

EVIDENCE FOR GAUSE'S PRINCIPLE FROM FIELD STUDIES OF ALPINE GRASSHOPPERS

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When two species of similar ecological requirements have the same range but do not occur in the same community this may be considered indirect evidence for Gause's (the competitive exclusion) principle. Such a condition is more likely to be detected in the simple communities of high altitudes, where only a few species are involved, than in the more complex communities of lower elevations.

In at least three cases, only one species of a pair of ecologically closely related, high altitude grasshoppers occurs in a given community. Chorthippus curtipennis and Aeropedellus clavatus constitute such a pair. Either species may occur in alpine tundra, but the two do not occur in the same community. Melanoplus dodgei and M. marshallii occupy similar habitats but are not in the same area; sometimes one, sometimes the other, characterizes the alpine community. The same statement applies to Melanoplus fasciatus and M. borealis, though in this case supporting evidence is more limited.

In each of these three cases, it appears likely that the two species have requirements so near the same that sometimes one, sometimes the other, maintains itself in the area to the exclusion of its ecological counterpart.

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