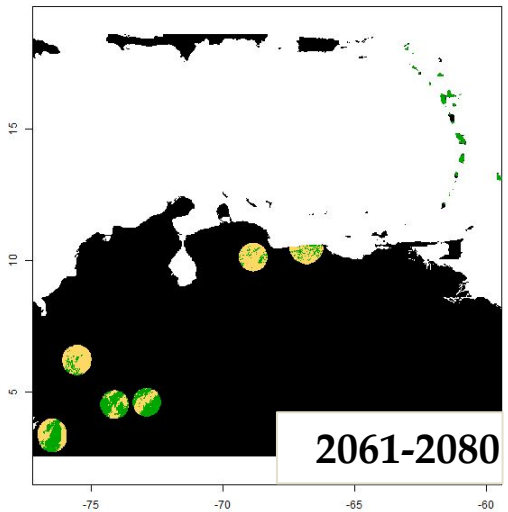


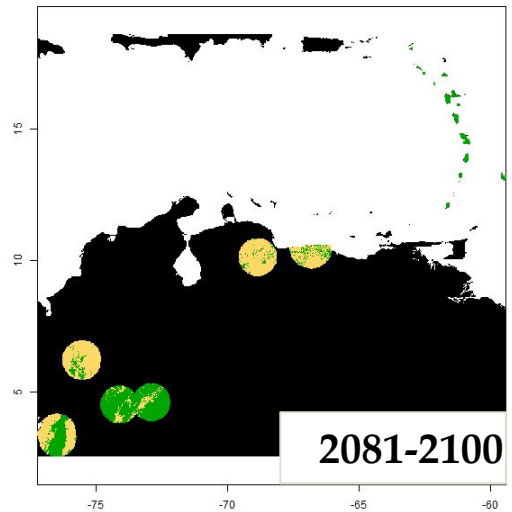


Worst case



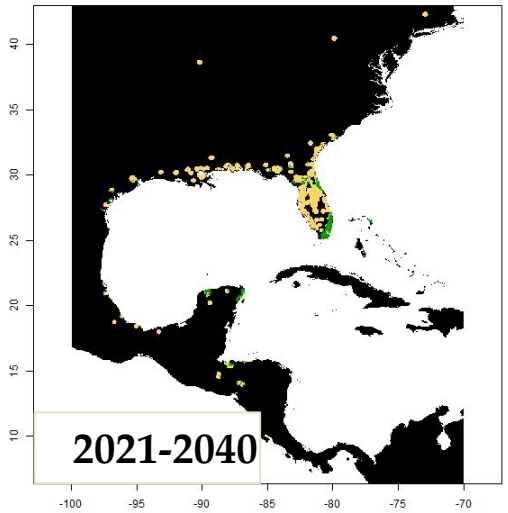


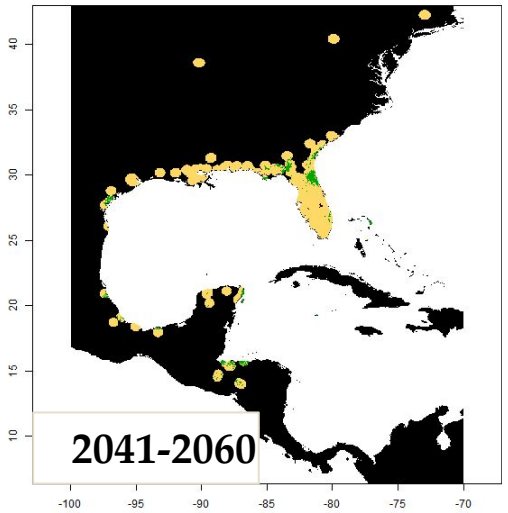


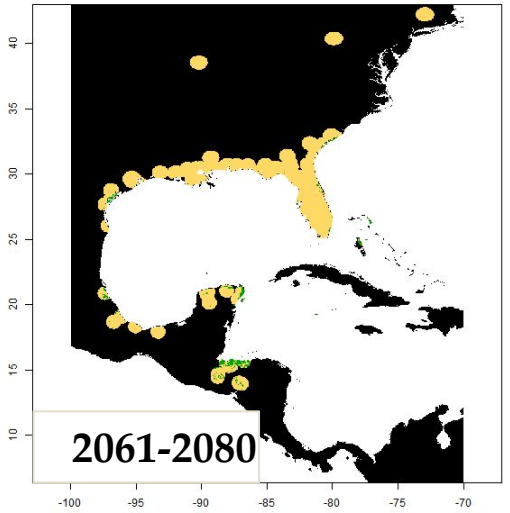


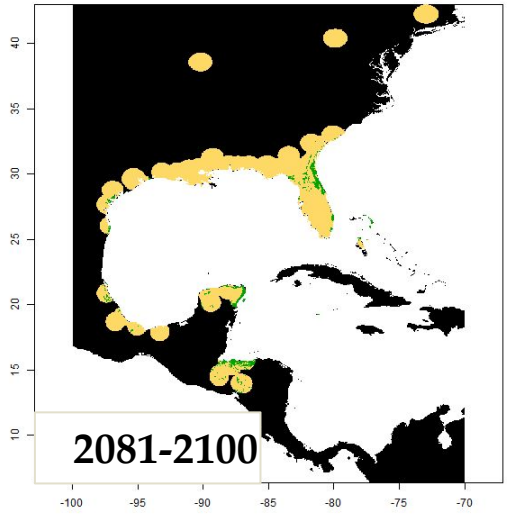
Results: *E. planirostris* (Florida, central America)

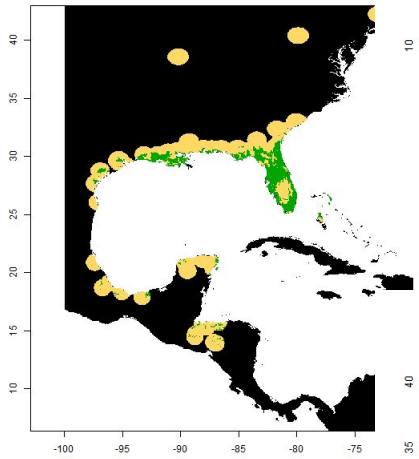
Best case











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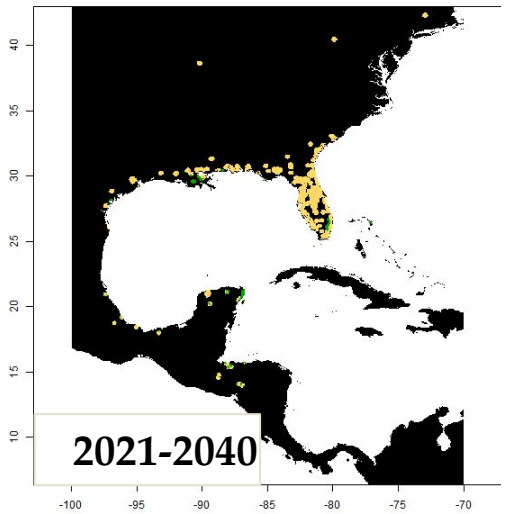

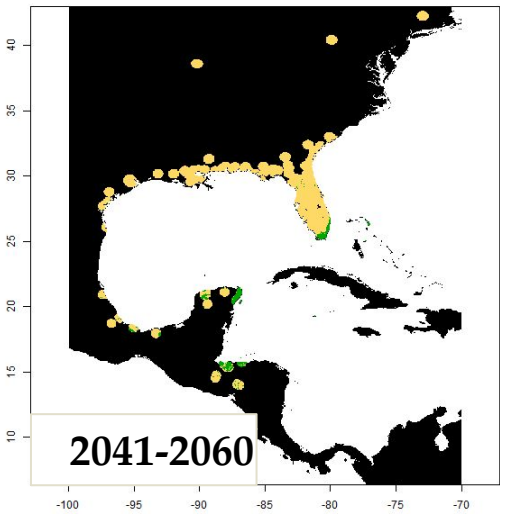

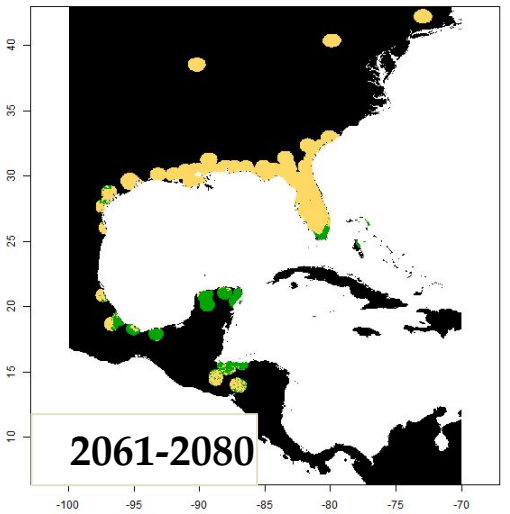

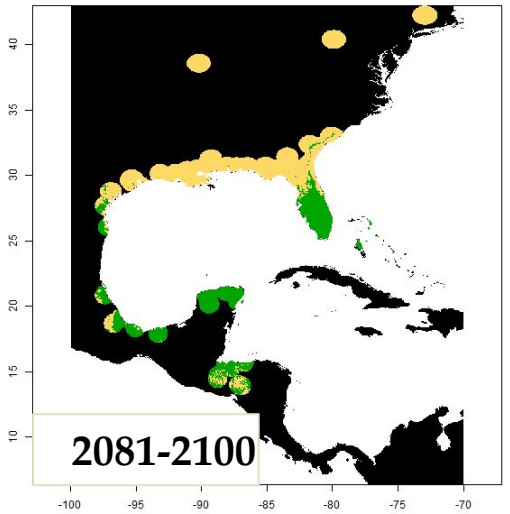

Conclusion

- More severe climate change intensified invasions
- All species exhibited the ability to thrive in invaded regions

Eleutherodactylus coqui
(iNaturalist © Flaxington)

Eleutherodactylus johnstonei
(iNaturalist © Dave Mangham)

- Range of *E. coqui* and *E. johnstonei* invasion was always increasing

- Range of *E. planirostris* invasion was increasing or decreasing depending on the scenario

Eleutherodactylus planirostris
(iNaturalist © revasius)