

New records of Quaternary fossil reptiles from the Dominican Republic

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Summary

Fossil evidence suggests the island of Hispaniola supported unique communities of birds and mammals that went extinct only recently (1,2). By comparison, less is known regarding the fate of reptiles preserved in the same deposits. To test the hypothesis that Hispaniolan reptile communities have also suffered substantial recent declines, we report new records of fossil lizards and crocodiles from caves of the Barahona Peninsula. At least four taxa represented in the deposits are extinct, locally extirpated, or currently endangered. Remains of *Leiocephalus* compare favorably with two extinct species known from Haiti and from elsewhere in the Dominican Republic, and the new samples extend the known range of the group. Dentaries of a crown-giant anole are abundant, but the last and only living specimen of a giant anole known from the area was collected in 1964 (3). Remains of *Cyclura*, a group threatened throughout the Caribbean, are also common. Finally, crocodiles are represented by teeth, osteoderms, and an articular. It is not yet known whether the fossils represent *Crocodylus acutus* or *C. rhombifer*, but neither is found in the area today (4,5). Our preliminary results suggest that changes in Hispaniolan reptile communities correspond with similar declines among other vertebrate groups. Hispaniola is home to a number of endemic reptile species still threatened by extinction, and the continued exploration of new paleontological resources will help to establish how they contributed to healthy ecosystems in the absence of human disturbance.

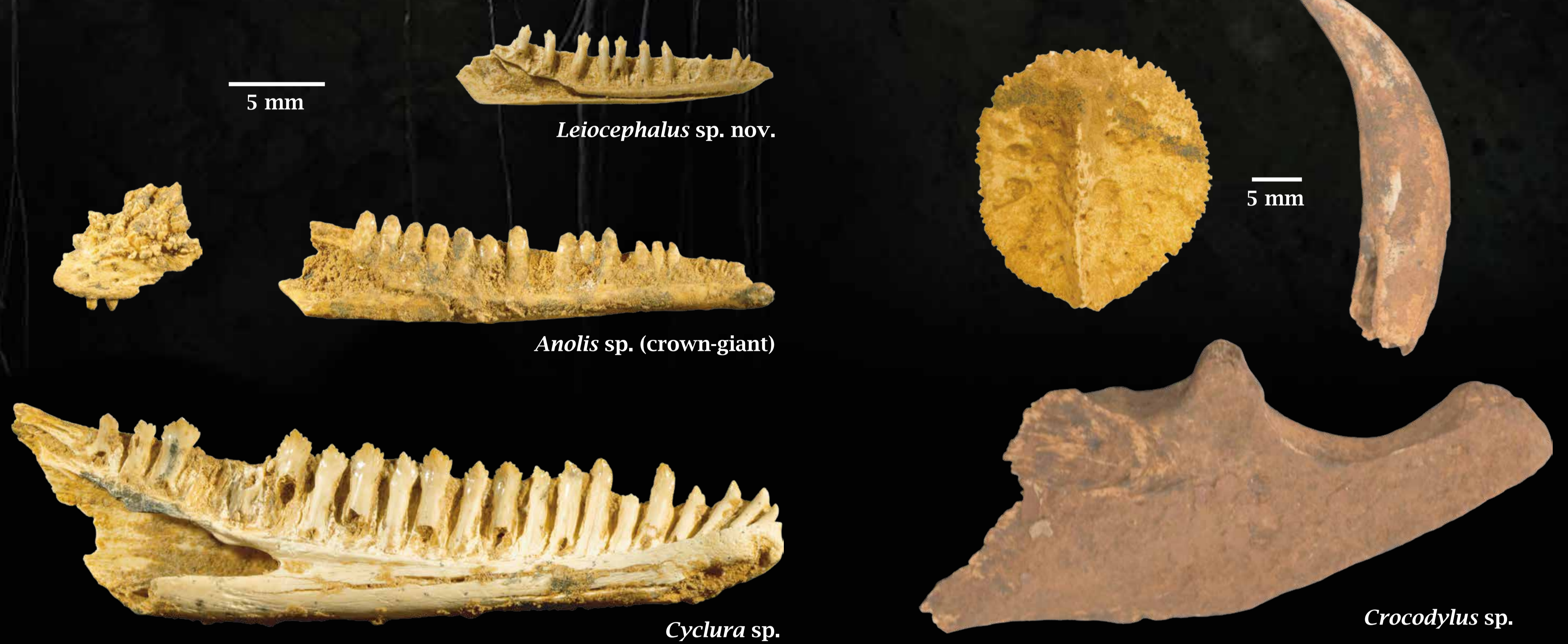
Resumen

El registro fósil indica que la isla de La Española mantenía una rica diversidad de mamíferos y aves que se han extinguido sólo recientemente (1,2). Se sabe poco, sin embargo, sobre los reptiles que se preservan en los mismos yacimientos. Para probar la hipótesis de que las comunidades de reptiles de La Española también han sufrido declives sustanciales, aquí reportamos nuevos registros de lagartos y cocodrilos recogidos en cuevas de la península de Barahona. Se destacan cuatro taxa representados por fósiles y que actualmente están extintos, extirpados, o en peligro de extinción. Restos de *Leiocephalus* se parecen a dos especies extintas ya conocidas de cuevas en Haití y la República Dominicana, y las nuevas muestras amplían la distribución del grupo. Los huesos mandibulares de una especie de *Anolis* gigante son abundantes, pero el último espécimen viviente conocido de la zona fue capturado en 1964 (3). Restos de *Cyclura*, un grupo amenazado en todo el Caribe, también son comunes. Finalmente, los cocodrilos están representados por dientes, un hueso articular, y osteodermos. No se sabe si los fósiles representan *Crocodylus acutus* o *C. rhombifer*, ninguna de las cuales especies se encuentra actualmente en la zona (4,5). Nuestros resultados preliminares demuestran que las comunidades de reptiles han cambiado en una escala de tiempo que corresponde a declives similares entre otros grupos de vertebrados. Muchos reptiles endémicos de La Española siguen en riesgo y la continua exploración de recursos paleontológicos será fundamental para entender su contribución a ecosistemas sanos en ausencia de perturbación humana.

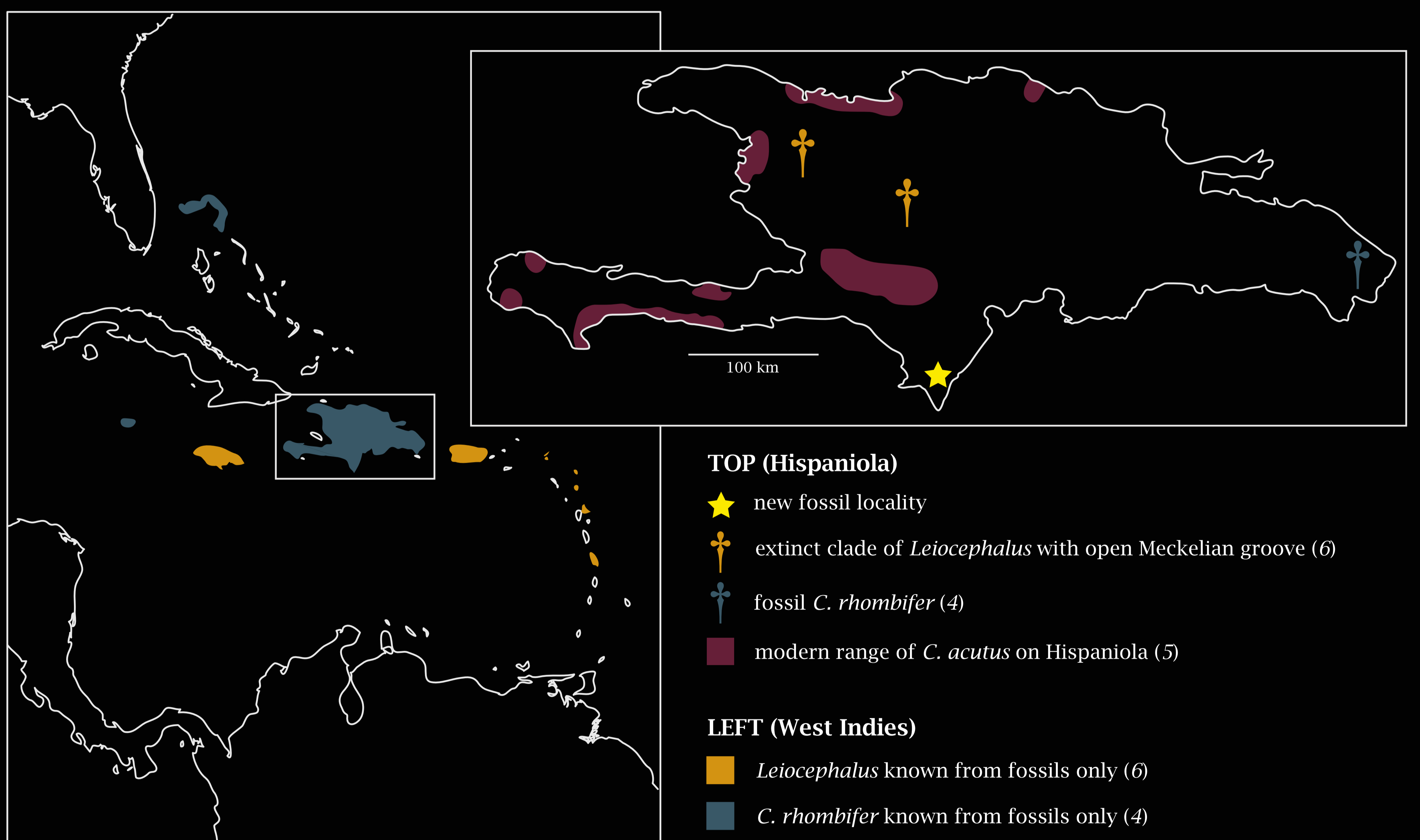
Literature cited

- 1) Morgan GS and Woods CA. 1986. Extinction and the zoogeography of West Indian land mammals. *Biological Journal of the Linnean Society*. 28: 167-203.
- 2) Olson SL. 1978. A paleontological perspective of West Indian birds and mammals. *Academy of Natural Sciences of Philadelphia Special Publication* 13: 99-117.
- 3) Schwartz A. 1974. An analysis of variation in the Hispaniolan giant anole, *Anolis ricordi* Duméril and Bibron. *Bulletin of the Museum of Comparative Zoology*. 146(2):89-146
- 4) Morgan GS and Albury NA. 2013. The Cuban crocodile (*Crocodylus rhombifer*) from late Quaternary fossil deposits in the Bahamas and Cayman Islands. *Bulletin of the Florida Museum of Natural History*. 52(3): 161-236.
- 5) Hedges SB. 2017. *Caribherp*: West Indian amphibians and reptiles (caribherp.org). Temple University, Philadelphia, Pennsylvania.
- 6) Pregill GK. 1992. Systematics of the West Indian lizard genus *Leiocephalus*. *Miscellaneous Publications of the University of Kansas Museum of Natural History*. 84: 1-169.

Material



Map



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