

# Mongolian wildlife conservation



Dr Richard Reading

## Background

The large nation of Mongolia has the lowest human population density on the planet. Vast areas of grassland, the Mongolian steppe, have escaped large scale conversion to agriculture and provided a natural stronghold for numerous threatened species. However, a rapidly expanding human population and even more rapidly expanding livestock population are increasing pressure on natural resources. The rising demand from surrounding countries like China for animal meat and body parts for use in traditional medicine, along with poaching, threaten the survival of the rich Mongolian wildlife.

Very little data exists on the ecology and biology of species present in Mongolia which has hampered the development of adequate conservation management for threatened species. This project studies the ecology of several unique species and their habitat in the Ikh Nart Nature Reserve in the Dornogobi Province of Mongolia (figure 1). The Reserve, established in 1996, covers a 660 km<sup>2</sup>

area of grassland and semi-desert steppe environments. The area contains a broad range of flora and fauna that are a mix of desert and steppe species including over 30 mammal, six reptile, more than 125 bird, and over 200 plant species. The area also harbours one of the last remaining healthy populations of argali sheep (*Ovis ammon*).

So far, ecologists have studied a range of animals in the Reserve, including the argali sheep, Siberian ibex (*Capra sibirica*), red fox (*Vulpes vulpes*), corsac fox (*Vulpes corsac*), Eurasian badger (*Meles meles*), Pallas' cat (*Otocolobus manul*), long-eared hedgehog (*Hemiechinus auritus*), Daurian hedgehog (*Mesechinus dauuricus*), cinereous vulture (*Aegypius monachus*), lesser kestrel (*Falco naumanni*), other raptors, lizards, invertebrates, and small mammals. Many of these species were never researched in rigorous, detailed ecological studies previously.

## Project overview

The overall goal of the project is to understand the ecology of target species and the threats to them in

order to develop long-term conservation management plans, for the individual species as well as for the Ikh Nart Nature Reserve. These plans aim to ensure the long-term health of the environment and lasting public support for its conservation management. Other goals include training Mongolian professionals and students in wildlife research, management, and conservation; and disseminating the results of the program as a model to be adapted and employed in additional areas of Mongolia and other countries. The project also assists in creating conservation infrastructure and long-term funding sources to better ensure the persistence of conservation activities.

Specific research objectives include animal capture and marking; studies of fecundity, survivorship, development and mortality; determining habitat use and movement patterns; understanding resource partitioning among ecologically similar species; and behavioural and social ecology studies.

Since 2004, a team of Mongolian and international scientists have joined forces with Earthwatch, and volunteer teams have helped with capturing and marking

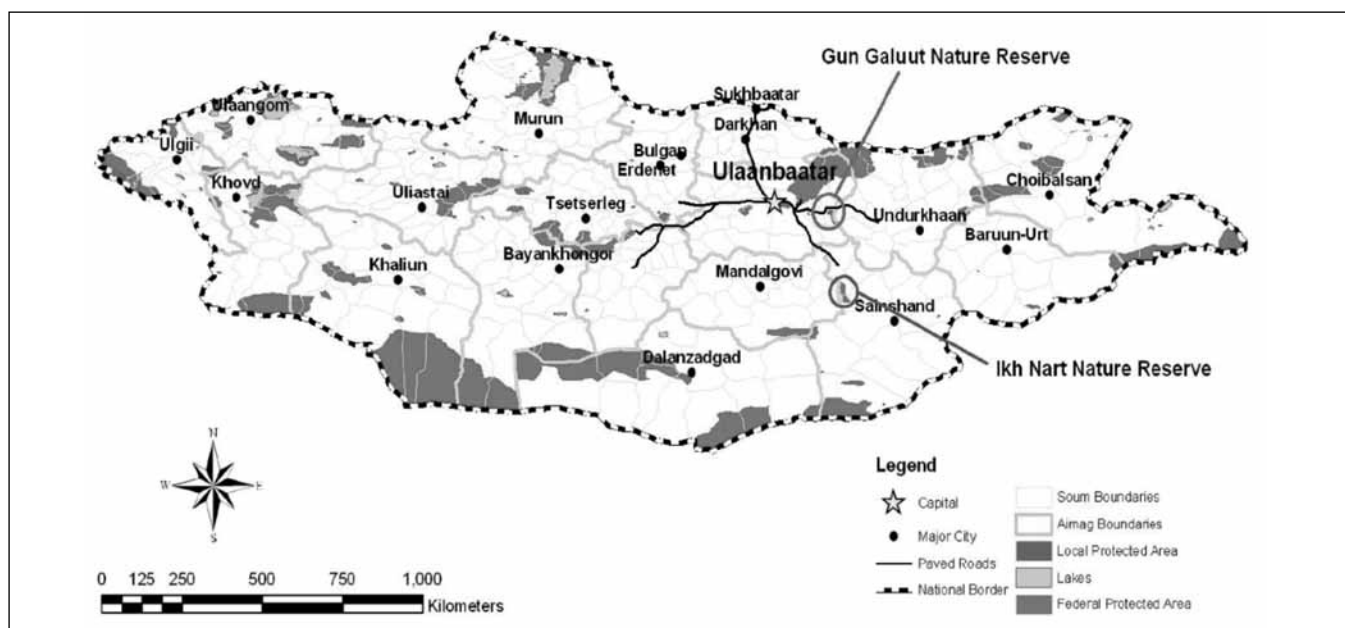


Figure 1. Locator map of Gun Galuut and Ikh Nart Nature Reserves in Mongolia. Note: Gun Galuut is a locally designated nature reserve (designated by the soum, or county), while Ikh Nart is a federally designated nature reserve.

individuals of various species (argali sheep, ibex, vultures, small mammals and rodents), locating nesting sites of lesser kestrels, cinereous vultures and other raptors, collecting vegetation data to understand habitat changes and use, conducting lizard surveys, collecting behavioural data, and radio telemetry tracking. In addition to data collection, volunteers have also contributed visual resources, such as photographs, art, and videos that have helped develop support from cooperating organisations.

Increasing knowledge on status, threats, and management interventions for protected areas is part of Earthwatch's Ecosystem Services Research Area.

## Outcomes and actions

This project is the only existing intensive, long-term research on many of these species, and is revealing important insights into their ecology that are helping to shape conservation management for target species and the Reserve. The project has determined habitat use ranges and critical habitat for several target species. Based on these data, project staff identified important sites for the creation of a core area (critical habitat for several species) and important regions for Reserve expansion. Working with local people to find a compromise between their needs and the needs of wildlife, the core area has been established and expansion is now being pursued. Similarly, through wing tagging and radio tracking cinereous vulture (figure 2) and leg banding lesser kestrel, the project determined nesting, dispersal and foraging patterns for these species. The team found that Ikh Nart represents a significant breeding area for both species, leading to designation of Ikh Nart as an Important Bird Area. Earthwatch scientists also learned that South Korea provides important wintering grounds for immature vultures, highlighting the need to work with Korea to protect important habitat there. Also, mortality data have identified domestic guard dogs as an important and previously unrecognised source of mortality for argali sheep and ibex, leading to co-operation with local herders to control their dogs and reduce this form of mortality.

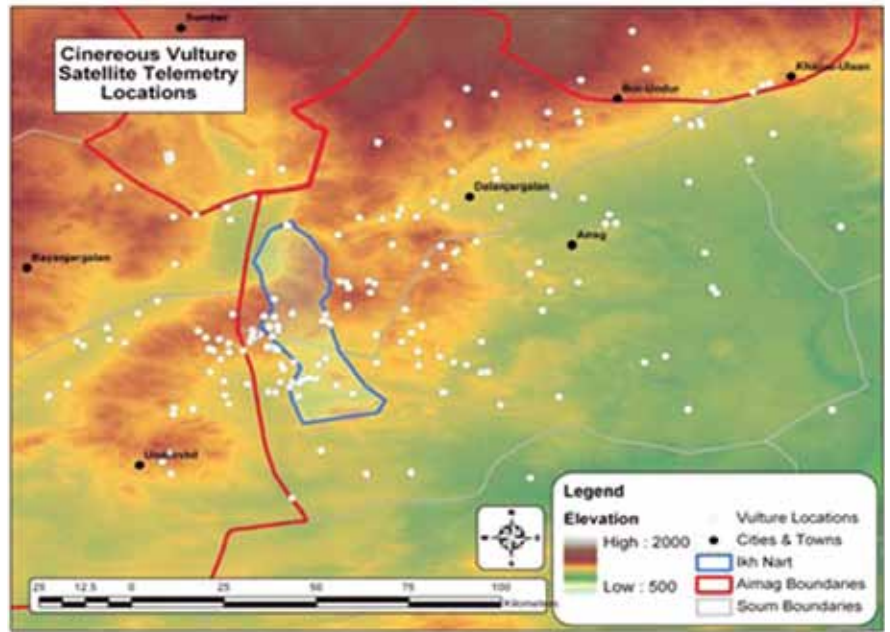


Figure 2. Results from satellite telemetry tracking of cinereous vulture, *Aegypius monachus*.

These research and conservation efforts provide benefits at local, national, and international levels. At the local level, the project provides jobs and additional income to local people. It helps protect and better manage the wildlife and steppe of the Reserve, which most local people value. A good relationship with the local government has resulted in a co-operative partnership to monitor the Reserve with a team of rangers (one of whose salary is supported by Earthwatch) and improved law. In addition, the project has helped to establish a sister park relationship between Ikh Nart and Anza-Borrego Desert State Park in California

that has already resulted in additional resources for Ikh Nart, training for rangers and other staff, an exchange program, and more. The project has also helped to establish a new ecotourism camp, that provides further jobs and income for the local government who manage the Reserve. Perhaps most importantly, poaching has mostly ceased, illegal mining has been curtailed, and wildlife populations are growing. These growing populations produce excess young that disperse to other areas. For example, Argali sheep are being observed in areas from which they were previously exterminated decades ago.





The local benefits also translate into national benefits. The importance of Ikh Nart has gained the attention of the federal government, which is a positive step in efforts to upgrade the status of Ikh Nart to a National Park, and through which it is hoped that Ikh Nart will be linked to the Choyr mountain. Insights from this research have been incorporated into the IUCN Red Book for Mongolian species, as well as action plans for several species at the national level. Other protected areas and a major United Nations project now look to Ikh Nart as a model, and are seeking assistance to replicate the work. Since many of the species found in Ikh Nart suffer globally, the project also helps conserve species of global conservation concern, such as argali, cinereous vulture and lesser kestrel, and insights from the research here can be used to inform management in other places.

The project has provided opportunities for Mongolian and international students, scientists, and conservationists to receive training in wildlife conservation and management. The students involved represent the next generation of conservation and research professionals. These individuals have gone on to obtain positions in universities, NGOs, protected areas administrations, local and federal governments, and the United Nations. The project's training efforts are crucial to ensuring the long-term sustainability of conservation and ecological research in Mongolia.

In recognition of the project's achievements, the team have been granted various awards: 1) from the Association of Zoos and Aquariums in

2007; 2) Distinguished Environmentalist awards from the Mongolian Ministry of Nature and Environment in 2008 (to Richard Reading and Sukhiin Amgalanbaatar; and 3) a Recognition Award from Dornogobi Province and Dalanjargalan Soum in 2009.

### Lead scientist profile

**Dr Richard Reading** is based in the USA as Director of Conservation Biology at the Denver Zoological Foundation (DZF) and Associate Research Professor at the University of Denver. He holds a PhD in Wildlife Ecology and three Master's degrees from Yale University, as well as a BSc from Trinity College (Hartford) and additional study at the Duke University Marine Laboratory, all in the USA. He has worked in Mongolia since 1994 on a variety of conservation projects.

### Additional key scientists

**Ganchimeg Wingard** – Research Associate with DZF

**Sukhiin Amgalanbaatar** – Research Biologist with the Mongolian Academy of Sciences, President of the Argali Wildlife Research Centre and Research Associate with DZF

**James Murdoch** – on the project as part of a Zoology PhD with Oxford University, UK, now Assistant Professor at the University of Vermont, USA

**Dr David Kenny** – Conservation Veterinarian with DZF

### Collaborative organisations

- DZF, USA
- Mongolian Academy of Sciences
- Mongolian Conservation Coalition
- Argali Wildlife Research Centre, Mongolia
- Mongolian National University
- Mongolian Pedagogical University
- Ulaanbaatar University, Mongolia
- University of Denver, USA
- University of Montana, USA
- Endangered Species Recovery Program in California, USA
- Oxford University, UK
- Oberlin College, USA
- "Ikh Nart Is Our Future" women's community group,

### Project website

[http://www.earthwatch.org/exped/reading\\_research.html](http://www.earthwatch.org/exped/reading_research.html)

### Key publications

Murdoch, J. & Reading, R.P. (2009) Body size and sexual dimorphism among a population of corsac and red foxes in central Mongolia. *Mammalia*, **73**: 72-75

Reading, R.P., Amgalanbaatar, S., Kenny, D., DeNicola, A. & Tuguldur, E. (2007) Siberian ibex (*Capra sibirica*) home ranges in Ikh Nart Nature Reserve, Mongolia: preliminary findings. *Mongolia Journal of Biological Sciences*, **5**(1-2): 29-37

Reading, R.P., Kenny, D., Amgalanbaatar, S., DeNicola, A. & Wingard, G. *in press*. Argali lamb (*Ovis ammon*) morphometric measurements and survivorship in Mongolia. *Mammalia*, **73**(2): 98-104

