

Project Update: September 2010

The Mongolian Saiga has long been isolated from the more numerous populations in Kazakhstan and Russia by the Altai Mountains. They occur at low densities but across a wide area of the western Mongolian Gobi steppe-desert. The population of Mongolian saiga has declined dramatically in recent years, but the most recent estimates suggest that the population has rebounded somewhat and may now number over 5,000 individuals. Among the many intrinsic factors that affect population size and fluctuations are reproduction and survival. The recruitment of juveniles is a major factor in the population dynamics of all mammals, yet nothing is known about the role that juveniles play in the dynamics of saiga. Of many questions relevant to saiga conservation, we still do not know on average what proportion of females give birth each year, what proportion of calves survive, or causes of juvenile mortality. Thus there is a critical need to obtain essential population data in order to develop and implement adequate protection measures to ensure that Mongolian saiga can continue to fully recover in the wild.

The objectives of the field data collection activities are focused on gathering additional data on Mongolian saiga calf survival and movement patterns. Field work is focused around two major efforts 1) capturing and collaring newborn saiga calves; and 2) collecting data on their movements.

This work reports on field efforts to capture and monitoring of Mongolian Saiga calves from 6th June to 27th July 2010. This effort is the continuation of a multi-year research project understanding survival and mortality of saiga calves in western Mongolia.

We conducted our research in northwestern part of the Sharga Nature Reserve (SNR) in Gobi-Altai *Aimag*. Protocols for capturing and handling fawns were implemented with approval by the University of Massachusetts Institutional Animal Care and Use Committee and with a permit of the Ministry of Nature, Environment, and Tourism of Mongolia. We captured all animals with aid of loop nets. All handlers wore gloves to prevent transmission of human scent to calves, which can cause the calves to be abandoned. Further, the animals were blindfolded to minimize their stress. Each neonate was weighed, measured, and fitted with an ATS VHF radio-collar. Radio-collars have an expandable neckband that eventually degrades causing the collar to drop off.

After releasing radio-collared animals, we monitored their survival, habitat use, and movement as frequent as possible. The VHF-collars are programmed to transmit at a faster rate (i.e., mortality signal) if the collar is inactive for an extended period (4 h). Animals whose collars have switched to the mortality signal were investigated immediately and necropsies were performed in the field to determine cause of death. In order to monitor calf movement, we listened for signals from marked animals at high points using handheld receiver and antenna. When the animals give strong signals we searched them with binocular and spotting scope to determine group size and structure without disturbance. GPS locations were taken once the collared animals have confirmed.

Capture effort has been completed within period of 13th to 24th June and the first calf was captured on 13th June (2 days later than those captured in 2009). Average handling time was 4.36 min. There was no capture related injury during the collaring. Capture attempts failed from 25th June as calves were too old and did not allow us to approach close enough to net. A total of 36 animals were successfully captured and collared (18 females and 18 males). Surprisingly, of these, only 5.5% were twins and the remaining were singletons, indicating very low twinning rate in contrast to the last 2 years (Table 1). Low twinning rate is possibly due to drought and the harsh winter that occurred last year. Body weight was on averaged 2.98 kg, significantly greater than those captured in 2008 and 2009. There was no significant difference in body weight of female and male calves captured in 2010.

Table 1. Summary of animal capture

Year	Capture period	Male: Female	Twin: Single
2008	12 – 19 June	22 : 18	28 : 12
2009	11 – 18 June	23 : 17	18 : 22
2010	13 – 24 June	18: 18	2 : 34



Currently, 10 animals (4 males and 6 females) have died owing to predation, disease and unknown causes. Survival rates of 36 radio-marked calves during the first 15 days of life averaged 0.88. During this time, deaths resulted from red fox predation (n=2) and unknown causes (n=2). Survival rate during the post-calving period (25th June to 25th September) was 0.77. During this interval, death resulting from raptor predation outnumbered deaths resulting from disease and unknown causes. Median survived days were 16 days (range 3 – 35 days).

We have collected total of 312 GPS locations (8.2, range 3 – 16) for the collared animals over a month. Marked animals do not display hiding behaviour and started to follow their mother after about 11 days of capture. Median group size of marked calves was 3 (range 1 – 35) and two or more marked calves were located in the same herd on four occasions. A total of 26 saiga calves and 15 yearling/subadults from last 2 years are currently being monitored for their survival and movements. Location data and survival are scheduled to be collected via monitoring as frequent as possible.