



## Evolutionary stoichiometry: The role of food quality for clonal differentiation and hybrid maintenance in a *Daphnia* species complex

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**ABSTRACT:** Interspecific hybridization is a common phenomenon among *Daphnia* species (Crustacea: Anomopoda); interspecific hybrids and parental species have been shown to be ecologically differentiated and often co-occur in the same lake. Food quantity, temperature, and the level of predation (by juvenile fish) have been identified as the main environmental factors determining the fitness of *Daphnia* taxa. Here we tested another environmental factor, food quality, which is known to shape fitness in *Daphnia*. We conducted life-history experiments with clones of *Daphnia galeata*, *Daphnia cucullata*, and their interspecific hybrids and measured fitness-related life-history traits at two food quality conditions (phosphorus [P]-rich and P-limited algae). *D. galeata* X *cucullata* hybrids show highest fitness values in some traits at low food quality conditions, relative to the parental species, whereas *D. galeata* was superior in P-rich conditions. These results, based on single-clone life-history studies, were confirmed by a multiclonal experiment. Large natural variation in food quality and the observed differential response of clones and taxa to P variation indicates that variation in food quality represents an additional factor, besides fish predation and food quantity, explaining hybrid maintenance.

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