

CATS IN NEWS

Risk Analysis of Felinae-Human Interactions in China, 2016

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Introduction



Over the last decade, China has observed an increase in the number of Felinae-human interactions. Between 2006 and 2016, there have been over 160 events documented in the news. The Felinae is a subfamily of small to medium-sized cats. In China, these include:

Common Name	Scientific Name	Chinese Name
Asiatic golden cat	<i>Catopuma temminckii</i>	亚洲金猫
Chinese mountain cat	<i>Felis bieti</i>	荒漠猫
Jungle cat	<i>Felis chaus</i>	丛林猫
Wild cat	<i>Felis silvestris</i>	欧亚野猫
Eurasian lynx	<i>Lynx lynx</i>	猞猁
Pallas's cat	<i>Otocolobus manul</i>	兔狲
Marbled cat	<i>Pardofelis marmorata</i>	云猫
Leopard cat	<i>Prionailurus bengalensis</i>	豹猫
Fishing cat	<i>Prionailurus viverrinus</i>	渔猫

Although the Eurasian lynx and leopard cat populations remain stable, the rest of the Felinae populations are decreasing. Among them, the fishing cat is classified as *endangered*, while the Asiatic golden cat, the Pallas's cat and the marbled cat are considered *near threatened*, according to IUCN red list. However, not much scientific literature has been written on Felinae species in China due to lack of information sources, and the reason behind the growing number of human interactions is unknown.

This study will analyze various factors that contribute to Felinae-human interactions and will calculate the risk of these interactions in China's counties. Factors that might influence the likelihood of an interaction are human population density, local household income, distance to protected areas, land use and vegetation. The "hot areas" where Felinae-human interactions are more likely to happen will be identified, which is expected to provide scientists with systematic Felinae data as well as help policymakers create better surveillance plans for the wildlife in those areas.

Methods

New events depicting Felinae-human interactions which occurred between 1/1/2006 and 1/1/2016 in China have been collected and analyzed. Interaction events and species information are mapped based on the location reported. Five factors that are analyzed include human population density, household income, distance to protected areas, land use type and vegetation (NDVI). A risk map of Felinae-human interaction in China is generated with risk value from 1 (low) to 5 (high).

The characteristics of the 5 factors in the counties that have Felinae-human interaction events are compared to those of all counties and t-test is run for each comparison. If there is a statistically significant difference, the characteristics are extracted, reclassified and applied to the national data of the factor to create a final risk map.

Coordinate System: Asia Lambert Conformal Conic

Population Density & Household Income per Person

T-test:
Population: $p > 0.05$ not significant
Household: $p < 0.05$ significant
Criteria:
Household income per person



Distance to Protected Areas

T-test:
Distance to PAs: $p < 0.05$ significant
Criteria:
Distance to protected areas



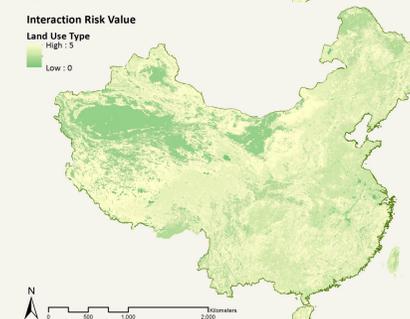
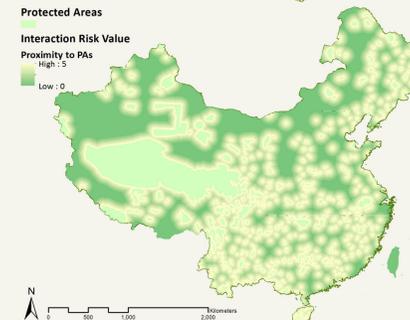
Land Use

T-test:
Land Use Type: $p < 0.05$ significant
Criteria:

Reclassified Risk Value	Land Use Types
5	Shrub
4	Grassland
3	Cropland
2	Forest
1	Bare land
0	Others

Vegetation (NDVI)

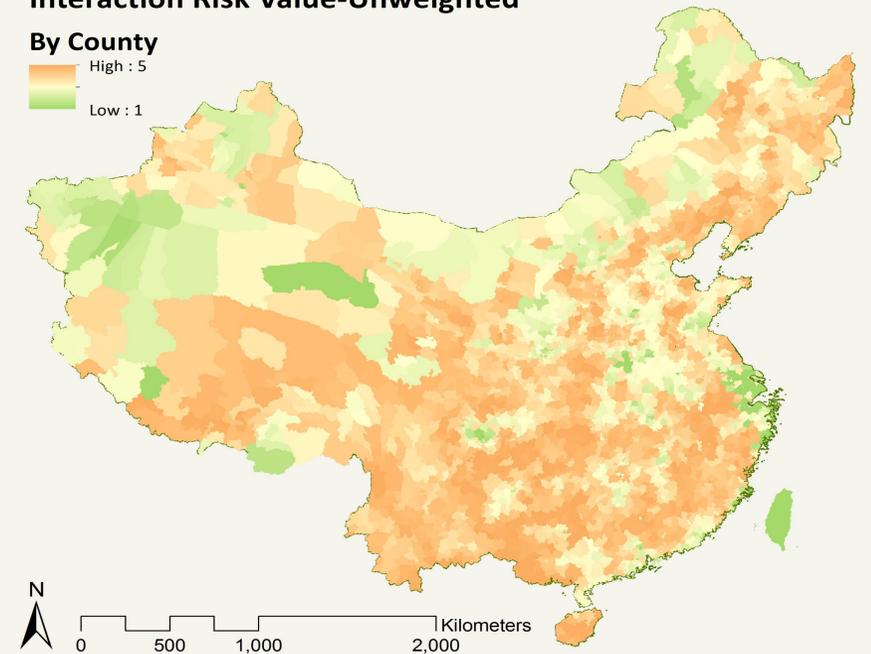
T-test:
NDVI: $p < 0.05$ significant
Criteria:
NDVI



Interaction Risk Value-Unweighted

By County

High: 5
Low: 1



Conclusion

The final risk map includes 4 factors: household income per person, distance to protected areas, land use types and vegetation. Population density is not included because there is no statistically significant difference between the population density of those counties that have Felinae-human interactions and those of other counties. Zonal statistics is applied so that the risk value of each county is mapped.

Most counties in China have high risk of Felinae-human interaction happening. It is important for the government and policymakers to react to the reports of those interactions. Compensation needs to be provided if domestic animals are attacked and education on wildlife conservation should be emphasized in high risk areas. An interactive mapping website of wildlife-human interactions can be built based on this study to collect wildlife related news, which will provide scientists valuable information for research and surveillance, especially of cryptic species.

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Data Sources:
GADM, Protected Planet, University of Michigan, China Data Center, DIVA-GIS, UNEP Environment for Development

Pictures:
duitang.com; images.clipartspanda.com; tufts.edu; wikipedia.org