

Overgrazing turning parts of Mongolian Steppe into desert

September 5 2013



Growing populations of sheep and goats has led to serious degradation of the Mongolian Steppe grasslands. Exposed soils and lack of mature grass show land that is transitioning to desert. Credit: Oregon State University

Overgrazing by millions of sheep and goats is the primary cause of degraded land in the Mongolian Steppe, one of the largest remaining

grassland ecosystems in the world, Oregon State University researchers say in a new report.

Using a new satellite-based vegetation monitoring system, researchers found that about 12 percent of the biomass has disappeared in this country that's more than twice the size of Texas, and 70 percent of the [grassland ecosystem](#) is now considered degraded. The findings were published in *Global Change Biology*.

Overgrazing accounts for about 80 percent of the vegetation loss in recent years, researchers concluded, and reduced precipitation as a result of climatic change accounted for most of the rest. These combined forces have led to desertification as once-productive grasslands are overtaken by the Gobi Desert, expanding rapidly from the south.

Since 1990 livestock numbers have almost doubled to 45 million animals, caused in part by the socioeconomic changes linked to the breakup of the former Soviet Union, the report said. High unemployment led many people back to domestic herding.

The problem poses serious threats to this ecosystem, researchers say, including soil and water loss, but it may contribute to [global climate change](#) as well. Grasslands, depending on their status, can act as either a significant sink or source for [atmospheric carbon dioxide](#).



Sheep and goats graze on grasslands in Mongolia that are so degraded they are making a transition to desert. In the foreground is an ovoo, a religious worship site often visited by travelers. Credit: Oregon State University

"This is a pretty serious issue," said Thomas Hilker, an assistant professor in the OSU College of Forestry. "Regionally, this is a huge area in which the land is being degraded and the food supply for local people is being reduced.

"Globally, however, all ecosystems have a distinct function in [world climate](#)," he said. "Vegetation cools the landscape and plays an important role for the water and carbon balance, including [greenhouse gases](#)."

Even though it was clear that major problems were occurring in

Mongolia in the past 20 years, researchers were uncertain whether the underlying cause was overgrazing, climate change or something else. This report indicates that overgrazing is the predominant concern.

Mongolia is a semi-arid region with harsh, dry winters and warm, wet summers. About 79 percent of the country is covered by grasslands, and a huge surge in the number of grazing animals occurred during just the past decade - especially sheep and goats that cause more damage than cattle. Related research has found that heavy grazing results in much less vegetation cover and root biomass, and an increase in animal hoof impacts.

More information:

ir.library.oregonstate.edu/xmlui/handle/1957/42251

Provided by Oregon State University

Citation: Overgrazing turning parts of Mongolian Steppe into desert (2013, September 5)
retrieved 14 May 2024 from <https://phys.org/news/2013-09-overgrazing-mongolian-steppe.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.