Small Mammal Communities of the Darhad Valley, Mongolia

Chyanne Smith, Tumursukh Jal, Nyam-Ochir Duuji, Battogtokh Tumur, & John Mull

Introduction

The Darhad Valley, Mongolia, is a sparsely populated area with abundant wildlife and livestock, including: goats, yaks, sheep, and horses. Few baseline data exist for native fauna in this location. To our knowledge, no data have been collected on small mammal diversity, density, and distribution. We focused on live-trapping rodents in six locations throughout the Darhad Valley to obtain baseline information.

Figure 1: Setting of the Darhad Valley in Northern Mongolia

Methods

- Traps were opportunistically set at six locations in the Darhad Valley (Fig 1): Mungash Hasha, Round River Base Camp, UTSPAA Hasha, Battogtokh Hasha, Duuren Nuur, and the Junction of Uurjuul and Dartsag (Table 1).
- On each capture, we recorded: species, sex, breeding status, weight, and measurements on their hind foot, ear, and tail (Table 2).
- Protocols for future use were created with special consideration given to unique obstacles presented in this location.

Figure 2: Korean field mouse (*Apodemus peninsulae*) captured at the junction of Uurjuul and Dartsag, Mongolia.

Table 1: Description of the sites trapped, number of trap attempts, and bait. All locations trapped were between 1,700 m – 2,000 m in elevation.

Site Name	Site Code	Habitat	Trap Nights	Bait
Mungash Hasha	MH	Meadow	20	Peanut butter, oats, apples
Round River Base Camp	BC	Meadow	55	Peanut butter oats, apples, and boortsog
UTSPAA Hasha	UH	Semi-Rural	8	Peanut butter oats, apples, and boortsog
Battogtokh Hasha	BH	Steppe	8	Peanut butter and millet
Duuren Nuur	DN	Steppe	10	Peanut butter and millet
Junction of Uurjuul and Dartsag	UD	Rocky Outcrop	50	Peanuts, raisins, and boortsog

Results

We captured 23 unique individuals (Fig 3) and recorded 9 recaptures (MH n=0, BC n=4, UH n=0, BH n=1, DN n=0, UD n=27).

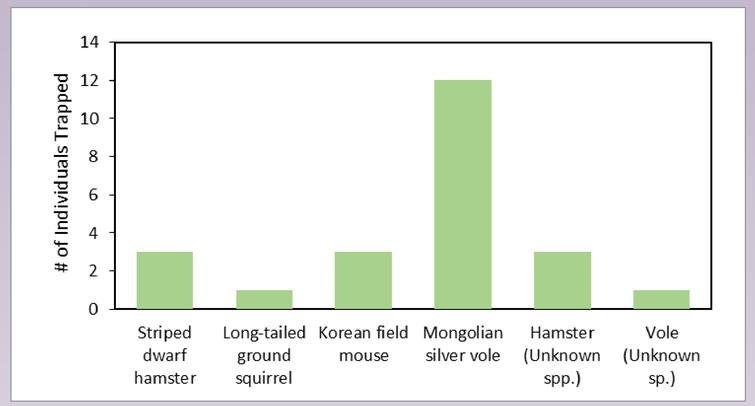

Figure 3: Number of individuals trapped by species at the six locations in the Darhad Valley.

Of these individuals, four species were represented: striped dwarf hamsters (*Cricetulus barabensis*) (n=3), long-tailed ground squirrels (*Spermophilus undulates*) (n=1), Korean field mice (*Apodemus peninsulae*) (n=3), and Mongolian silver voles (*Alticola semicanus*)(n=12). There were also four unknown individuals from the family Cricetidae. Trapping success was greatest at UD, followed by BH and BC (Fig 4). No individuals were captured at MH, UH, or DN.

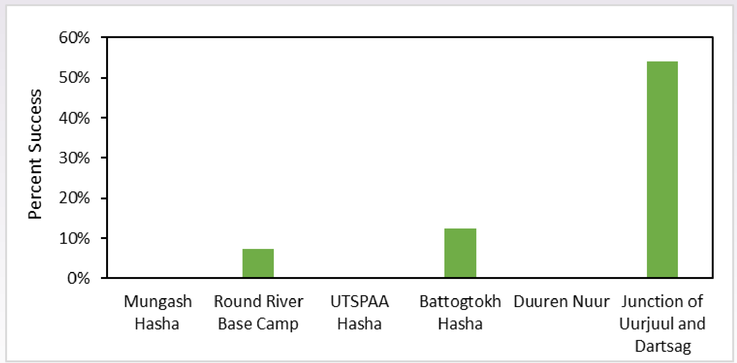

Figure 4: Percent trapping success by location in the Darhad Valley. This was obtained by dividing the number of trapped individuals by trap night.

Table 2: Weights and lengths (mean +/- SD) of the identified species. The long-tailed ground squirrel and unknown species were not included due to sample size.

Species Name	Avg Weight (g)	Avg Foot (mm)	Avg Ear (mm)	Avg Tail (mm)
Korean field mouse	34.33 ± 9.81	22.11 ± 2.01	11.17 ± 2.02	63.83 ± 29.75*
Mongolian silver vole	28.83 ± 8.74	19.33 ± 1.93	13.38 ± 2.65	19.46 ± 3.41
Striped dwarf hamster	25.00 ± 5.00	14.50 ± 1.80	9.33 ± 2.52	16.67 ± 2.08

Figure 5: Unknown vole (Cricetidae family) captured at the junction of Uurjuul and Dartsag, Mongolia.

Discussion

Trapping in remote locations can present a variety of challenges. This study was an important first step in creating a protocol for this area and identifying those challenges (Table 3).

Table 3: Challenges encountered which must be mitigated in future studies/protocols.

Challenge	Description	Solution
Curious Humans	Children were especially interested in the traps.	Inform nearby community of studies taking place or select locations further from humans.
Grazing Animals	Many grazing animals were present, which limited the locations we could trap.	Create enclosures which can protect the traps (PVC pipe or similar).
Resources	There are few shops in town with limited inventory.	Bring resources from the city and reuse them. Also, find local products which can substituted items.
Locational Information	At times it was difficult to determine what a location should be referred to as.	GPS locations when possible and continue to work with local partners to get more detailed locale data.
Novel Food	Peanut butter and oats are not regularly sold in the Darhad Valley.	Use substitutes available in town (e.g. millet).
Identification	Many rodents appear visually similar, therefore it is difficult to differentiate between species and Mongolian resources on identification are lacking.	Take photos of all aspects of the rodents (feet, tail, genitals, etc.). Obtain mammal guides from Russia if possible and China to assist in identification.

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WEBER STATE UNIVERSITY
College of Science
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