Project Update: July 2018

We conducted a reconnaissance survey in June 2017 in multiple districts of Rajasthan. Post that, we found Desert National Park (Jaisalmer) and surrounding areas as a potential study site as they hosted the highest density of *Saara hardwickii* (spiny tailed lizard) and had some complex land-use land-cover dynamics which suited our direction of hypothesis testing. We established five types of controls in the area namely; non-grazing grassland site, grazing grassland site, high intensity *Prosopis juliflora* infested site, site with *Prosopis juliflora* and grazing acting simultaneously and agriculture site (in areas where cultivation is practised only 3 months in a year). We were successful in completing two out of three field seasons in July to September 2017 and March to May 2018. We completed most of the planned objectives excluding pellet content analysis, reproductive output measures and education outreach in school which are currently in progress.

Our observations so far have suggested that spiny tailed lizard population size is largest in areas having intense grazing pressures (grazing and *Prosopis* + grazing site) probably owing to the preference of the lizard to occupy habitats with lower vegetation height/density, which is otherwise unavailable in unaltered grasslands due to the current decline in the native grazing ungulate population. Nonetheless, it will be premature to enlist direct reasons as we are currently in process of quantifying the change in vegetation diversity and available nutrient material across the control sites to understand other trade-offs of occupying a disturbed habitat.

Due to the harsh field conditions, we were forced to invest a longer field period to fulfil the objectives set for the project. This reduced the amount of time available for lab based activities such as diet analysis, vegetation nutrient content, and statistical analysis. Furthermore, we intend to visit our study site for another season (pre-monsoon) to gather info on fecundity strategies and conduct education outreach programs in local schools. Keeping the current phase of the project in mind, we request for a 6 months' extension period to the project.

Below are few picture from field and a map of burrow distribution intensities in 50x50m plots in different control sites demonstrating a higher population density of lizard burrows in grazing sites.

A Tawny eagle feeding on an Indian Gazelle carcass with an Egyptian vulture waiting for its turn.

An oblivious female spotted sandgrouse sitting put on her clutch of eggs during a hot day. Note that there is no investment in making an elaborate nest, rather the birds choose a site with no shade and perpetually sits on her eggs sometimes through ground temperatures rising up to 70°C.

A desert fox digging up a spiny burrow beside a water logged patch where the Indra Ghandi canal system's water leaks out.

An undisturbed grassland during summer months.

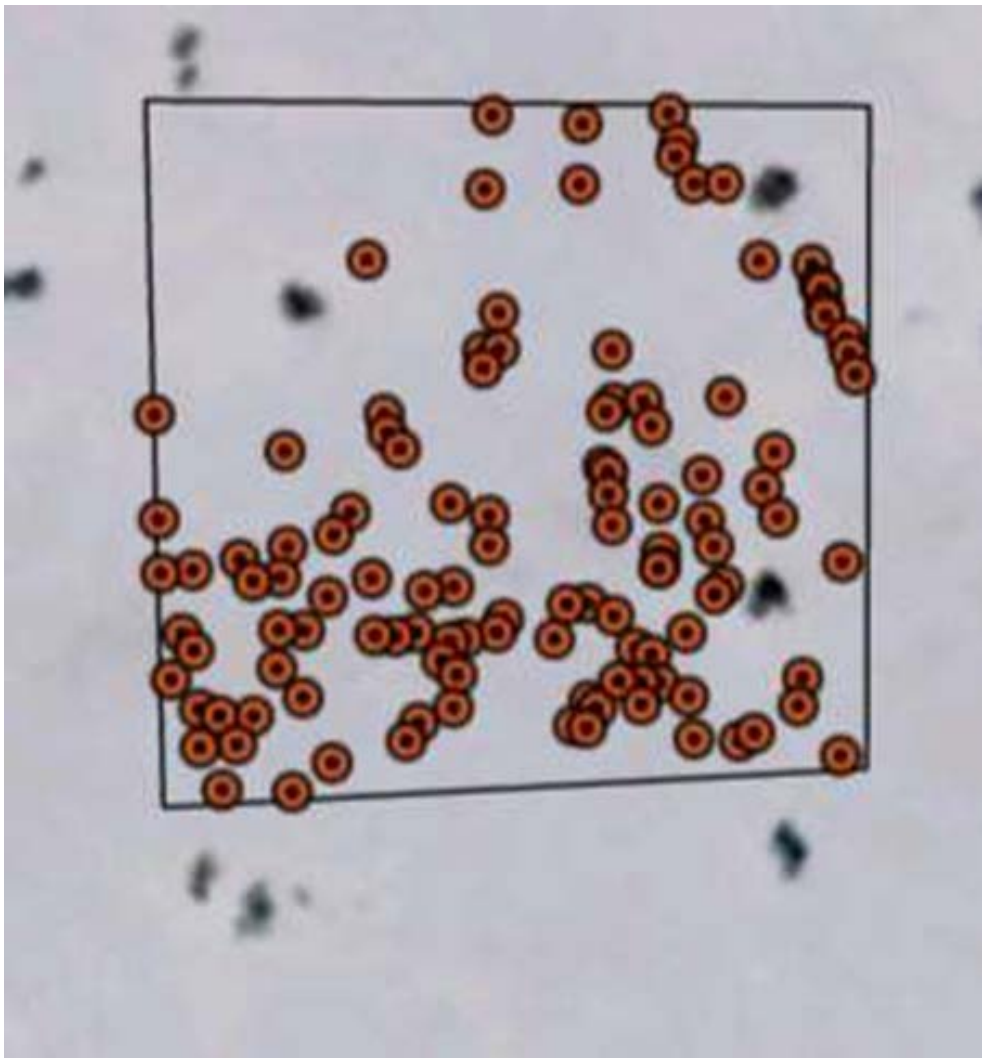
A Tawny eagle with a spiny tailed lizard kill.

Tawny eagle fighting over a spiny tailed lizard kill.

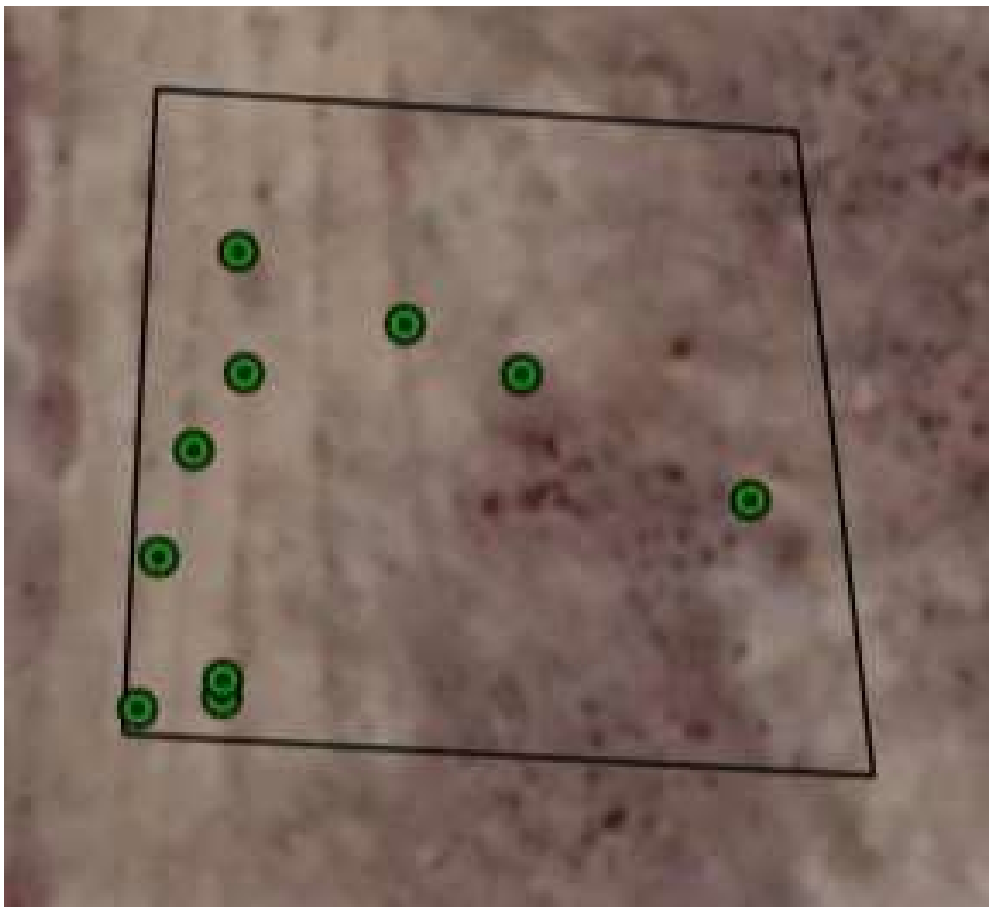
A spiny tailed lizard feeding on lush green grasses post monsoon.

A short nosed Hedgehog exploring its habitat after dusk.

Spiny tailed lizard road kills are the most commonly witnessed road incident in the area.



Distribution of lizard burrows in grazing only site (50x50m plot)



Distribution of lizard burrows in unaltered grassland site (50x50m plot)