

Chinese Scientists Use Earth Observation Technologies to Study and Protect Wild Camels

Chinese scientists plan to apply Earth Observation technologies to protect the critically endangered wild camels (*Camelus ferus*). With the help of remote sensing, satellite positioning, geographical information system and wireless sensors networks, they will be able to access the distribution and population of the wild camels and protect their habitats.

The project will be carried out by the International Research Center for Wild Camel Conservation, which was jointly established earlier this year by the Institute of Remote Sensing and Digital Earth (RADI) of the Chinese

Academy of Sciences in Beijing, the Lop Nur Wild Camel National Nature Reserve in Xinjiang, and the Wild Camel Protection Foundation in the United Kingdom. The center will be responsible for coordinating research and conservation endeavors of different disciplines and departments.

Prof. LIU Shaochuang from RADI has collared ten GPS trackers to track the wild camels in Lop Nur and ranges of Arjin Mountains – two of the four habitat regions of the wild camels in the world. By far, he has acquired the first batch of tracking data. He is also collaborating with

Photo of wild camels shot by camera traps. (Photo: LIU Shaochuang)





A wild camel living in Arjin Mountains in southern Xinjiang. (Photo: LIU Shaochuang)

scientists from the Mongolian Academy of Sciences for the study and protection of the wild camel and its habitat in Mongolia.

“By using GPS collars to track wild camels in China and Mongolia, we can monitor their distribution, migration and environmental threats, and provide accurate and reliable evidence for the effective protection of these animals and their habitats,” Prof. LIU said.

However, he pointed out that the currently used trackers have to depend on the Globalstar or Iridium satellites communication system for data transfer. With the development of China’s “Beidou” navigation system, his team will be able to develop a new type of tracker which can be applied worldwide in near future.

According to the professor, there are less than 1,000 wild camels living in the world today. The exact population is hard to access because of their scarcity in number and their large range of migration, mainly in draught deserts and Gobi regions. Traditional methods for calculating wild animals like visual observation and on-site counting do not apply to wild camels, for this matter.

“With high resolution images taken by air plane or

remote sensing satellites, we are capable of accessing the population of the wild camels,” Prof. LIU emphasized. “Remote sensing can also effectively monitor illegal mining activities in camel habitats.”

In some regions, the hybridization between domesticated camels and wild ones has become a big threat to the genomic integrity of the species. To address this problem, researchers will implement unmanned aerial vehicle surveillance to recognize every herd of wild camels and separate them from domesticated ones.

Scientists are also interested in applying the wireless sensor network technology to preserve wild camels. For roamers like wild camels, the network will make large area monitoring come true. “It will be an innovation to use wireless sensor network for wild animal protection. I’m sure it’s important for the preservation of wild camels”, the professor remarked.

For some of the wild camels living in boundary areas between the Xinjiang Uygur Autonomous Region and Mongolia, the barbed iron wire fences have severely hampered their migration.

“If a trans-boundary natural reserve can be set up on the Sino-Mongolian border and the fence can be removed, the unattended ground sensor network will help us solve the cross-border issues”, he added.



Prof. LIU (right) collars a wild camel.