Title: Effects of weather and season on the summer activity of dormice *Muscardinus avellanarius*. *Journal of Zoology, London, 1996*

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Background to study
The ability of dormice to reduce their activity to compensate for adverse weather conditions suggests that their activity patterns are likely to be strongly influenced by summer weather conditions. To date no empirical research has been conducted on free-ranging dormouse activity in relation to weather, despite its potential influence on their life history.

Method
- The nocturnal activity of dormice was monitored within 4.5 ha of a deciduous, low growing woodland in Somerset. Nest box monitoring indicated dormice were at high density (1/10 ha).
- Nest boxes were monitored monthly or fortnightly between May and November during 1987 and 1988 and individuals were sexed and individually marked using semi-permanent fur-clips.
- The ambient temperature of dormouse nest boxes was monitored using Thermistors to indicate the presence and absence of dormice in nest boxes during nocturnal foraging hours.
- The assumption that activity records per nest box related to the same dormouse was made and when dormice shared a nest box, temperature changes were related to either individual.
- Ambient air temperature at 00:0h was recorded near nest boxes at 1.5 m above ground and data on rainfall, cloud cover were obtained from external weather stations 4.5 km and 10 km from the study site. Nocturnal hours, moon phase and moonlight were recorded.

Key results
- Dormouse activity closely correlated to sunset and sunrise and activity started approximately 30 minutes after sunset but variation was observed between individuals.
- The activity schedules of male and female dormice appeared identical in all seasons and individuals rarely returned to their nest boxes during foraging hours.
- High ambient temperatures increased the length of time dormice were active in May-June and September-November, but did not influence activity length in July-August.
- Rainfall reduced the length of time dormice were active and influenced their activity start time in May-June but in no other month.
- Diurnal activity lasting over 30 minutes took place when nocturnal temperatures fell below 9° C the length of time dormice were active was positively influenced by lower nocturnal temperatures. This was most frequent in September-early November.
- Significant differences in activity schedules between years was observed and related to ambient mid night temperature and rainfall. Rainfall decreased the length of time dormice were active.

Key messages to landowners and managers derived from these results
- Dormice may be particularly vulnerable to climatic changes in England and in prolonged wet summers may reduce activity, reducing reproductive output and survival.
- Where possible do not check dormouse nest boxes after colder wetter nights as dormice may be active during the day resulting in false negative results of occupancy.
- Maintaining a high diversity of food at high densities in woodlands is advised to ensure dormice have access to resources when adverse weather reduces activity and forces diurnal foraging.

Key words/phrases
Dormice; *Muscardinus avellanarius;* activity patterns; weather; ambient temperature