

Coexistence and interference in two submersed freshwater perennial plants

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Summary. Interactions between two codominant submersed freshwater perennial plants, *Eleocharis acicularis* (L.) R. and S. and *Juncus pelocarpus* forma *submersus* Fassett, were studied in a softwater lake. Analysis of segregation indicated a nonrandom arrangement of individual rosettes of each species with respect to rosettes of the other species. Factors influencing growth of the species were examined using de Wit replacement series replicated four times at five ratios, under three environmental treatments: *Sphagnum* peat, double field density, and shading, and a control.

Plants grown in pure culture showed no significant difference in yield between the two species. When plants were grown in mixture, there were significant differences between species. Yields of both species were significantly different among environmental treatments. A significant effect of *Eleocharis: Juncus* ratio in the double density treatment resulted from interference among conspecific neighbors. Relative Yield Totals ranged from 0.84 to 1.0 for all four treatments, and ratio diagrams indicate stable coexistence through the growing season under all four environmental regimes. Interspecific interference was less important than environmental factors and intraspecific interference in determining growth in these experiments.

Eleocharis and *Juncus* are nonrandomly intermingled, and can coexist under a variety of environmental manipulations. This outcome is consistent with their reported distributions in nature. The mechanism that permits this stable coexistence awaits explanation.
