



Bush encroachment influences nocturnal rodent community and behaviour in a semi-arid grassland in Gujarat, India

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Highlights

- We explored the effects of bush encroachment on nocturnal rodent community structure and foraging behaviour.
- Rodents have high foraging costs in the densely bush encroached site during summer.
- The densely bush encroached site favours generalist species of nocturnal rodents.
- Changes in the community of native species may adversely affect grassland restoration.

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Abstract

Bush encroachment is one of the major threats to [grasslands](#) globally. The increased cover due to bush encroachment can strongly influence the behaviour of animals adapted to a more open habitat. In this study, we explored the effects of bush encroachment on the [foraging behaviour](#) of nocturnal rodents the semi-arid Banni grasslands of western India, once one of India's largest tropical grassland habitats. We quantified foraging behaviour using the giving-up density (GUD) framework, across two sites that differed in the extent of bush encroachment. Rodents in the site with high bush encroachment (the dense site) exhibited higher foraging costs (higher GUD) in early summer compared to the site with low bush encroachment (the sparse site). Rodents in the dense site also had lower activity. The dense site supported higher richness and [relative abundance](#) of generalist rodents than the sparse site. Our results suggest that bush encroachment may be associated with higher foraging costs for nocturnal rodents and result in a change in species composition of rodents. Given the [ecosystem engineering](#) services performed by native grassland species, these results can have negative implications for grassland restoration.

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Keywords

Semi-arid grasslands; Bush encroachment; Foraging behaviour; Giving-up density

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