



## Long-term Ecological Study Update, 10 June 2011

### Major Milestone Reached!

A milestone was reached this week when the total number of precise snow leopard locations obtained from our GPS collars reached the **10,000** mark! To put that in perspective, the two most productive previous studies of snow leopards (R. Jackson – Nepal 1980s and T. McCarthy – Mongolia 1990s) yielded a cumulative total of less than 1,000 locations. But it is not just the amount of information, but the insights we have gained into snow leopards lives which makes this milestone, and this study, so important. Here are a few insights we have gained in just the past few weeks:

*A young female seeks her own home* - Zara is a sub-adult female only recently independent from her mother (Tenger, another of our collared cats). Zara has made several exploratory movements outside of her mother's home range, including a 5-day, 165 km (100 mile) crossing of open desert in her round-trip to the China border in April. Then two weeks ago she departed the safety of the Tost Mountains, traveling north across 48 km (25 miles) of steppe, reaching the next mountain range to the north. Perhaps not finding the area to her liking, she stayed only 3 days and returned again to our Tost study area. Where she will finally settle is yet to be seen, and because her collar fell off as scheduled right after her return to Tost, we will need to catch and re-collar her if we are to continue to see her story unfold.

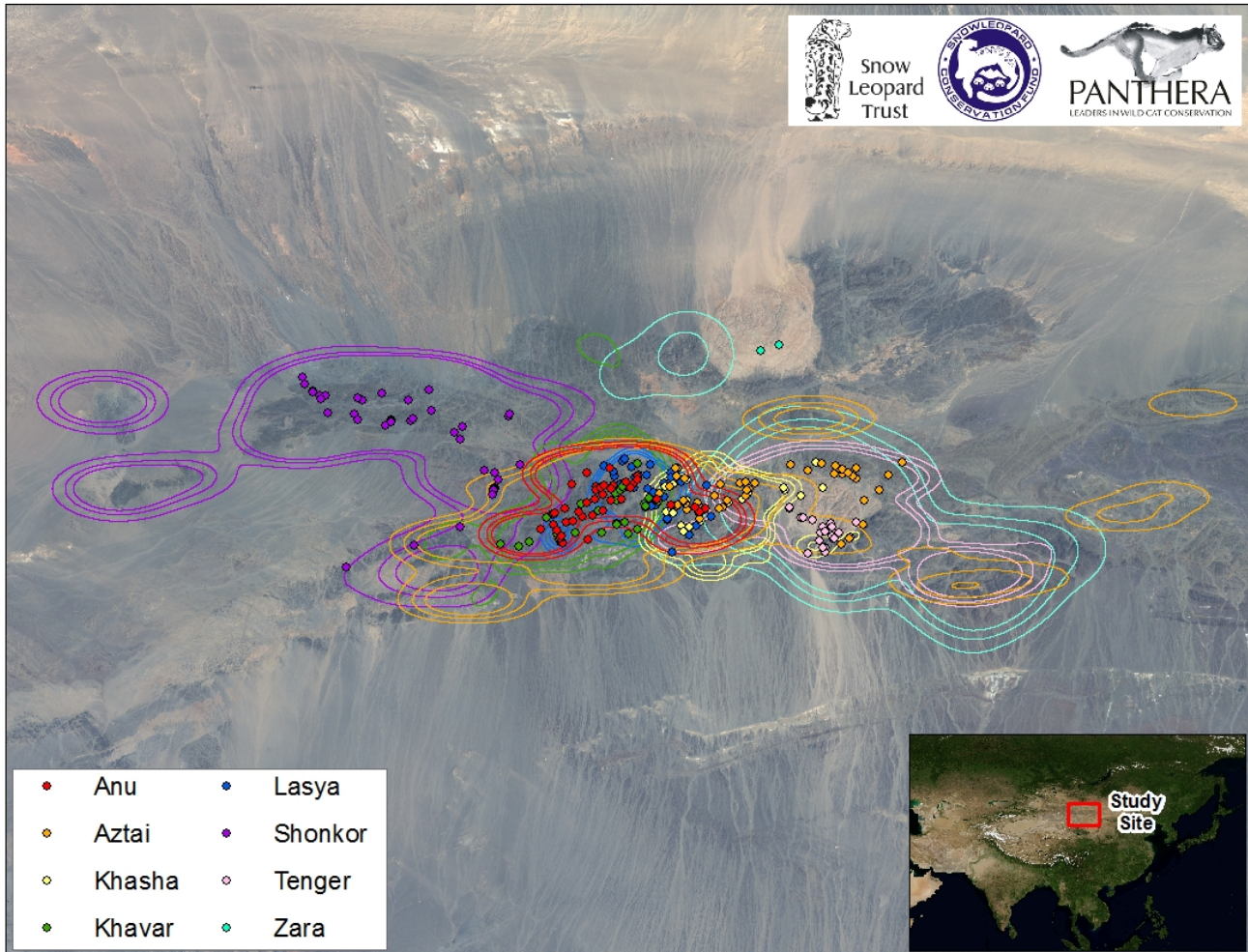
*A possible birth den identified* – Tenger (Zara's mother) may be about to produce another litter of cubs. At least her movements seem to indicate that she has established a den in the past few weeks, right on schedule for when a snow leopard would be about to give birth. She has restricted her activity to a very small area on the southern flank of the Tost range overlooking the Gobi desert. The uplinks from her collar have become sporadic, indicating she is spending a lot of time in a place that her collar cannot make satellite phone calls from, which further indicates a possible den. We are hoping to visit the potential den site in the next few weeks to determine if cubs are present, how many, and begin to intensively monitor the process of cub rearing.

*A closer look at habitat use by competing males* – In a recent update we informed you of the death of Tsagaan and how Aztai had quickly moved into his old rival's range. We have done a more complete review of that and provide a summary with several new maps. We append that at the end of this update.

### Activity of Our Other Collared Cats

You may notice that we have updated our map of snow leopard movements. The map below incorporates all of the most recent data and the cat's home ranges are calculated using all 10,000 data points. As before, the concentric colored polygons represent the intensity of habitat use for each cat, with the inner-most band encompassing the more heavily used portion of their home range.

We see that Shonkor has made one of his sporadic moves from the more frequently used Tosonbumba portion of his range and visited Tost proper for a few days before heading back north. Interestingly, we have seen no shift at all in the movements of Khavar, a male who shared much of Aztai's range. We watched him carefully when Aztai departed his former core area to see if Khavar would respond by changing his movement pattern as well, but so far that has not happened. Anu and Lasya, our two newly collared females, have provided only a month's worth of data so their home ranges are still not fully known. And it is no surprise that most of their locations are still fairly close to where we first captured them. We expect to see these home range boundaries expand as we learn more about our two newest cats.



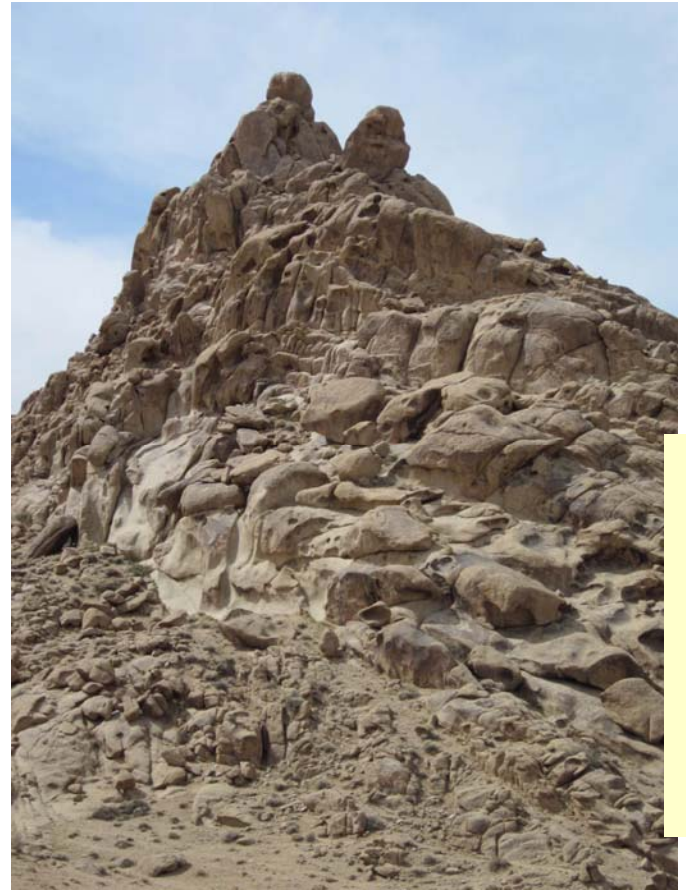
*Cat locations for 20 May through 3 June with home ranges calculated from each cat's entire data set.*

### Camp News

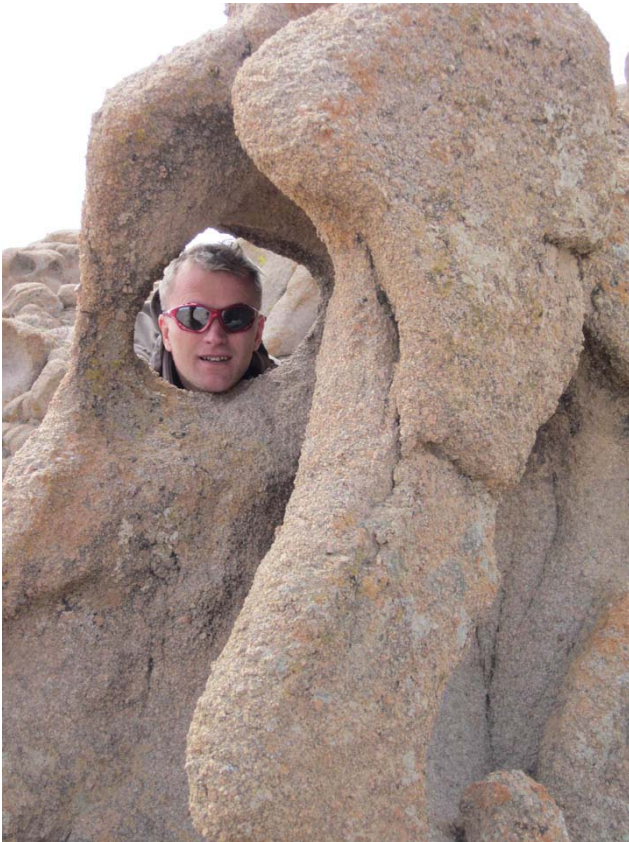
May was a month of much activity in camp, both in terms of research and just people coming and going. Early in the month Swedish film team Anders Lundin and Ulf Johansson finished up a very successful visit to the study site where they filmed several snow leopard captures for their documentary. They overlapped briefly with project co-Director Tom McCarthy (Panthera) who traveled to camp with Thomas Lind (Kolmarden Zoo) and Henrik Andren (Orjan's supervisor from Grimso Wildlife Research Station). Despite Orjan's notable skills, he was not able to produce a snow leopard capture when representatives of a primary donor (Kolmarden) or his own university, were there to participate. But we believe they enjoyed their visit and learned a lot about the project. And of course just days after they left Tom and Orjan did recapture a snow leopard. LTES Coordinator, Rana Bayrakci (Panthera) spent the last half of the month helping Orjan and learned firsthand how the intensive research is conducted (and what it means to not shower for 3 weeks).

## Places

We realize that visualizing some of the unique ecological settings that compose our Tost study area might be hard for those who have never visited. Especially places that have such interesting nicknames as 'The Badlands'. Visitors Thomas Lind and Henrik Andren got an up close look at this Gobi oddity, a roughly 75km<sup>2</sup> circular depression on the north side of Tosonbumba composed of deeply weathered pink sandstone-like material derived from granitic minerals (pink Potassium feldspar, white plagioclase feldspar, gray quartz, etc). Wind, freeze-thaw, and salt may have all contributed to the sculpting that produced this otherworldly landscape shown here. Snow leopards tend to avoid it, likely because it provides no habitat for prey and little if any water. But as Thomas Lind shows us here, it is a fascinating place to visit.



*Panthera/Snow Leopard Trust*



*Panthera/Snow Leopard Trust*

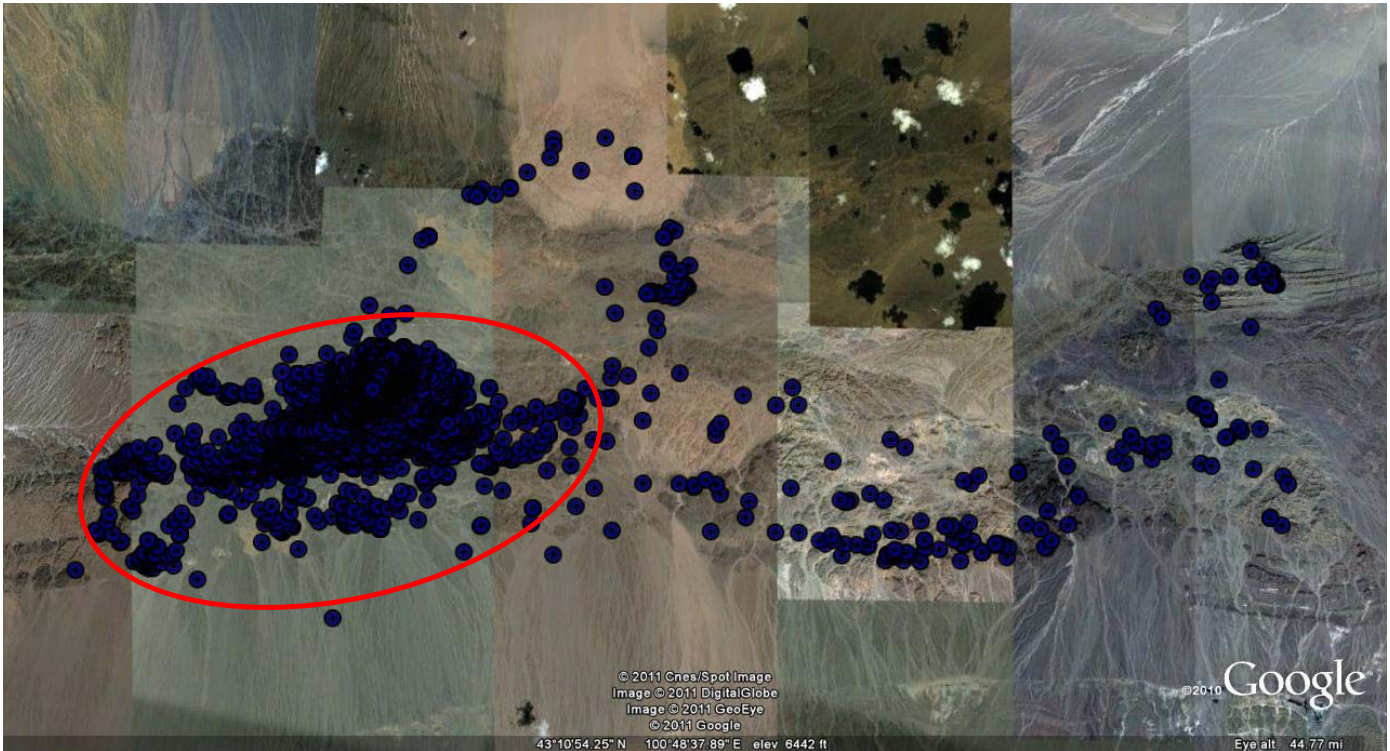


*Panthera/Snow Leopard Trust*

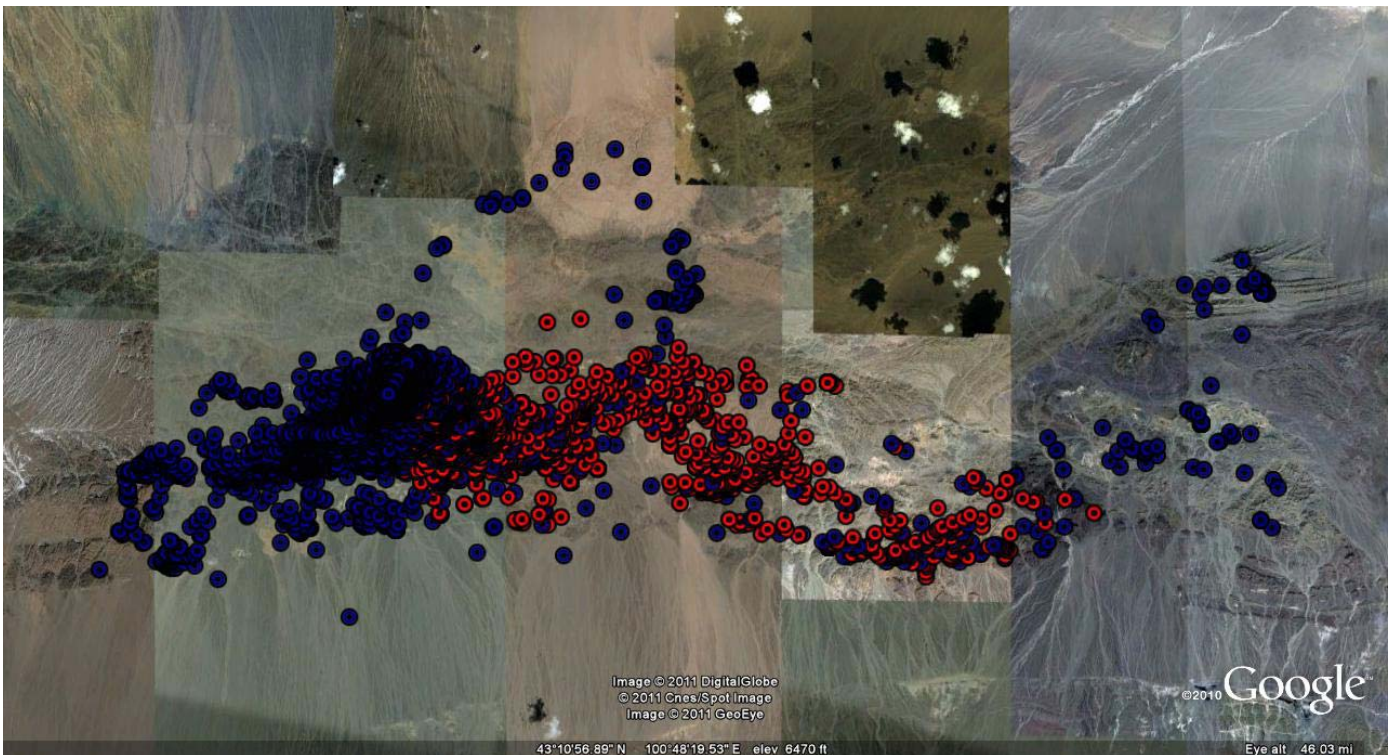
This study is a joint project of Panthera, Snow Leopard Trust and the Snow Leopard Conservation Fund and is in collaboration with Mongolia Ministry of Nature, Environment and Tourism, Mongolia Academy of Sciences, and National University of Mongolia. For more information, please visit [www.panthera.org](http://www.panthera.org) or [www.snowleopard.org](http://www.snowleopard.org).



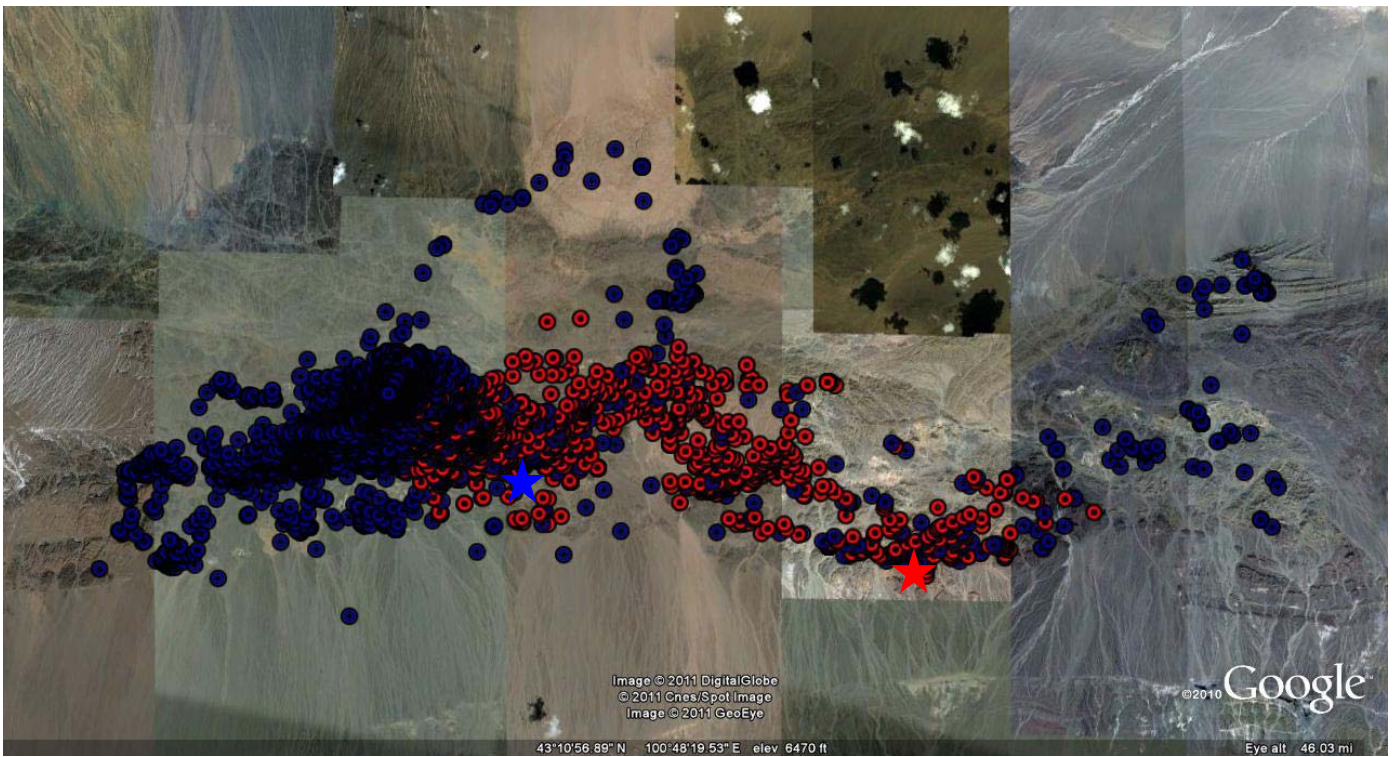
## Aztai and Tsagaan – a tale of two male snow leopards



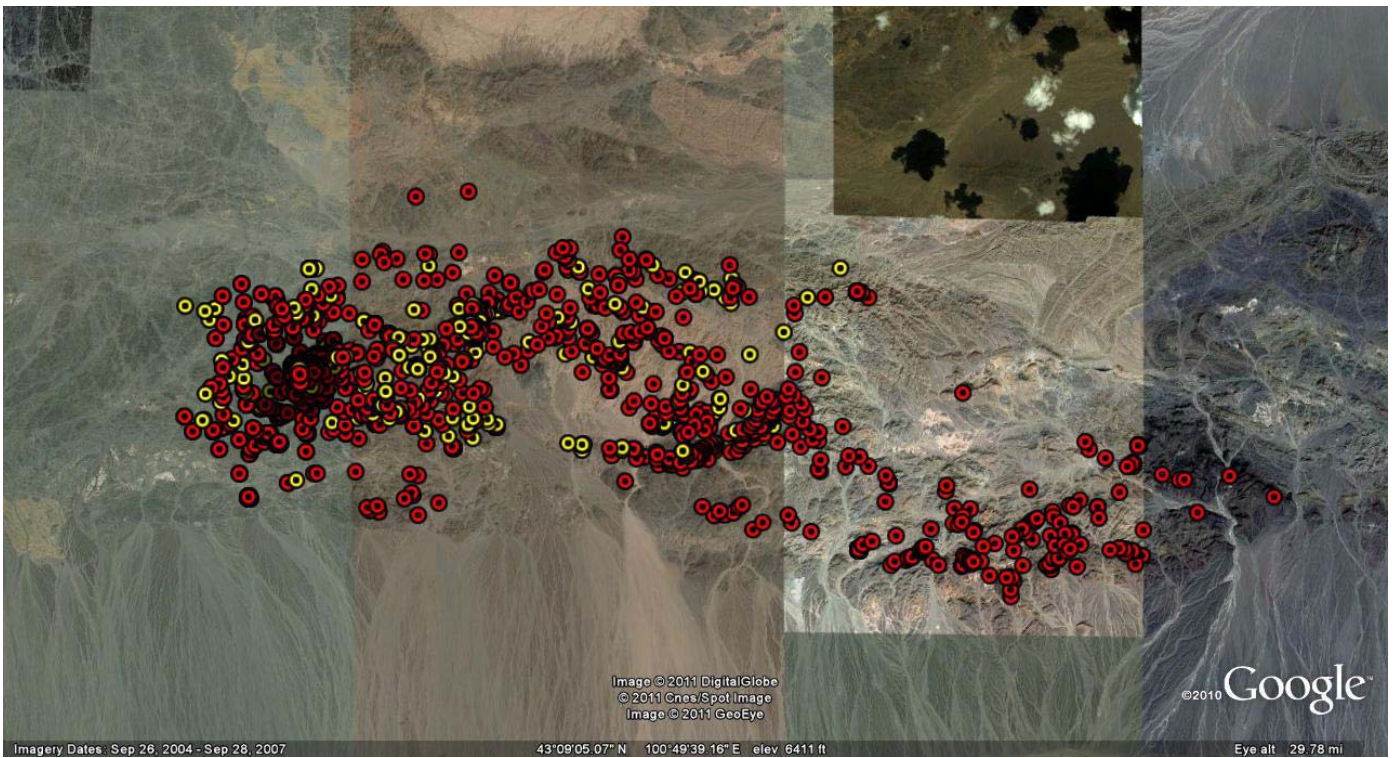
Aztai is a full grown male snow leopard and was the first cat we collared in this study in August 2008. We have more data for him than any other cat (he is now wearing his 4<sup>th</sup> collar). Depicted above are 3,590 locations we have for him between 28 August 2008 and 4 April 2011. The majority of his time has been spent in his core use area circled in red. However, he has made several ‘excursions’ to the east and north during that time, always returning to the core of his range.



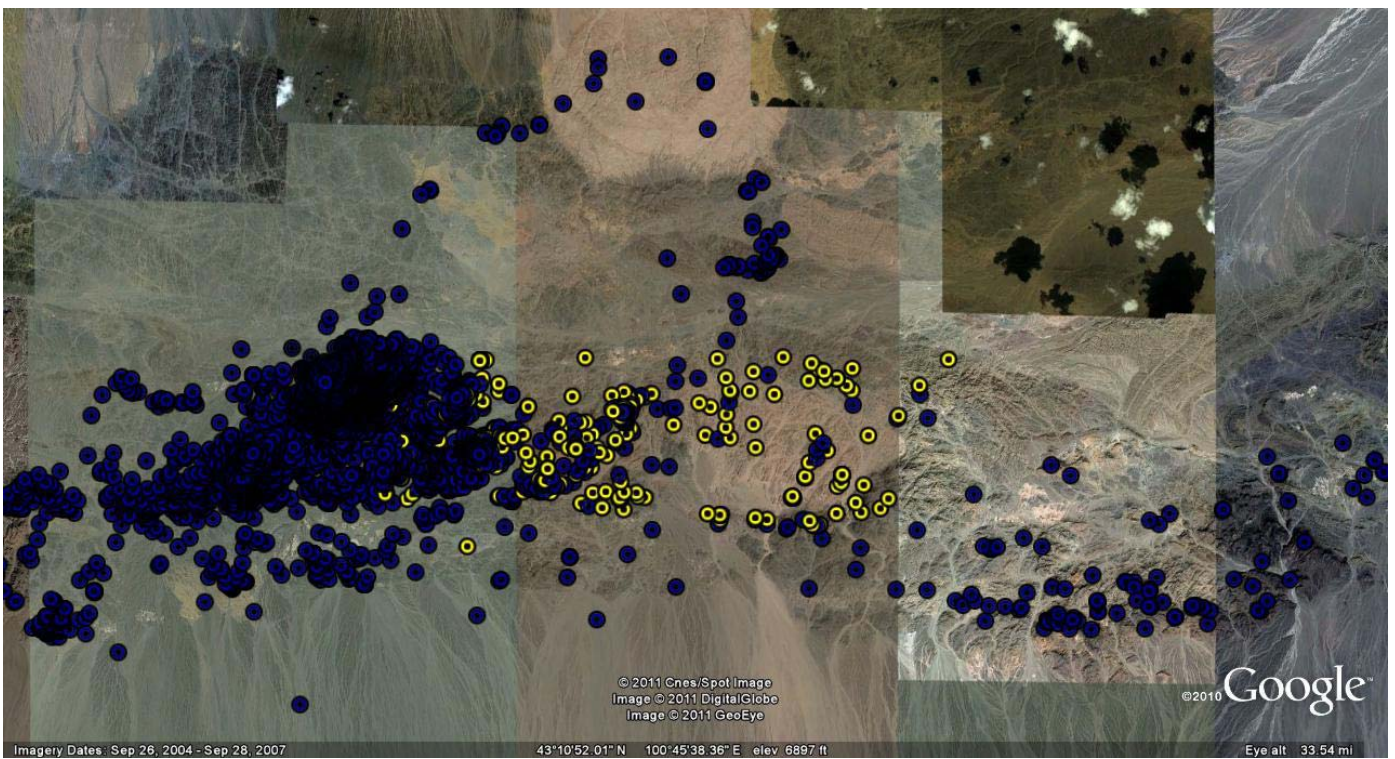
Tsagaan is another large male who joined the study just 6 months after Aztai. Due to collar malfunctions we have far less data for him (about 1,100 locations marked in red above), but enough to have a good idea of where he spent most of his time – in an area adjacent to and somewhat overlapping Aztai’s core range. Likely rivals, they maintained separation through the well developed social marking system of this species. Scent marks and scrapes kept them aware of where each other was, limiting the likelihood of aggressive interactions.



On or about 4 April 2011, Tsagaan died of natural causes – possibly disease – and left his roughly 400 km<sup>2</sup> patch of habitat with one less resident male snow leopard. The two cats were about 20 km apart at the time, as shown by the blue (Aztai) and red (Tsagaan) stars.



Almost immediately after Tsagaan's death, Aztai moved into the core area of his former rival and has remained there exclusively ever since. Here in yellow you can see the 230 locations we have received from Aztai's collar in the 2 months since Tsagaan died overlaid on Tsagaan's historic locations in red.



Here Aztai’s movements over the past two months (in yellow) are contrasted with his movements of the previous 2.5 years (in blue). None of the range he is using now is really new to Aztai, he has explored it all before. Will Aztai make a permanent range shift and abandon some of his former core area, or will he enlarge his range and incorporate some or all of Tsagaan’s area? Or perhaps once he is satisfied that Tsagaan is no longer a threat to his eastern border, he will revert to his former range use. It is too early to tell, but these are precisely the kind of questions our Long-term Ecological Study in Mongolia’s South Gobi was designed to answer. It is intriguing to see the lives, and the deaths, of snow leopards played out in such intimate detail. Only with such knowledge can we ever truly expect to understand and conserve these magnificent cats.



Tsagaan

Photo: Panthera/SLT



Aztai

Photo: Panthera/SLT