Bat presence and activity in natural forest and conifer plantations in the warm temperate zone of Yakushima, Japan.

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A large proportion of Yakushima's warm temperate broadleaved rain forest was felled and replanted with single-species plantations of *Cryptomeria japonica* between seventy and twenty years ago. The aim of this study was to assess relative bat diversity and activity in natural and artificial forests as a preliminary indication of the impact of past forest management on the bat fauna. Bat presence and activity were surveyed at twelve sites in each habitat type during August and early September. Two main survey methods were used: a route census using a bat detector to monitor bat vocalisations, and capture of bats using a harp trap with an acoustic lure.

Bat vocalisations were recorded at all survey sites in both natural and artificial forest. Overall levels of activity in the two forest types were comparable, but the diversity of species recorded in natural forest was generally higher than in conifer plantation. Bats were captured at all survey sites in natural forest. The little tube-nosed bat, *Murina ussuriensis*, was the most common species in traps, but four other species were also captured. *M. ussuriensis* was also caught at seven of the twelve sites in conifer plantation. No other species were caught in artificial forest. At two of the plantation sites, more individuals were caught than at any of the natural forest sites.

It is not clear why *M. ussuriensis* was common at some plantation sites and not others, but the sites varied in intensity of management and proximity of remnant broadleaved forest. The availability of broadleaved trees may be a key factor. Radio-tracking data from natural forest showed that *M. ussuriensis* frequently roosts in hanging bunches of dead leaves of broadleaved trees. Further work is required before detailed recommendations for forest management can be made, but preliminary indications are that allowing gradual reversion back to broadleaved forest would be most beneficial for bats.