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Evolutionary processes in continental island systems: molecular phylogeography of the Aegean *Nigella arvensis* L. complex (Ranunculaceae) by means of AFLP markers

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The complex paleogeographic history of the Aegean Archipelago makes this mostly continental island system a unique biogeographic setting for the study of plant evolution and speciation. In this area, the genus *Nigella* has radiated during the (Late) Quaternary into six species (12 taxa) of mainly allo- or parapatric distribution *(N. arvensis* complex). While most taxa are outcrossing and interfertile, two species are predominantly selfing and reproductively isolated from each other and the former. Phylogeographic evidence based on chloroplast (cp) DNA (BITTKAU & COMES 2005) indicated that geographic isolation, limited seed flow, and genetic drift had a major role in the evolution of the complex, but failed to resolve inter-species relationships. Here, we will readdress these issues based on a survey of **a**mplified **f**ragment **l**ength **p**olymorphisms (AFLPs) across all species of the complex (48 populations/566 individuals). Preliminary results and conclusions drawn from genetic distance and diversity analyses are: (1) Most nominal species of the complex are genetically distinct entities, suggesting that erratic instances of cpDNA haplotype sharing across species boundaries are due to incomplete lineage sorting rather than ongoing hybridization. (2) The enigmatic disjunct distribution of *N. arvensis* ssp. *brevifolia* in Crete and Rhodes likely reflects the existence of two separate species. (3) Although the spatial-temporal origin of the two selfing island taxa *(N. doerfleri, N. stricta)* is not yet fully understood, they clearly do form separate genetic entities rather than being nested within the outcrossing alliance. (4) Given the genetic distinctness of *N. doerfleri*, its present co-occurrence with the outcrosser *N. degenii* in the Cyclades is best interpreted as a zone of secondary contact. (5) Not unexpectedly, levels of genetic diversity are markedly reduced in both *N. doerfleri* and *N. stricta* compared to the outcrossers, most likely as a result of reductions in effective population size due to selfing. In addition, how-

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ever, the former taxon is markedly depauperate in terms of rare marker fragments. This may reflect a pronounced difference in the demography of these two selfers, with the widespread *N. doerfleri* having been more strongly affected by founder effects in the wake of (remote) island colonization than the narrow endemic *N. stricta* (Crete, Kithira).

References:

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