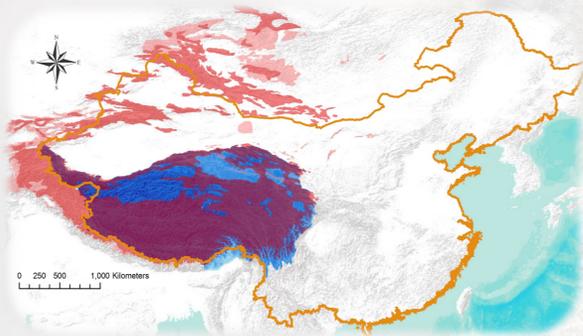


Silent Roar : Identifying Suitable Habitat for Snow Leopards (*Panthera uncia*) in Tibet Plateau

Introduction

Snow Leopard are listed as Endangered on the IUCN Red List, and they are projected to decline by 50% or more over next 3 generations.

Their range crosses 12 central and south Asian countries, including Afghanistan, Bhutan, China, India, Mongolia, Nepal, Pakistan, Russia, Kazakhstan, Kyrgyz Republic, Tajikistan, and Uzbekistan. Despite its extensive distribution, their population is still estimated at less than 2,500 mature breeding individuals.



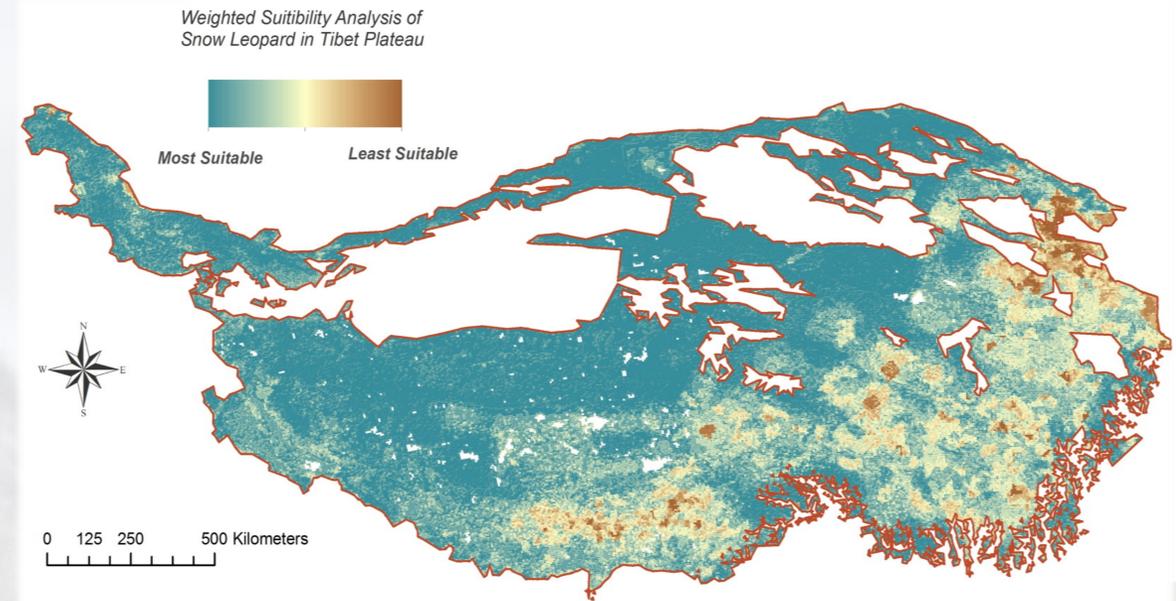
Almost all of the 12 countries have expressed concern about the threats that contribute to the decline of snow leopard populations, and have taken steps to protect them. China is one of the most influential countries for conservation efforts, as it contains as much as 60% of all snow leopard habitat areas.

图片来源: 视觉中国 www.vcg.com

Across the Himalayas, snow leopards are hunted for their highly prized pelts and bones and persecuted because they prey on domestic livestock, in part a consequence of a declining prey base. In many areas the fragile alpine habitat of snow leopards are also becoming degraded and fragmented as a consequence of both intensifying grazing pressure from increasing numbers of livestock and roads or railways construction.

This project is aimed to evaluate and rank the suitability of the predicted Snow Leopard habitat area in Tibet Plateau, which is expected to make some sense for the conservation of Snow Leopard and raise more people's concern about this beautiful species.

Weighted Factors	Weight
Population Density	0.35
Elevation	0.15
Road Density	0.2
Slope	0.1
River Density	0.1
Land Cover	0.1



Methodology

To do the evaluation of the suitability of habitat areas, six main factors are considered: population density, road density, elevation, slope, river density, and land cover. Because both the poaching and trading map and overgrazing map are highly consistent with population map, and data of poaching points are quite insufficient, they are not included.

According to the report released by WWF (World Wild Fund), all factors are considered of different weights. Construction behaviors

and population are the most important. For the reason that Snow Leopard prefer cold areas with broken terrain of cliffs, rocky outcrops, and ravines, elevation and slope are important too. Like other cats, their needs for water are relatively low because they can obtain moisture from springs and streams which decrease the weight of river density.

Reclassify all factors into 4 levels. Do raster calculator analysis to combine them in one map showing the suitability of the predicted habitat area.

Results & Conclusions

As it shows in the final map, the greener it is, the more suitable it becomes as the habitat area for Snow Leopard. This result indicates that certain areas in Tibet plateau are quite good homes for them.

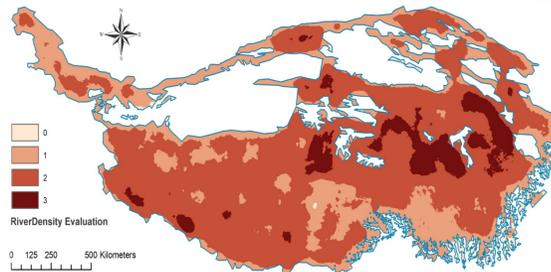
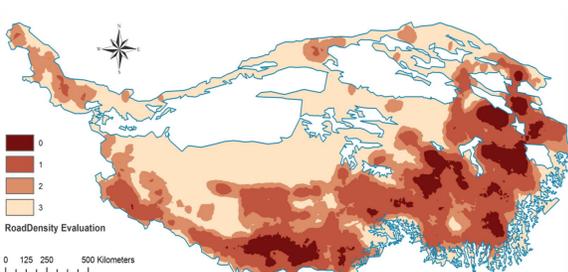
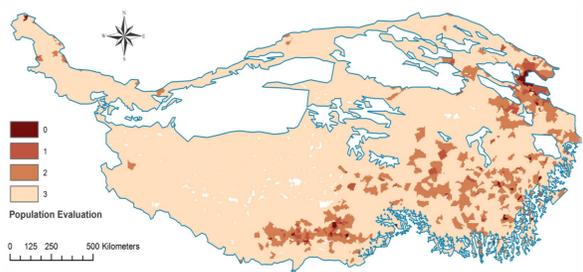
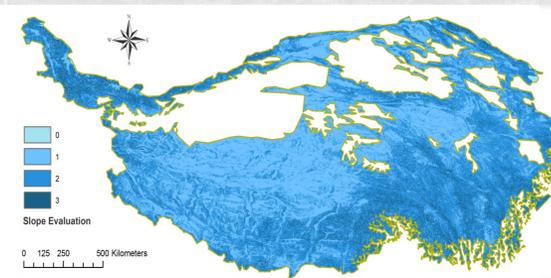


North western part of the map where it is too hard for human to reach because of poor climate and geography can be considered as ideal home for Snow Leopard. It is noteworthy that the final result shows high consistence with population map, which indicates that human behaviors do

have negative effects on the living conditions of Snow Leopard.

Although this result can show which area is possible and safe for Snow Leopard to live in. It is not perfect enough, because only the most important factors are taken into consideration. To refine the result, more factors, such as precipitations and migrations should be included too.

The conservation of Snow Leopard is really an extremely hard work because they live on high altitude and are solitary and highly elusive. Therefore, it needs deep cooperation among all the countries, especially the 12 which contain Snow Leopard.



Geographic Coordinate System:
GCS_WGS_1984

Data Source: ESRI, USGS, WWF, CHGIS,
NSTI, NASA EARTHDATA,
IUCN, ESA

Projected by: Ya Han
CEE-187 GIS Presented on December 5, 2017