

The death and life of biodiversity: modeling extinction and resilience on islands

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Associated Program:

[Pursuit Program](#) [1]

Despite their small surface area, islands are critical repositories of global biodiversity, however insular fossil records have revealed many instances of human mediated extinctions in the Holocene. Understanding patterns of island extinction and survival is necessary for conservation planning for the future. In this Pursuit, we propose assembling a group of socio-environmental scientists to analyze and model the natural and human factors that determine the extinction and resilience of insular vertebrate fauna and leverage this understanding into metrics for use in conservation assessments. We focus on islands of the Caribbean because of the available archaeology, paleontology, and ecology datasets and the region's geological diversity, which encompasses most major biogeographic varieties of island found worldwide. Therefore, the analyses and data integration of this Pursuit serve as templates for other less studied archipelagos. This Pursuit will translate models of extinction dates, overlap between fauna and early human populations, and species distributions, into demographic predictions and structured threat assessments. These estimates will generate comparisons of extinction rates under varying regimes of human use and disturbance and demographic projections under alternative future scenarios. The main products resulting from the workshop are: 1) the first integrated database of radiometric dates of people and fauna across a geologically diverse archipelago, 2) a synthesis paper with model results identifying factors of extinction and resilience, and 3) a horizon scan pinpointing urgent data gaps and outstanding questions on how to conserve the vertebrate fauna of the Caribbean, with implications for sustaining biodiversity and the ecosystem services it provides.

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[1] <https://www.sesync.org/opportunities/research-thematic-pursuits/pursuit-program>