

## Editorial

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Geography has played an important role in the minds of biologists since the very beginnings of scientific analysis of the evolutionary process. Early biologists and paleontologists knew that particular forms of life—especially among groups of complex organisms, such as terrestrial vertebrates—tend to be restricted to certain areas: life is not distributed homogeneously around the globe. When Darwin was a young naturalist on the HMS *Beagle*, he zeroed in on the native endemic mammals and birds of South America. Darwin was looking for patterns of “births” and “deaths” of species—so focusing on groups of species restricted to a single area automatically meant that species must have originated there—rather than migrating in from someplace else. He hit pay dirt when he discovered fossil remains of an extinct species of rodent he thought must have been ancestral to the living mara—which he called the “Patagonian cavy.” Caviomorph rodents are distinctively South American.

Darwin then saw that “closely allied” species tend to replace one another in space as well as in time. The native South American species of “rheas” seemed to him a perfect example: the “greater rhea” lives on the pampas of northern Argentina, while the smaller “Darwin’s rhea” replaces it to the south in Patagonia. Most famously, Darwin realized that the mockingbirds of the Galapagos differed from the species on the mainland of South America—and also slightly from one another on the older islands of the Galapagos Archipelago. Mockingbirds are native to the “New World.”

That similar, geographically restricted species tend to replace one another in an orderly fashion in both time and space (i.e., geographically) convinced Darwin that an explanation of the origin of species through natural causes was

near at hand. And, in his Notebook B, written in 1837–1838, Darwin proposed that adaptive change occurs in populations that are isolated from the rest of the members of a species. Though Darwin never published the idea that new species arise through differentiation in geographically isolated populations, that concept was rediscovered in the 1930s (primarily by naturalist/geneticist Theodosius Dobzhansky) and has become the modern notion of “allopatric” speciation. Geography remains essential to understanding the mechanisms of evolution.

It is with special pleasure, then, that we welcome the compilation of papers on “The Geography of Evolution” organized and compiled by Dr. Bruce Lieberman of the University of Kansas. Bruce and I (NE) have known each other for many years, initially when Bruce was a student at Harvard and then at Columbia, and I was at the American Museum and on the faculty of Columbia University as well. For many years thereafter, we have been friends and colleagues, collaborating on many projects: we are both paleontologists (and especially love trilobites)—and both of us have a burning passion to see the patterns of the fossil record taken seriously in the quest to understand the very nature of evolution.

Readers of this terrific special issue on The Geography of Evolution will encounter the entire gamut of linkage between geography and evolution in the modern world of evolutionary biology: papers ranging from geography and speciation, through the effects of climate and other factors governing changing geographic distributions of species—to the deep-time connections between geography and large-scale evolutionary phenomena.

Bruce Lieberman has been an active contributor to, and supporter of, *E: E&O* since its very inception. It is thus very fitting that his will be the final “Special Issue” organized around a specific evolutionary topic. For we have some momentous news: Beginning in January 2013, *E:*

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*E&O* will become an “Open Access” journal—freely available to everyone the world over with access to the internet. Though it is somewhat poignant for us to end a five-year period of quarterly publication of printed issues, we are thrilled that the journal’s contents (including all back content over the first five years) will soon be freely available to everyone.

We are proud of what *E: E&O* has brought to the world in terms of the understanding and communication of evolutionary concepts. We thank all of our contributors—writers, editors, and reviewers—who have made the journal so successful so far. Now that *E: E&O* will be even more accessible to both the scientific and educational communities, we look forward to making an even bigger difference in the years to come!