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Editorial

Ratites, seeds and biodiversity

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Large seed-eating birds have always played an essential part in the dispersal of austral plant seeds and, by extension, the ecology of austral habitats. Wood *et al*. (2012) recently documented fossil evidence of the foraging ecology of the now extinct flightless Moa (*Megalapteryx didinus*), which was widespread across New Zealand's upland areas some 6000 years ago. These fascinating data give an insight into not only the diet of these ancient birds, but also the changes that have taken place in the vegetation structure of this habitat over time. Using ancient DNA and radiocarbon dating, the authors reconstruct the diet from coprolites, including evidence of their possible role in seed dispersal.

In this issue of *Emu – Austral Ornithology*, two papers deal with the fundamental role of other large ratites in determining seed dispersal and ecology on two very different continents. The generalist dietary habits of the Emu (*Dromaius novaehollandiae)* are well recognised, but its potential as a seed disperser is much less understood. Dunstan *et al*. (2013) collected scats from wild Emus and assessed not only the seeds that they contained, but their germination potential. With their large body sizes, large guts with long retention times and the long distances they can travel, Emus have considerable potential for long-distance seed dispersal. However, the authors found that few seeds from the scats germinated during their experimental trials, and so the true role of Emus as seed dispersers remains unclear.

In Brazil, the Greater Rhea (*Rhea americana*) fills the ecological niche of large frugivorous ratite. Schetini de Azevedo *et al*. (2013) compared the germination potential of seeds commonly found in the diet of Rheas, from common plants of the Brazilian savannah, either with or without gut passage. Interestingly, they found that whereas seeds from some species clearly suffered detrimental effects from gut passage in Rheas, other species benefited through increased germination rates after gut passage, probably due to the mechanically abrasive effects of digestion. However, one of the species benefiting from gut passage was an invasive plant species, demonstrating the potentially complicated effects that seed dispersers may have within their own ecological niches.

These papers raise at least as many questions as they answer. They highlight not only the fundamental role that large seed-eating birds may have in ecological processes, but also how little we understand about how these processes function. Although both the Rhea and the Emu are currently of little conservation concern, the Moa was not so lucky. Hopefully we can gain more insight into the role of seed-eating birds in maintaining biodiversity levels before we have to rely on fossil evidence.

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