Grasslands are one of the most threatened ecosystems in the world. These habitats are under intense anthropogenic pressures due to agriculture, industrial developments, afforestation and other land-use changes.

Grasslands around the world are transitioning into woodlands and shrub lands due to the increase in existing species as a result of environmental changes or due to the introduction of invasive species (ref). Woodlands and shrub lands form novel habitats for native faunal species as they alter existing habitat structure. In many species, cover acts as a cue for predation risk (ref). In grassland systems which are relatively open, encroachment of shrub cover is associated with lower visibility and thus higher predation risk. Several small-bodied herbivores in semi-arid grasslands select open habitats with less tree cover over habitats with high tree density and cover (ref). This is attributed to higher visibility of open areas rather than increased forage (ref). However, the impact of woodlands on the behaviour of small mammals such as rodents is less studied.

In semi-arid grasslands, rodents are the most abundant group of mammals (ref). While they are generally viewed as pests due to their negative effects on agriculture and human health, they play an important role in the ecosystem and are considered ecosystem engineers in semi-arid systems. They constitute an important prey base for avian, mammalian and reptilian predators. Further, their burrows not only provide refuge to a host of organisms (e.g. invertebrates, reptiles), but also affect nutrient cycling, water flow and soil structure (Shenbrot, Krasnov & Rogovin 2012). Rodents also provide important ecosystem services such as seed dispersal, thus influencing the composition and distribution of plants. Hence understanding the factors which influence the distribution and behaviour of rodents can aid in the conservation and management of several threatened ecosystems.

The influence of cover on the antipredator rodents is well studied in desert ecosystems in the light of indirect cues such as moonlight and microhabitat differences in cover (ref). However its influence in semi-arid systems at a habitat-level scale is less known. Understanding the anti-predator behaviour of rodents such a system is important as antipredator behaviour can affect its distribution, abundance and ultimately survival. Given that rodents are considered ecosystem engineers in semi-arid systems, it is important to understand the factors that affect their survival.

In India, grasslands are one of the most neglected ecosystems and are generally classified as ‘wastelands’. Grasslands however form an important habitat for several endemic fauna such as the Indian gazelle (Gazella bennettii), the Indian wolf (Canis lupis pallipes) and the blackbuck (Antelope cervicapra). Grasslands in many parts of India face bush encroachment, especially from invasive species such as *Prosopis juliflora*.

There are no studies about the impact of bush encroachment on animals in India. Further, rodents receive little attention in ecological studies in India, in the realm of behavioural ecology. To bridge these gap

s, the aim of the current study is to thus examine how change in habitat structure due to bush encroachment affects the anti-predator behaviour of rodents. The objectives of the study are:

1. How is anti-predator behaviour of rodents affected by differences in habitat structure due to bush encroachment, in the light of indirect cues of predation risk such as moonlight?
2. How does the removal of invasive species which lead to bush encroachment alter the anti-predator behaviour of rodents?