

Habitat partitioning between sympatric Japanese wood mice

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Habitat partitioning can maintain the coexistence of species with very similar ecological traits. We studied habitat partitioning between terrestrial and semi-arboreal congeneric rodents (*Apodemus speciosus* and *A. argenteus*) that often coexist despite asymmetry in their competitive abilities. To understand seasonal and habitat variation in their partitioning, we evaluated seasonal variation in food resources, habitat use, and habitat similarity between the species in a site comprising a mixture of grassland, pine forest, and mixed forest. Food resources were available on the ground in all vegetation types in spring and autumn, but were severe in summer. *Apodemus speciosus* was observed in all types of vegetation on the ground. In contrast, *A. argenteus* was observed on the ground and on trees in pine forest, especially areas where the understory is covered by dwarf bamboo.

Habitat similarity tests revealed that habitat partitioning between two *Apodemus* species may vary seasonally, and the relationship depends on habitat structure. This study suggests that the mechanism of habitat partitioning between terrestrial and semi-arboreal rodents in temperate forest is more complex than previously recognized.

This study additionally found that breeding seasons of the two species in this cold region were observed on summer from June to October, whereas breeding seasons of them are observed on spring and autumn in many temperate regions in Japan.

Keywords: coexistence mechanisms, horizontal partitioning, niche division, vertical partitioning