

# Safeguarding the Snow Leopards



# China's Conservation Journey

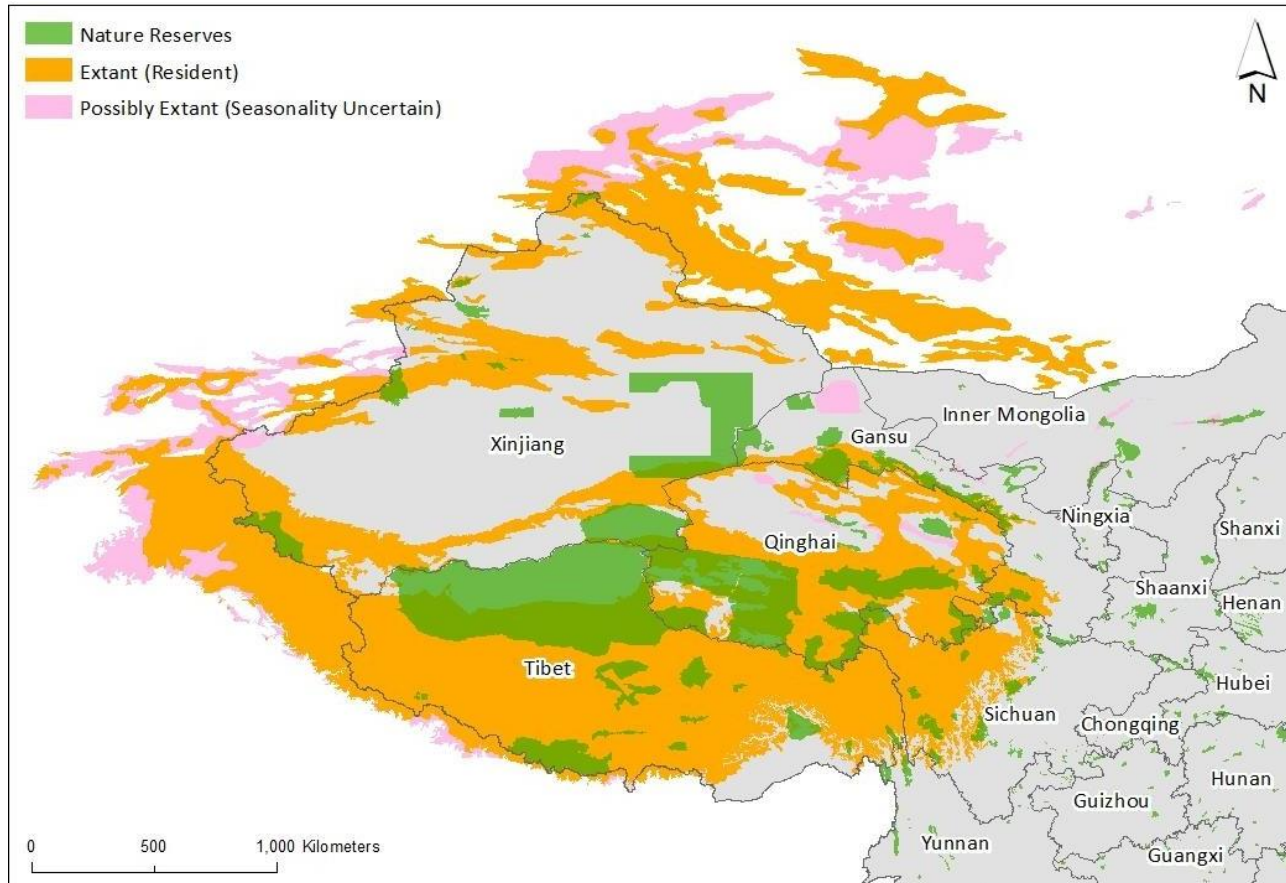
**Kun Shi**

**Eco-Bridge Continental, Beijing**

**Aug. 28th 2024**



# Overview on snow leopard status in China

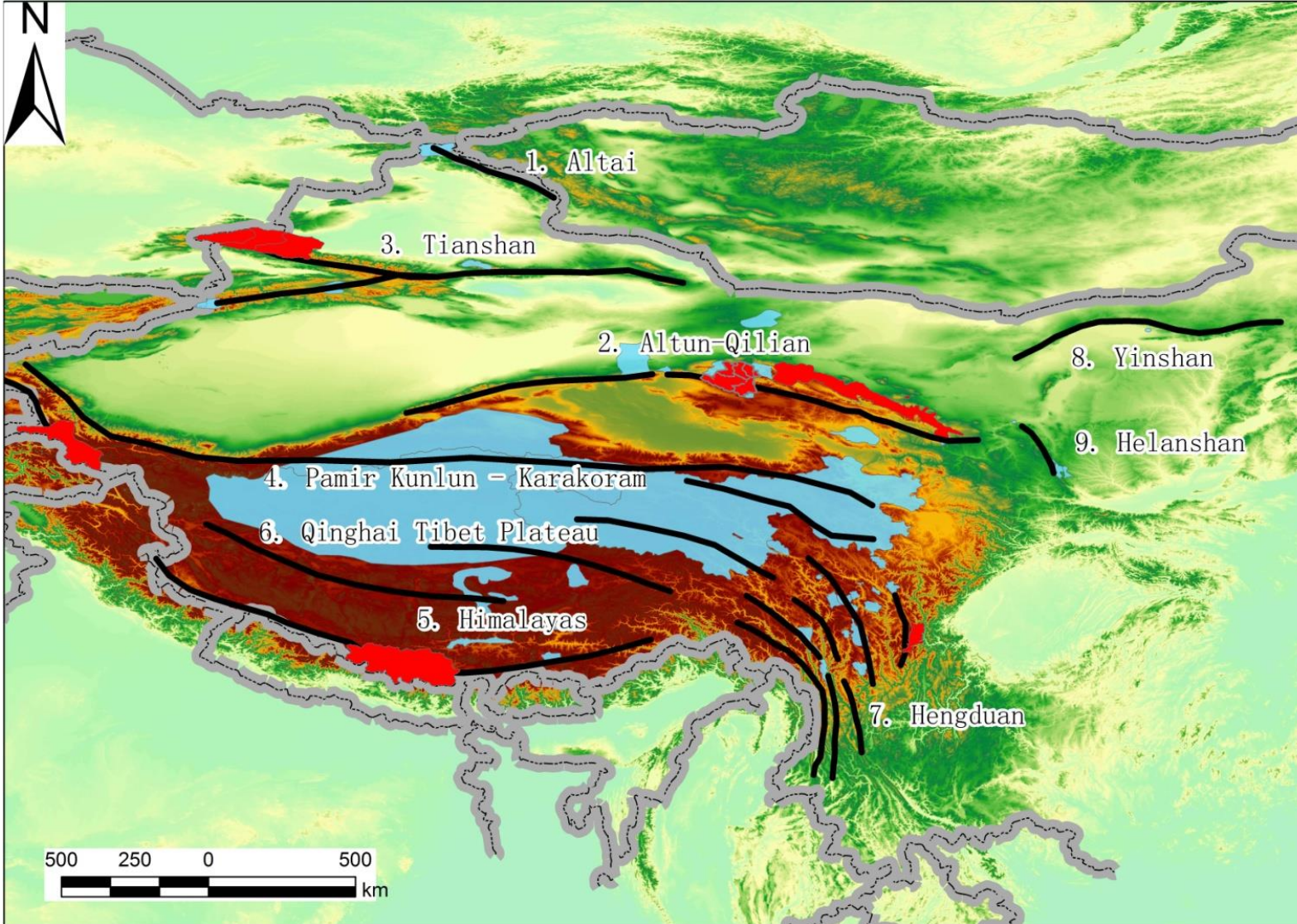


- As the most important snow leopard range country, China contains as much as 60% of the potential habitat, and approximately 60% of the global population of snow leopard (Riordan and Shi, 2016).
- An estimated 4500 individuals inhabit over 1.7million km<sup>2</sup> of suitable habitat, which includes numerous mountain ranges across 8 provinces in West and Central China. Currently, snow leopards in China are known to be present in Tibet, Qinghai, Xinjiang, Gansu, Sichuan, Yunnan, Inner Mongolia, and Ningxia (Shi et al. 2024).
- China established 3 National parks and 78 newly listed Important Wildlife Habitat across at least 831,700 km<sup>2</sup> of land.

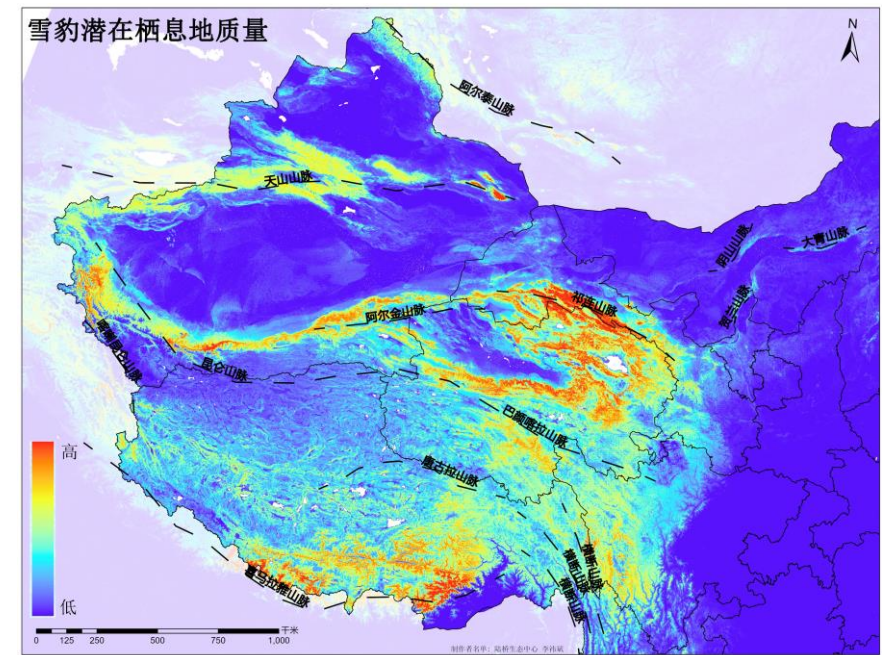
Kun Shi et al. Chapter 46 - Snow leopard status and conservation in China, Editor(s): David Mallon, Tom McCarthy, In Biodiversity of World: Conservation from Genes to Landscapes, Snow Leopards (Second Edition), Academic Press, 2024, Pages 577-601, ISBN 9780323857758, <https://doi.org/10.1016/B978-0-323-85775-8.00021-2>.

McCarthy, T., Mallon, D., Jackson, R., Zahler, P. & McCarthy, K. 2017. *Panthera uncia*. The IUCN Red List of Threatened Species 2017: e.T22732A50664030.

# Snow leopard landscapes in China



Nine core distribution regions of snow leopard in China (CSLCAP, 2013)



Nine regions:

- (1) Altai Mountain
- (2) Altun-Qilian
- (3) Tianshan
- (4) Pamir's Kunlun- Karakoram
- (5) Himalayas
- (6) Qinghai Tibet Plateau
- (7) Hengduan Mountain
- (8) Yinshan
- (9) Helanshan Mountain

# Research & Monitoring Methods



Sign  
Survey

Camera  
Trapping

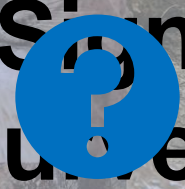
Social  
Survey

Genetics  
(scatolog

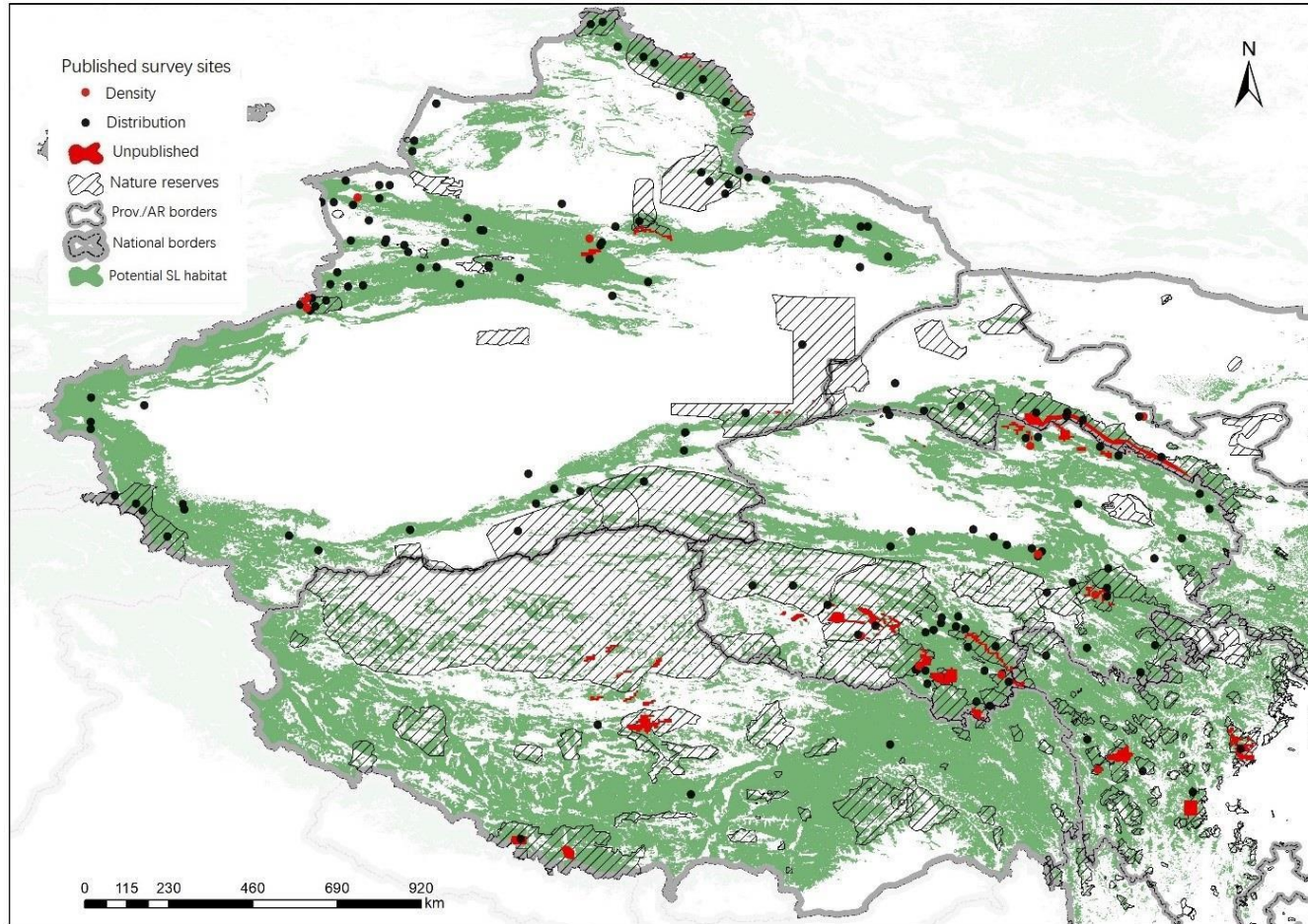
Telemetry  
Tracking

Habitat  
and

Capa & sympatric  
i e



# Snow leopard distribution and abundance studies



Surveys are primarily based on **grid-connected camera trapping and sign surveys, and to apply spatial/non-spatial mark and recapture models** based on results from rosette-based identification of individuals to estimate density and distribution.

## Survey Efforts

Scope	Habitat area/km <sup>2</sup>	20% SL habitat/km <sup>2</sup>	Actual coverage/km <sup>2</sup>	% of SL habitat
Xinjiang	476398	95280	2315	0.49
Inner Mongolia	21762	4352	0	0
Gansu	105815	21163	4300	4.06
Qinghai	330768	66154	14680	4.44
Tibet	660798	132160	4503	0.68
Yunnan	15756	3151	0	0
Sichuan	160366	32073	4578	2.85
Nation-wide	1771662	354332	29934	1.69

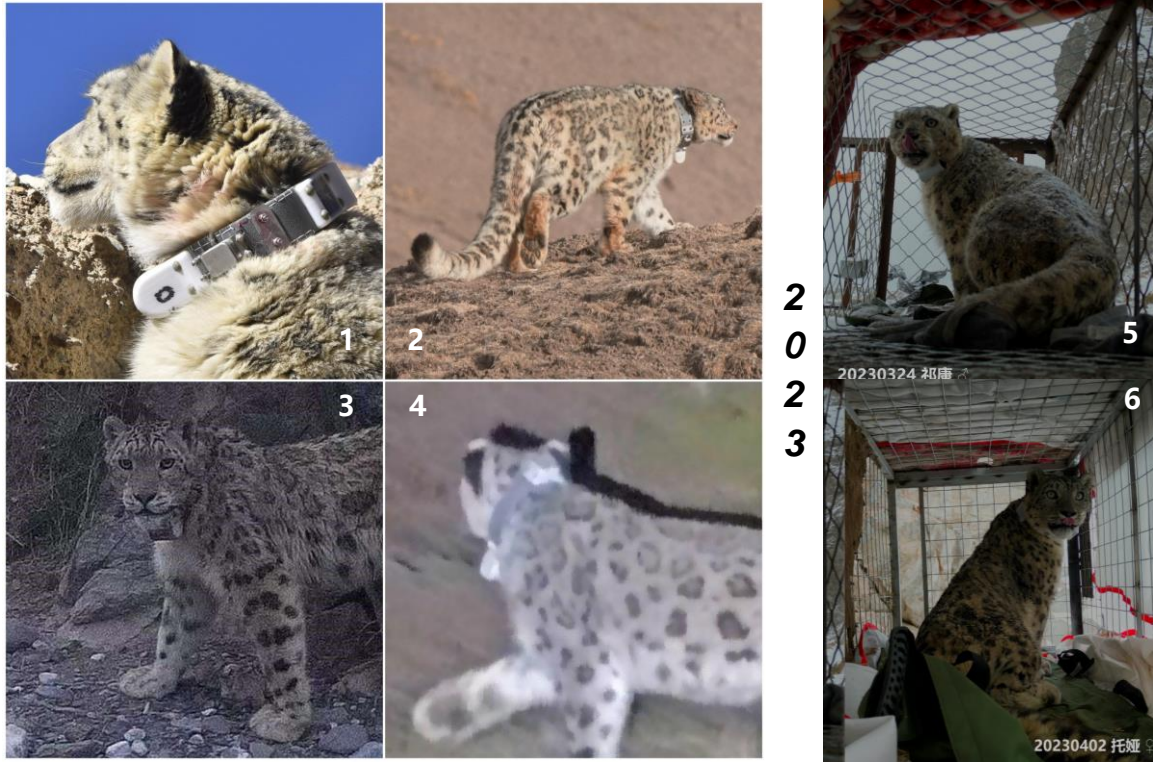
## Topics of Study

- 1 Distribution/dispersal
- 2 Diet/prey
- 3 Abundance/density
- 4 Habitat connectivity
- 5 Niche Overlap
- 6 Conflict/threats
- 7 Genetic diversity
- 8 Breeding & Disease
- 9 Climate Change

\*Ongoing and planned surveys are expanding, but long-term efforts are still needed to cover both protected and unprotected areas



# Cases of Satellite collaring and tracking in China: basic information



1. Yanchiwan Reserve\_F1;
2. Qinghai Menyuan\_M1
3. Yanchiwan Reserve\_M2;
4. Helan Mountain\_M3

5. Qinghai Qilian\_M4 ;
6. Qinghai Menyuan\_F2

ID	Sex	Est. Age	Weight (KG)	Capture Date
F1	F	3-4	25	2021.2
M1	M	3-4	44	2021.3
M2	M	5-7	35	2021.4
M3	M	4-5	40	2021.9
M4	M	6-7	49	2023.3
F2	F	5-6	41	2023.4

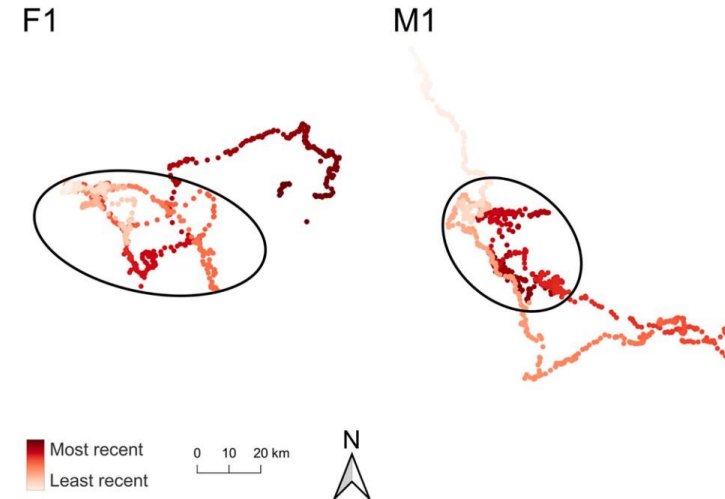
- Satellite collars gather key data on animal behavior.
- Snow leopards movement across seasons and altitudes.
- Habitat use, breeding, and hunting habits of snow leopards.
- Snow leopards behavior, and distribution patterns.



# Cases of Satellite collaring and tracking in China: initial results

C. Yu et al.

Global Ecology and Conservation 40 (2022) e02346



**Fig. 2.** GPS fixes for F1 and M1. The circle encloses the locations of truncated data set used for home range estimates, and locations outside of the circle were considered as outliers of short excursion or extra-range movement based on the pattern of spatiotemporal characteristic of locations. (The colour should be used for the Fig. 1 & 2 in print).

**Table 3**

Basic information, monitoring period and home range sizes (km<sup>2</sup>) for three GPS-collared snow leopards (*Panthera uncia*) in QLSNP, China.

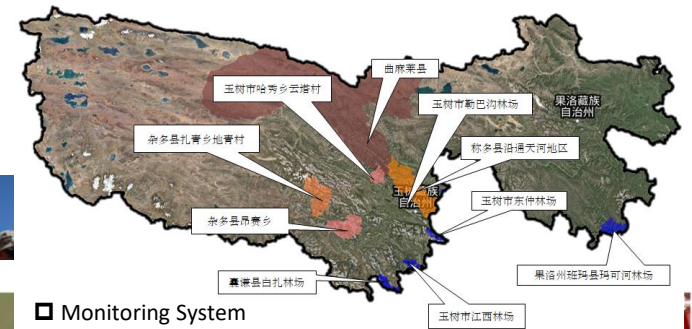
ID	Sex	Estimated Age (year)	Tracking days Original / truncated	Locations Original / truncated	95% MCP (km <sup>2</sup> )	95% KDE (km <sup>2</sup> )	50% KDE (km <sup>2</sup> )	a-LoCoH (km <sup>2</sup> )
F1	Female	3–4	149/120	3216/2687	872	758	93	174
M1	Male	3–4	189/138	2625/1617	838	783	134	261
M2	Male	5–7	102/NA	2004/NA	106	92	16	47

# Community-based conservation initiatives

- The Community-based Monitoring in Sanjiangyuan Region
- The Nature Watch Project in Sanjiangyuan National Park



□ Training and Field Work of Community Monitor



- GEF funded "Promoting community-based conservation for snow leopards in Yanchiwan Unit, Qilian Mountain National Park"
- Community-based snow leopard conservation projects in Mount. Bujia, Tibet, China



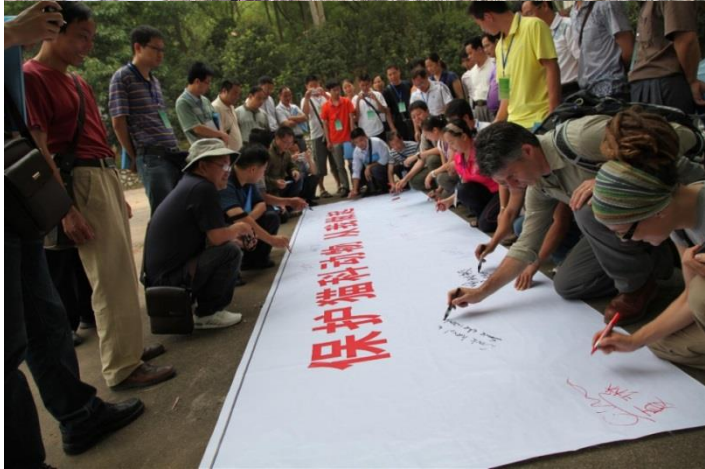
△ Training courses for the host families





# Community-based conservation initiatives

**Capacity Building:** Conducting snow leopard survey and conservation trainings for over 1600 front-line staffs in Qinghai, Xinjiang, Gansu, Sichuan, Ningxia, Inner Mongolia and Tibet, etc. during last five years. **Institutional and local community based training, major focus by state adminstartion**



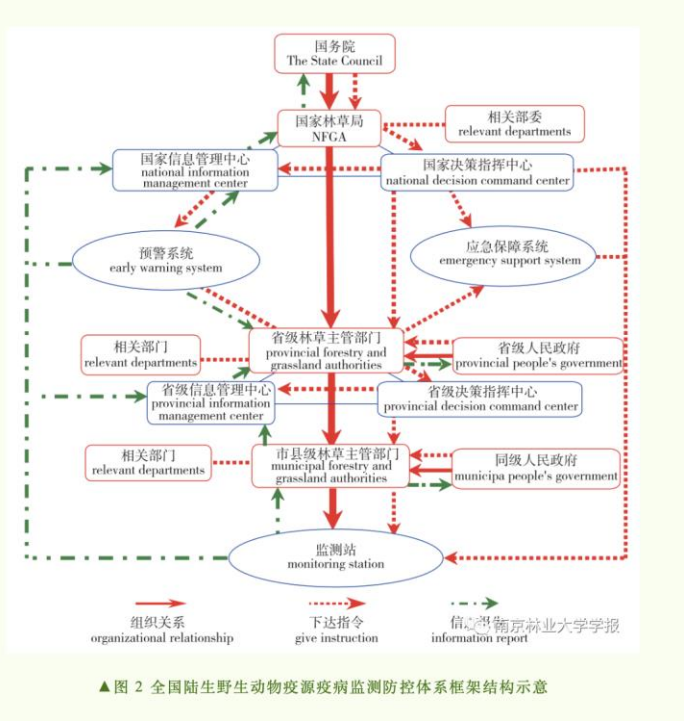
# Management & monitoring of disease systems



《野生动物检疫办法》  
5月1日起施行



近日  
农业农村部  
国家林业  
和草原局联合公布了  
《野生动物检疫办法》



National Terrestrial Wildlife zoonotic disease monitoring and prevention system flowchart

- The routine monitoring of diseases **mainly 742 national level monitoring stations**, with the National Forestry and Grassland Administration Monitoring Station located in Shenyang; The main disease monitoring countries arrange research topics and funds annually to collaborate with research institutes to carry out specialized research.
- During the 13th Five Year Plan period, six major national projects were implemented in the field of wild animal disease monitoring, with a cumulative investment of **nearly 100 million yuan**. The **National Innovation Alliance for Wild Animal Disease Monitoring** under the National Forestry and Grassland Administration was established.

Measure for quarantine of wildlife

# Threats Analysis to Snow Leopards, their Ecosystems, and Local Livelihoods

- Referring to **China's Snow Leopard Conservation Action Plan** released in 2013 & 2018, **Snow Leopard Survival Strategy, Snow Leopard Network 2013**
- Overall Threat Assessment
  - High ratings for “ **Perception-related Threats**” and “**Habitat and Prey-related Threats.**”
  - **Low rating** for “Killing and Capture of Snow Leopards,” reflecting significant progress in habitat patrols, law enforcement, and public awareness in China.
- National Threat Ranking
  - Top threats, based on weighted provincial scores:
    - **Insufficient capacity in conservation frontline.**
    - **Climate change.**
    - **Lack of community awareness.**
  - Concerns about potential impacts of **climate change, population growth, and large-scale development activities.**
- Weakness in Snow Leopard Conservation
  - “**Lack of scientific research and related awareness**” identified as a weak point in China's snow leopard conservation efforts.



# Efforts and actions in safeguarding Snow leopards in China

Investigating and monitoring snow leopard populations and habitat dynamics, strengthening basic research and conservation planning

- Snow leopard population and habitat survey and monitoring has covered areas in all 7 range-provinces , rapidly increasing “snow leopard population and habitat survey and assessment ” projects taking place in snow leopard habitat

--Strengthen basic research about the snow leopard population ecology, habitat management recovery technology, conservation impacts of climate change, and so on: government funded snow leopard satellite tracking projects : 10 collared snow leopards from 4 provinces, ongoing snow leopard rehabilitation and reintroduction programs in Helan Mountain and related ranges etc.

--Sub-regionally make scientific planning for snow leopard: increased snow leopard monitoring projects supported by provincial administrations in major mountains across all 7 range provinces since 2018, which 5 provinces yielded snow leopard density estimates as main results.

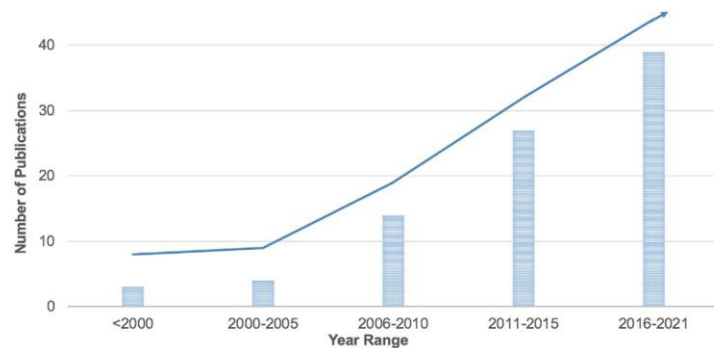
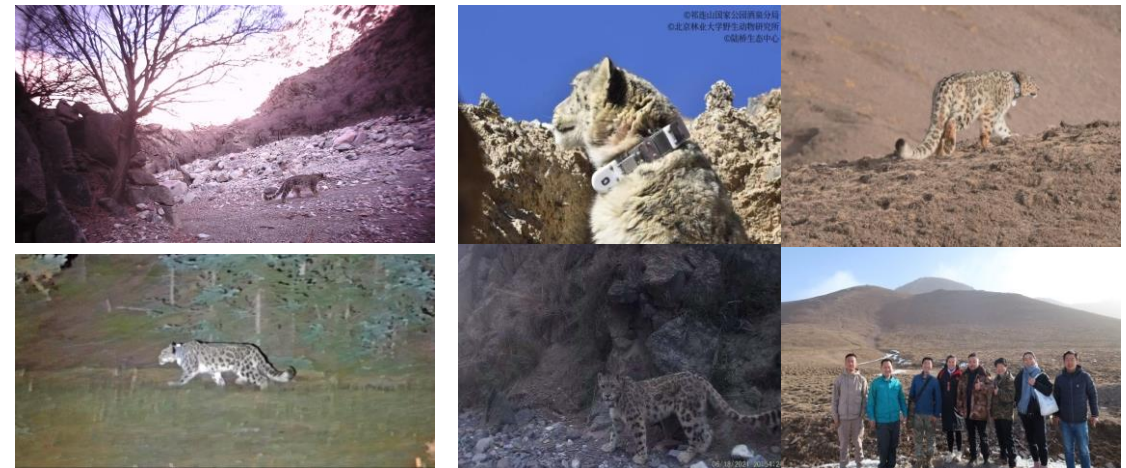


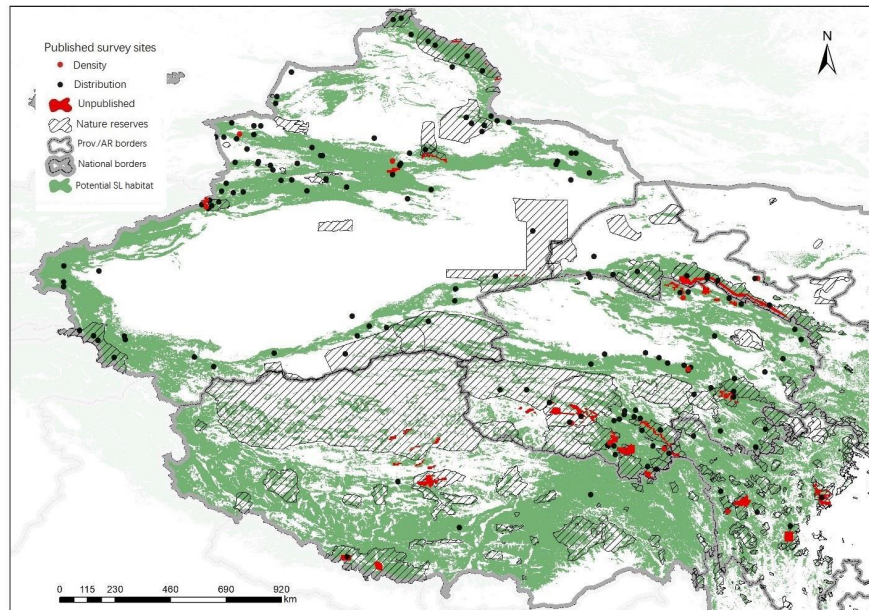
FIG. 46.3 The number of snow leopard-focused publications in China for all years prior to 2000 and by year of publication in 5-year intervals since 2000.

Increased publications on snow leopard-related topics in China



# Efforts and actions in safeguarding Snow leopards in China

- **Perfect the management system of protection, enhance the protection of habitats**
  - Perfect the system of conservation management of snow leopard population and their habitats, which is with the nature reserves as mainstay: **3 Newly established National Parks , 23% of 477 Protected Areas fall in snow leopard range of China**
  - Strengthening the capacity building of snow leopard conservation and management system: benefited by National Nature Reserve Construction Projects/**every survey is coupled with capacity training**
  - Conserving, restoring and extending snow leopard habitat : **National Park policy, Highway Wildlife Pass construction, newly enlisted 789 Important Habitats for terrestrial wildlife**



CHINA / SOCIETY

## China releases the first list of 789 important habitats for terrestrial wildlife animals to strengthen protection

By Global Times

Published: Dec 20, 2023 01:36 PM



Wild elk herds roam the Jiangsu Province Dafeng Milu National Nature Reserve in Yancheng city, East China's Jiangsu Province.

# Efforts and actions in safeguarding Snow leopards in China



- **Coordination of snow leopard conservation and the local community's social and economic development**

--Compensating damage or loss of snow leopard depredation & Action 8: Preventing damage or loss caused by the snow leopard attacks on people and livestock: Sanjiangyuan NP funded the [first community co-managed HWC foundation](#) in Zaduo County/ GEF funded the “[Promoting community-based conservation for snow leopards in Yanchiwan reserve, Qilian Mountain National Park](#)” which promoted local livestock insurance coverage and supported 10 households for pilot electrical corral anti-depredation measure.

-- Pilot demonstration of eco-friendly mode of economic development : [National Park system/The Nature Watch Project in Sanjiangyuan National Park](#)

# Efforts and actions in safeguarding Snow leopards in China

- **Strengthening law enforcement propaganda, cracking down on illegal activities**

- Strengthened law enforcement capacity building of institutions, and more effectively carrying out the inspection of law enforcement and special combat operations: **up to 10 years imprisonment with serious charges of sl poaching and illegal trading.**

- Develop extensive publicity and education on snow leopard conservation: **International sl day, mainstream social media promotion and awareness-raising, multi-level sl and sl habitat conferences**

- Expanding International Cooperation and Exchanges on Global Snow Leopard Conservation

- Improve international cooperation mechanisms on snow leopard conservation :**academic collaboration , UNDP funded community-based conservation projects, collaborations with international Foundations and NGOs SLT/SLN, IUCN CEC**

- **Improve policy for snow leopard conservation**

- China's "**twelfth five-year**" ecological construction, “**One belt one road: initiative**, the project of **returning grazing land to grassland, wildlife protection and nature reserve construction**

- Chinese **rare and endangered species rescue breeding**, investigation and supervision and the 2nd **national terrestrial wildlife resources survey projects, 2nd Scientific Survey on Qinghai-Tibet Plateau etc.**



# Efforts and actions in safeguarding Snow leopards in China

## Development and implementation of livestock insurance and compensation scheme

- The “*Law of The People's Republic of China on the Protection of Wildlife*” clearly states that the local government should compensate for any damages caused by protected wildlife species under this law.
- In Qinghai, Gansu, Xizang, Sichuan, Inner Mongolia, and Yunnan, where local governments work with insurance companies to verify reported snow leopard damages and decide on the amount of compensation in a case-by-case manner.
- Starting from 2016, the Zaduo county government, Qinghai, together with NGO and the local community in Sanjiangyuan National Park, funded the first community co-managed HWC foundation. The first phase of funding reached a total amount of USD 31,000 (Luo, 2016 ).
- In 2021, the GEF small grants programme funded the “Promoting community-based conservation for snow leopards in Yanchiwan reserve, Qilian Mountain National Park” The activities include establishing conservation monitoring sites, conducting technical training sessions on snow leopard patrol and monitoring, collecting data on corral installation in target areas, compiling and analyzing corral improvement data, developing corral improvement plans, establishing pilot corral improvement techniques, conducting livestock insurance seminars, promoting livestock insurance to local communities, and vaccinating sheepdogs.

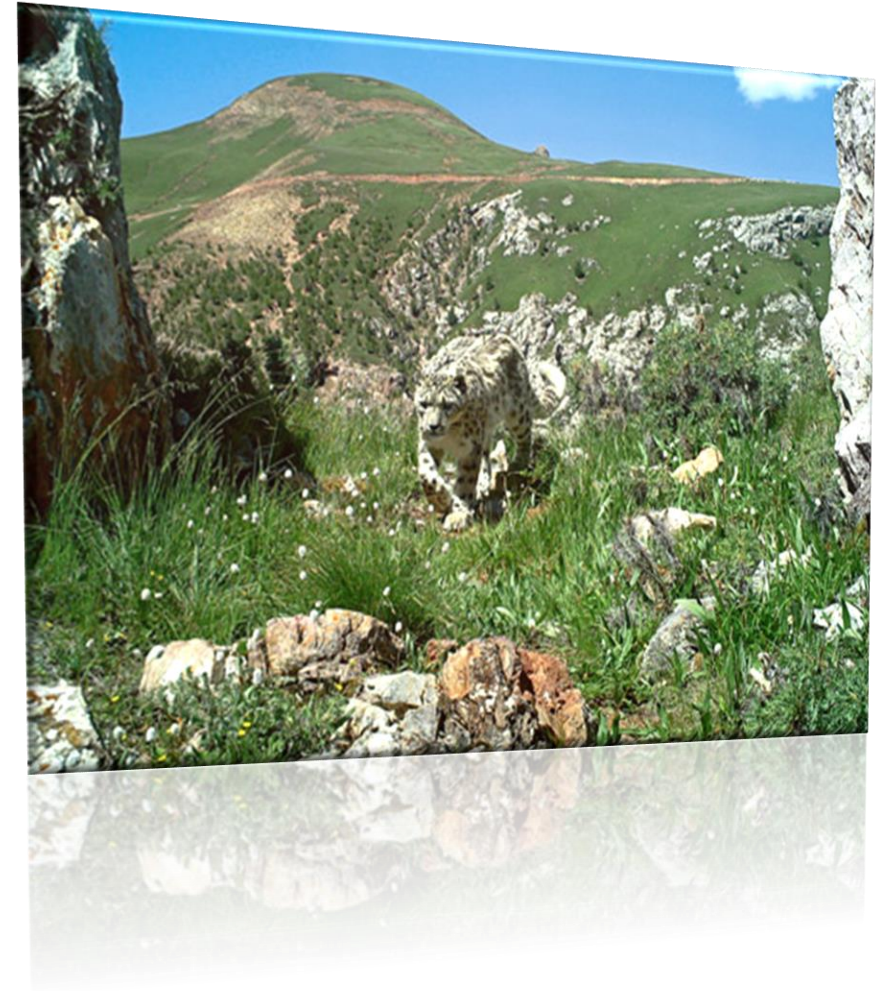




# Efforts and actions in safeguarding Snow leopards in China

## Managing Linear Infrastructure in snow leopard landscape

- According to [China's Wildlife Protection Law](#), linear infrastructure sites should eliminate or reduce adverse impacts on wildlife. Where the construction project may have an impact on snow leopards and other wildlife under key state protection, [the environmental impact assessment document](#) shall consult the competent authorities in charge of wildlife conservation under the State Council.
- According to the [Nature Reserve Regulations](#), no infrastructure for production shall be built in the core areas of nature reserves; No infrastructure for production that pollute the environment or destroy resources or landscapes shall be built in the experimental areas. Projects to be built in the peripheral protection zones of nature reserves shall not harm the environmental quality of the nature reserves.



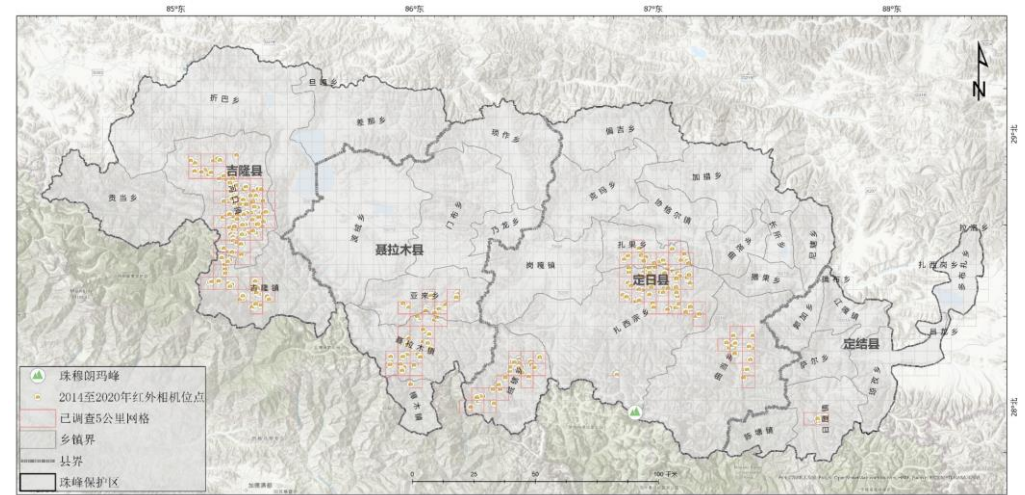
# Status of national wildlife laws and enforcement

- The [National Wildlife Protection Law](#) has been revised in 2016. The Law prohibits hunt, capture or kill wild animals under national major conservation, including snow leopard (**Class I**) and their preys such as blue sheep, siberian ibex (**Class II**).
- According to existing laws and regulations, the behaviors of unauthorized hunting snow leopard and selling, purchasing, transporting, smuggling snow leopard product, etc. [are classified as serious criminal acts](#).
- China has established [the multi-leveled, multi-linked wild animal conservation law enforcement system](#) and mechanism of law enforcement coordination among departments of forestry, public security, industry and commerce, customs department.
- Due to the new law, [key habitats of endangered species need to be identified and protected](#) by state, provincial, regional and local authorities.
- [Continue enhancing market patrol system, responsibility system, the public report reward system.](#)

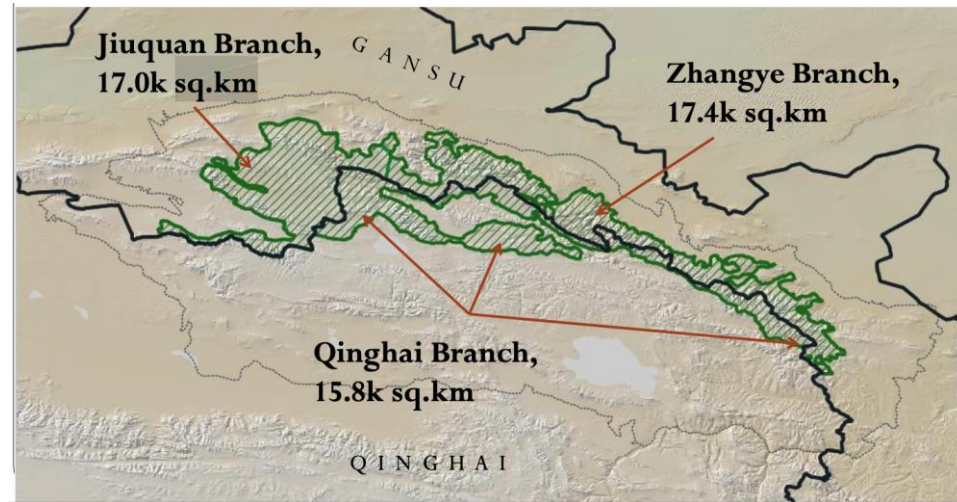


# Resource mobilization – national funds

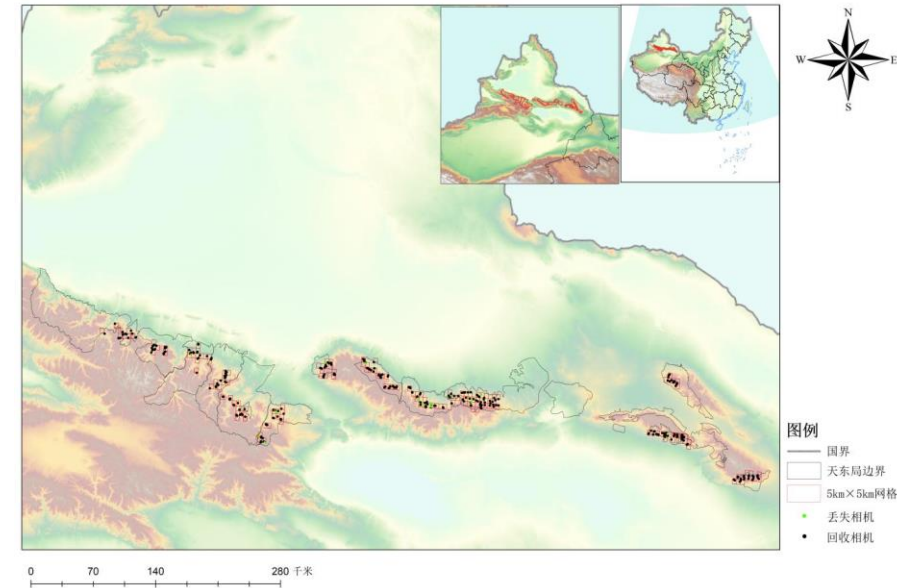
- Funds secured from
  - i) internal [government]
  - Increased capital investment to the snow leopard conservation: i.e endangered species breeding projects/national surveys/species-focused regional or provincial surveys



Monitoring on snow leopards in Qomolangma NNR:



Survey on snow leopards in the pilot area of Qilian Mountain National Park



Survey on snow leopards in Mid-Eastern Tianshan

# Resource mobilization - external

- ii) external [donors]
  - Civil body or other non-governmental organizations i.e Vanke, Tencent Funds, UNDP GEF
  - Internet-based crowdfunding programs (Tencent public welfare , Sina Weibo, titled #Safeguard Snow Leopard Habitat Action# , tencent “Snow Leopard Intelligent Identification and Monitoring Data Management Cloud Platform”, “ Journey with Leopards - Snow Leopard Conservation Small Grant Program” )



09:58

爱心捐赠

\*力捐款1.00元 08:04

\*力捐款1.00元 08:03

10,392.46 目标 336,000 元

112,761 爱心(份)

3% 筹款进度

**守护高原精灵-雪豹**

发动社区保护力量，促进雪豹保护成果交流，推动公众宣传，提升公众认知。



嘉塘保护地

保护面积 **1平方米**

需要能量 **350g**

所在地区 **称多**

嘉塘草原是三江源玉树称多地区重要水源涵养地，区内有荒漠猫、雪豹等多种兽类，黑颈鹤等72种鸟类，龙胆等150多种高原特有植物，将以社区共管方式开展保护。

目前已捐赠保护

**159958099** 平方米

**我要保护**

\*保护地由山水自然保护中心负责保护

# Resource mobilization - needs and plans

- **Financial gaps and needs:** about 50 millions in next 5 years, 50% of budget needs to be resourced
- **Future plans :**
  - gradually increase capital investment to the snow leopard conservation: **China fiscal decentralization**, increased capital funds for **Endangered species** protection programs.
  - Activate more private fundraising channels or foundations to provide necessary funding for snow leopard conservation projects; **Tencent foundation** , **vanke foundation**, **corporates** , **international foundations**
  - strive for International support for cross-border cooperation projects



# Trans-boundary initiatives

China also shares over 10,000km of national borders with 10 snow leopard range countries (Riordan and Shi, 2016)

Protected in China located on, or within approximately 10–30 km of, an international boundary

China Yaluzangbudaxiagu Nature Reserve (8982km<sup>2</sup>); Qomolangma National Nature Reserve (34,000km<sup>2</sup>); Taxkorgan Nature Reserve (15,863km<sup>2</sup>), Tomur (Tuomeurfeng) Nature Reserve (2299km<sup>2</sup>); Kanas (Hamasi) Nature Reserve (2500km<sup>2</sup>); and Buersenheli Nature Reserve (88km<sup>2</sup>)

- To continuously expand international cooperation and optimize international cooperation mechanisms
- Discuss future cross-border cooperation actions in [the South Gobi of Mongolia and Inner Mongolia of China](#), [Pamirs](#), [Altai](#), [Himalayas](#) and other border areas within SL range
- Promote exchange between states and [research/conservation institutions](#)
- Promote the exchange of information and the development of [law enforcement mechanisms in the border trade zones of the states concerned](#)
- Facilitate information flows between the customs of the states concerned
- Regularly assess [the effectiveness of cross-border conservation](#)



# Next-step and Future Plan

- National Snow Leopard Population Survey :
  - Conduct a nationwide survey of snow leopard populations.
  - Complete surveys for 20% of suitable snow leopard habitats nationwide.
- Enhancement of Protected Area Patrol and Monitoring Capabilities:
  - Improve monitoring and management capabilities for patrols in protected areas.
  - Establish monitoring systems for patrols in seven key protected areas.
- Community-based Comprehensive Protection Demonstration Sites:
  - Establish comprehensive protection demonstration sites in five communities.
- Development of Key Snow Leopard Landscape Conservation Plans:
  - Formulate comprehensive conservation plans for snow leopard landscapes in five key provinces/regions.
- Establishment of Snow Leopard China Networks in China and the world:
  - Create the Snow Leopard Network to support harmonious development between humans and nature in high-altitude ecosystems.



**Thank you all!**

