

# China Ecological Conservation Redlining

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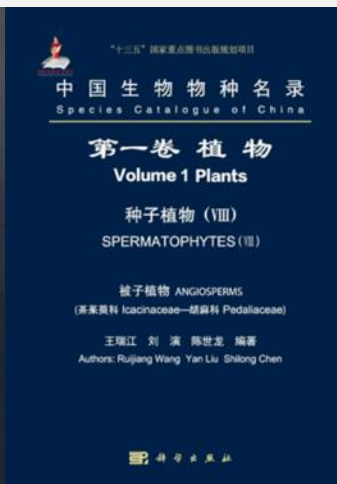
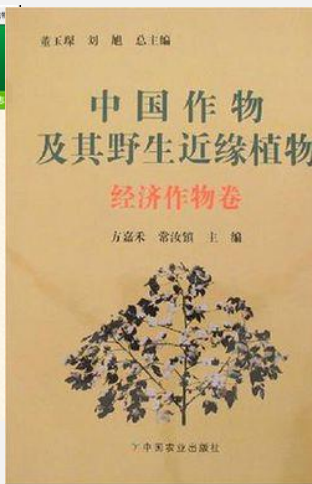
July 3, 2019, Trondheim



Topography of China

# Number of species in China

106509(94260/  
12249)  
Bryophyte 3058  
Pteridophyte 2252  
Spermatophyte 31362



# What

Mammal 564  
Bird 1445  
Reptile 463  
Amphibian 416  
Fish 4949

## 中国植被图 (1:100万) 在线系统

请输入有关植被类型的关键词进行搜索

查询

中国1:100万植被图研制任务,是上世纪80年代国家农业委员会、国家科学技术委员会和中国科学院提出的国家重点研究课题之一。该研究课题自1983年开始,经过以侯学煜和张新时院士先后为主编的三届编委会、全国70个单位、260余研究人员耗时近30年的努力于2008年完成。中国植被图图件包括6个组成部分,分别是:中国植被图(1:100万)60幅,表示了全国868个基本植被分类单位的分布,绘制图斑75785个。它详细显示了我国植被的分布状况和地理格局,包括水平分布和垂直分布状况,及其与气候因子和地面环境因子的关系。中国植被区划图(1:600万)1幅,表示了我国8大植被区域的460个基本植被区划单位的分布,它表现出我国植被的区域性分布和地带性分异,详细表示了我国植被的局地分异和组合情况。

### 针叶林



第五章 针叶林 Chapter 5 Needleleaf Forest 针叶林是指以针叶树种(松科、杉科、柏科的植物)为建群种所组成的各种森林植被的总称,是我国分布最广的一种植被型组,从寒温带的大兴安岭到热带的海南岛,从东部的平原到西部的高原和山地,除了水分不足的干旱地带以及海拔超过林线的高寒...(含234张植被图)

## 中国生物物种名录2019版 Catalogue of Life China 2019 Annual Checklist



绿背姬鹀  
*Ficedula elisae*



珙桐状报春苣苔  
*Primulina davidioides*



牛肝菌  
*Fistulina hepatica*

--CoL-China 2019

2018年访问量 1,310,744 UV

今日访问量 586 UV

Ginkgo biloba



15,069,088

标本记录

5,995,967

标本图片

11,538,123

彩色照片

102,302

文献

2,884

视频

周蕊 摄



植物资源



动物资源



地质资源



极地资源

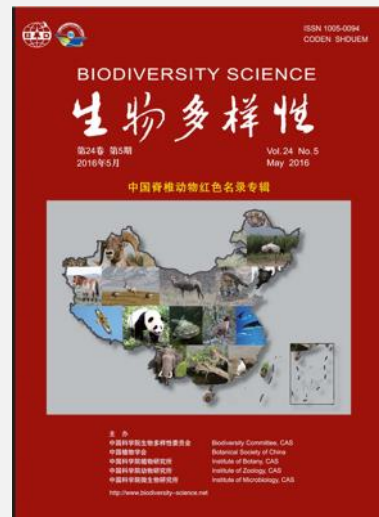
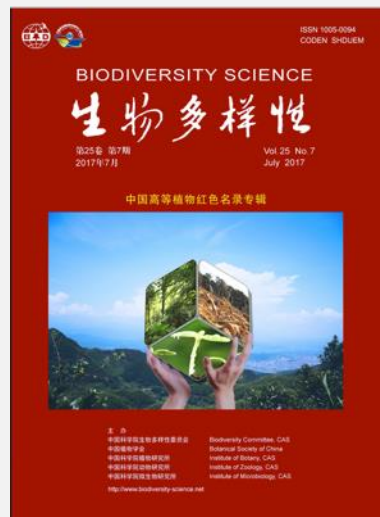


最新推荐



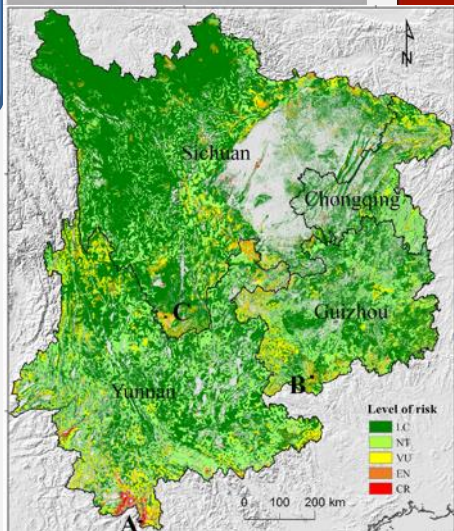
专题资源



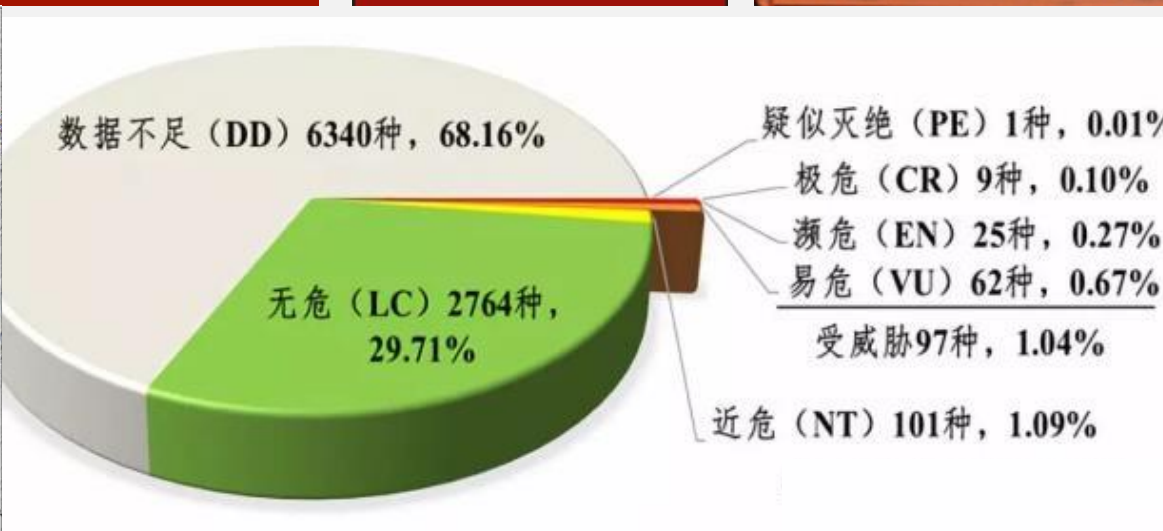


Higher plants:  
3879 /35,784  
(10.8%)

# Status



Threatened vertebrate (excl marine fish):  
932 /4357  
(21.4%)



### 综合监测管理中心



Sino BON 组织结构图

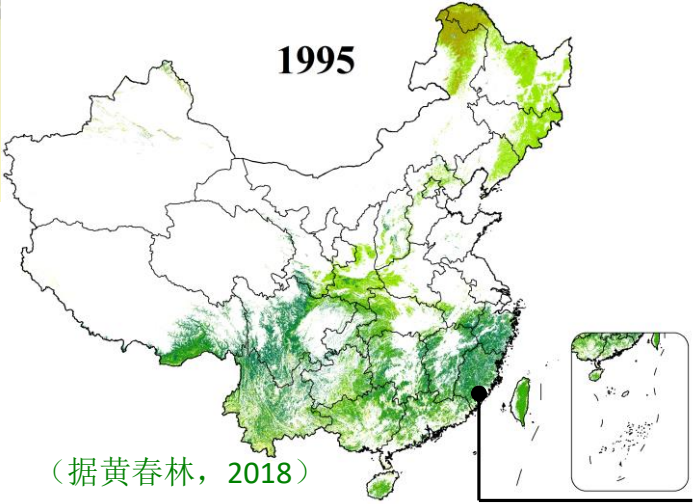
### China BON

Under the planning and coordination of Nanjing Institute of Environmental Sciences, China BON has attracted approximately 3500 trained biologists, protected area managers and volunteer citizen scientists from over 400 universities, research institutes, protected areas and civil societies to get involved in field monitoring of biodiversity, currently consisting of mammals, birds, amphibians and butterflies.

1. Mammal monitoring (China BON-Mammals)
2. Bird monitoring (China BON-Birds)
3. Amphibian monitoring (China BON-Amphibians)
4. Butterfly monitoring (China BON-Butterflies)

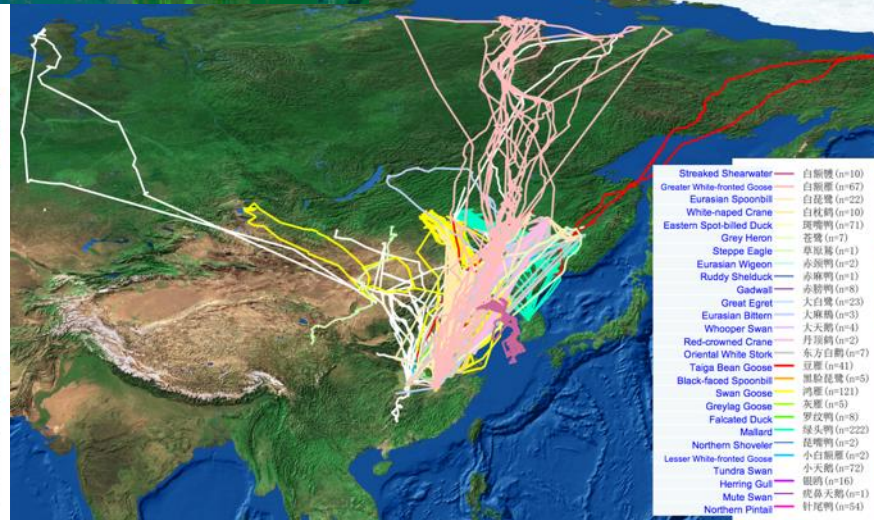
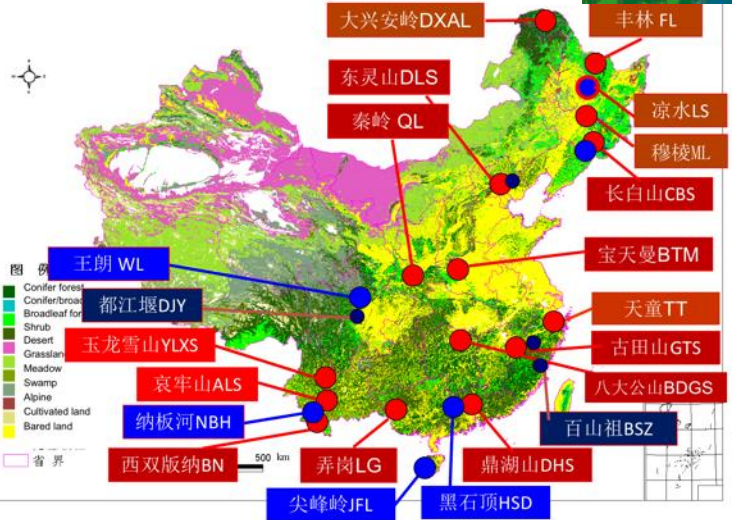
国家生态系统观测研究网络  
National Ecosystem Research Network of China  
中国森林生态系统定位观测研究网络  
www.cfern.org

1995



(据黄春林, 2018)

# Change



WiCAT (Wildlife Camera Trapping Initiative)



中华人民共和国  
野生植物保护条例

CHINA NATIONAL BIODIVERSITY  
CONSERVATION STRATEGY AND  
ACTION PLAN

中国生物多样性  
保护战略与行动计划

中国科学院院刊

HJ  
中华人民共和国国家环境保护标准  
HJ 716.1-2014

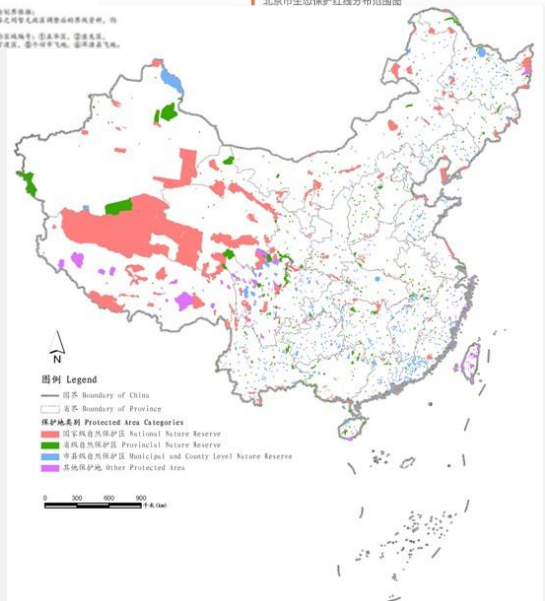
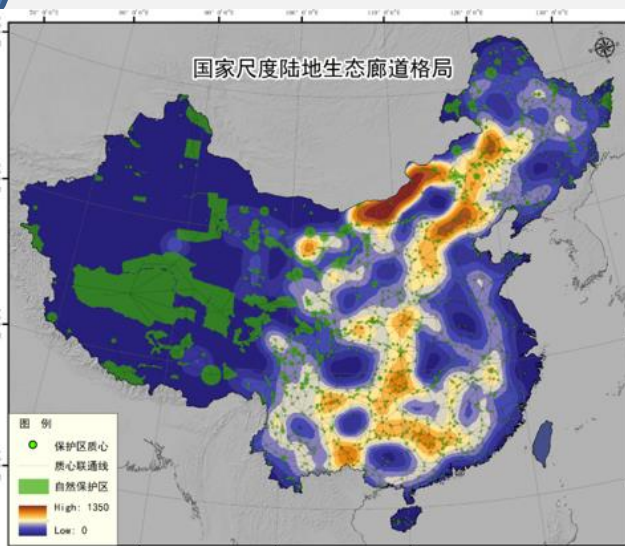
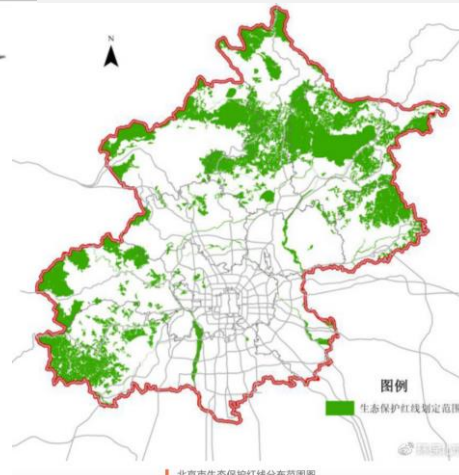
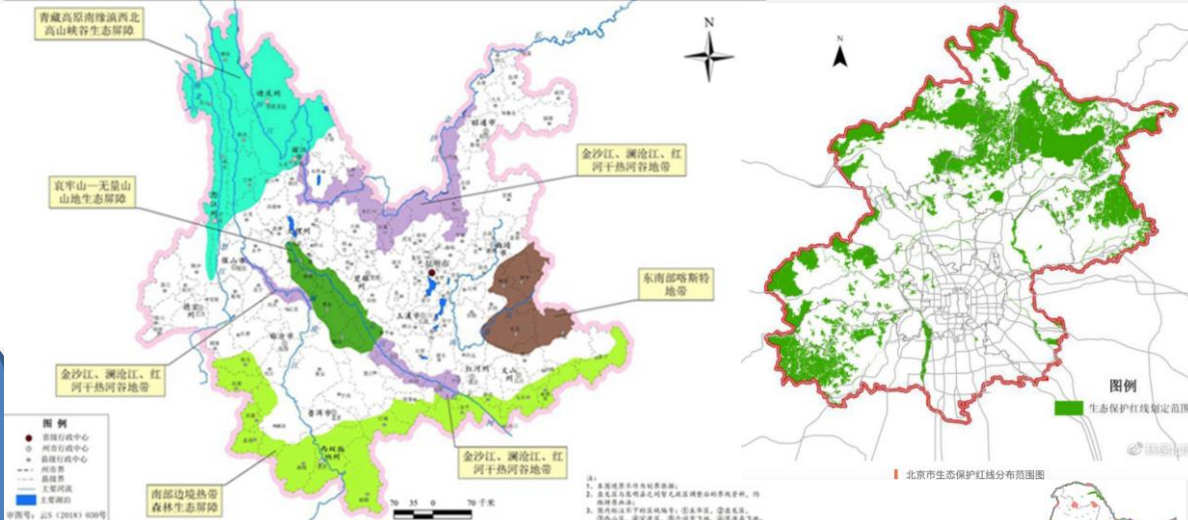
生物多样性观测技术导则 陆生维管  
植物

Included guidelines for biodiversity monitoring—terrestrial vascular  
plants  
(发布稿)

中华人民共和国住房和城乡建设部、国家林业局、中国科学院

2014-10-31 发布 2015-01-01 实施

环境保护部 发布



# Sound Management

# Conservation gaps by using vascular plants



Biological Conservation

journal homepage: [www.elsevier.com/locate/bioc](http://www.elsevier.com/locate/bioc)



Contents lists available at ScienceDirect

Biological Conservation

journal homepage: [www.elsevier.com/locate/bioc](http://www.elsevier.com/locate/bioc)



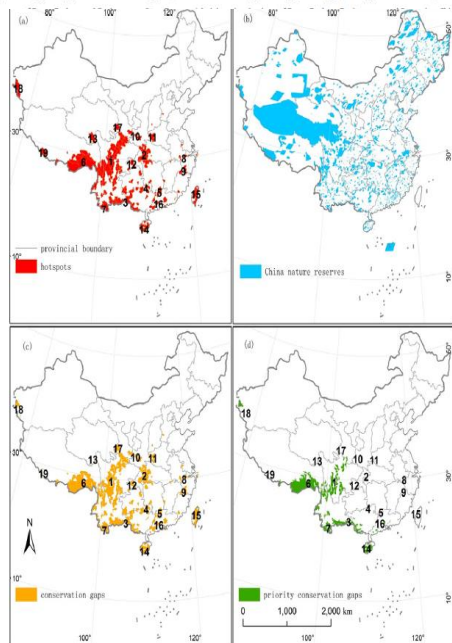
Contents lists available at ScienceDirect

Biological Conservation

journal homepage: [www.elsevier.com/locate/bioc](http://www.elsevier.com/locate/bioc)

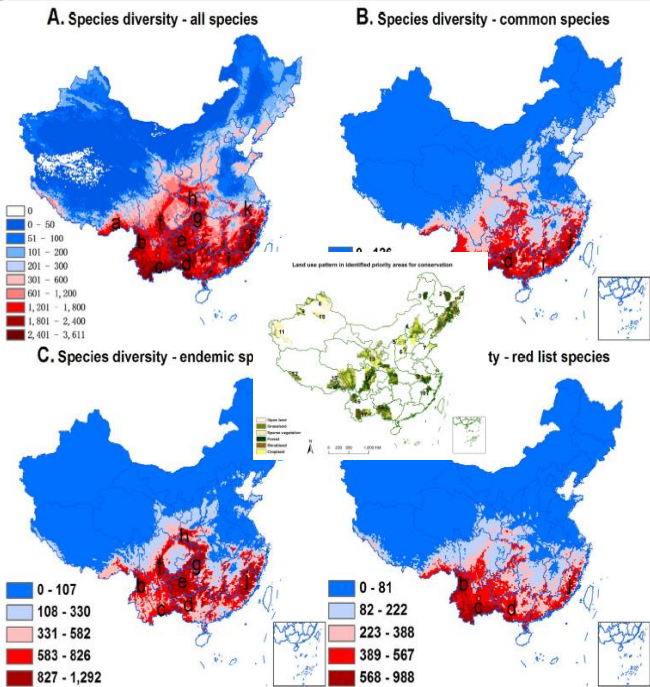
## Diversity hotspots and conservation gaps for the Chinese endemic seed flora

Jihong Huang<sup>a,b,c</sup>, Jianhua Huang<sup>d</sup>, Canran Liu<sup>e</sup>, Jinlong Zhang<sup>f</sup>, Xinghui Lu<sup>a,b,c</sup>, Keping Ma<sup>b,\*</sup>



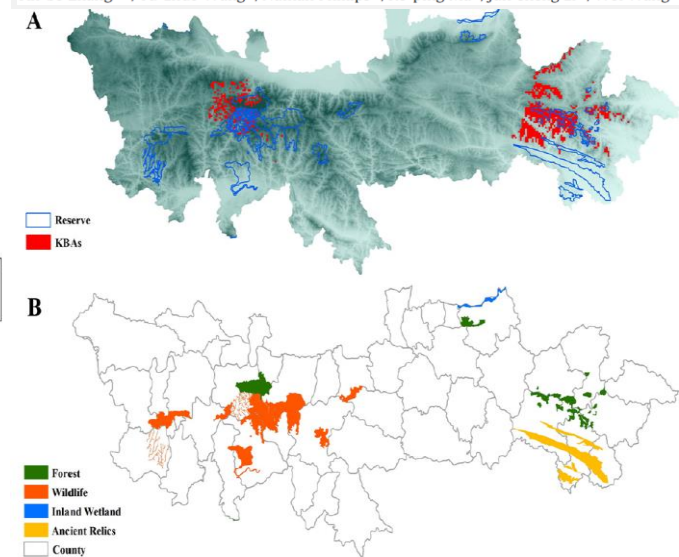
## Priority areas for the conservation of perennial plants in China

Ming-Gang Zhang<sup>a,b</sup>, J.W. Ferry Slik<sup>c</sup>, Ke-Ping Ma<sup>b,\*</sup>



## Integrated maps of biodiversity in the Qinling Mountains of China for expanding protected areas

Yin-bo Zhang<sup>a,b</sup>, Yu-zhuo Wang<sup>a</sup>, Nathan Phillips<sup>b</sup>, Ke-ping Ma<sup>c</sup>, Jun-sheng Li<sup>d</sup>, Wei Wang<sup>d</sup>



Identification of gaps between KBAs and the NNRs. The top panel is the distribution of KBAs and their overlap with the NNRs; the bottom panel is the distribution map of NNRs in the Qinling Mt.

Fig. 2. Geographic distributions of hotspots and conservation gaps of Chinese endemic seed plant species and China nature reserves. (a) hotspots of Chinese endemic seed plant species (b) China nature reserves, (c) conservation gaps of hotspots of Chinese endemic seed plant species and (d) priority conservation gaps of hotspots of Chinese endemic seed plant species. Albers projection. Hotspot center codes are consistent with Table 4.



# Mainstreaming Biodiversity Conservation in China

- Political engagement with ecological civilization;
- national zoning/planning;
- Implementation with institutional and administrative approach;
- Infrastructure development;
- Informed decision making with big data service.

# Ecological Civilization(EC)



www.GOV.cn

中华人民共和国中央人民政府

The Central People's Government of the People's Republic of China



## 中共中央国务院关于加快推进生态文明建设的意见

Opinions of the Central Committee of the Communist Party of China and the State Council on Further Promoting the Development of Ecological Civilization

(9 sections and 35 items)

# Ecological Civilization

## Major Function Oriented Zoning

- Optimized
- Prioritized
- Restricted
- prohibited development zones



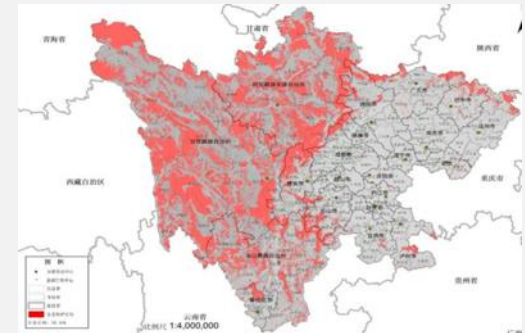
## Key Eco-Function Regions

- Ecological safety
- Product provision
- Living space



## Ecological Protection Red Lining

- Key eco-function regions for water resources protection, biodiversity conservation (protected areas) so on;
- Ecologically fragile regions such as desertification, soil and wind erosion, soil salinization and stony desertification in Karst area.



# What is Ecological Conservation Redlining( ECR)

- Areas with important ecological functions or rich biodiversity in ecological space are being conserved with mandatory and strict measures (regulations or laws);
- Baseline for safeguarding and maintaining the national ecological security;
- Management: no reduction in quality, area and ecosystem services.

# ECR Categories

Eco-  
functions

Supporting sustainable economic development  
Ecological products provision

Ensuring human settlement safe

Natural disaster reduction

Sustainable utilization of biological resources

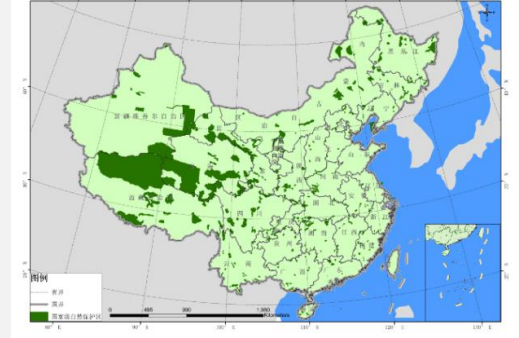
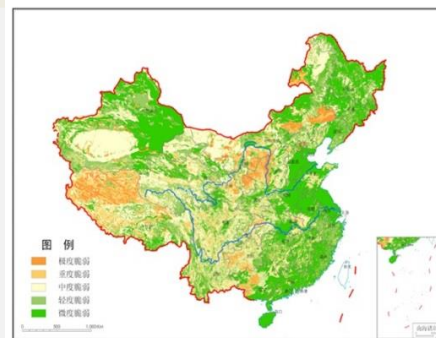
Biodiversity protection

important ecological function area

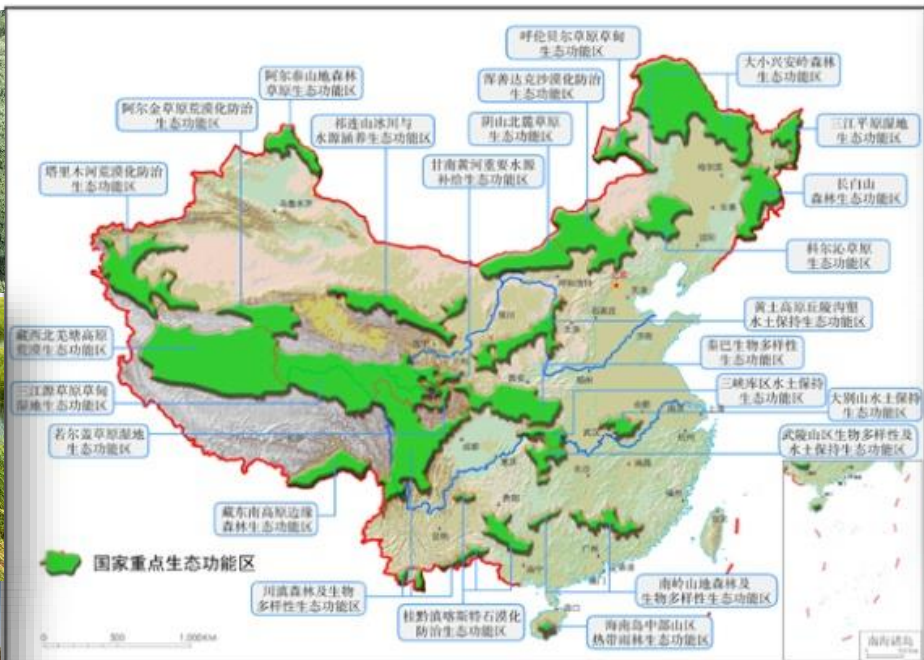
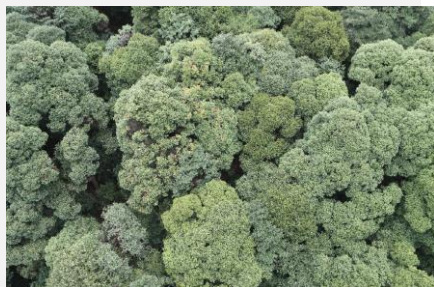
ecological sensitive and fragile area

habitats of key species and ecosystems

ECR



# ECR functions: ecological products of high quality provision line



ECR delimitation and strict management will provide fresh air, clean water and a pleasant environment for people.

# ECR function: human settlement security guarantee line

- Mitigating the impact of natural disasters
- Ensuring the safety of human settlements
- Improving the quality of human settlements

Water and soil  
loss  
prevention  
zone

Desertification  
prevention  
Zone

Stony  
desertification  
prevention zone

Riparian zone

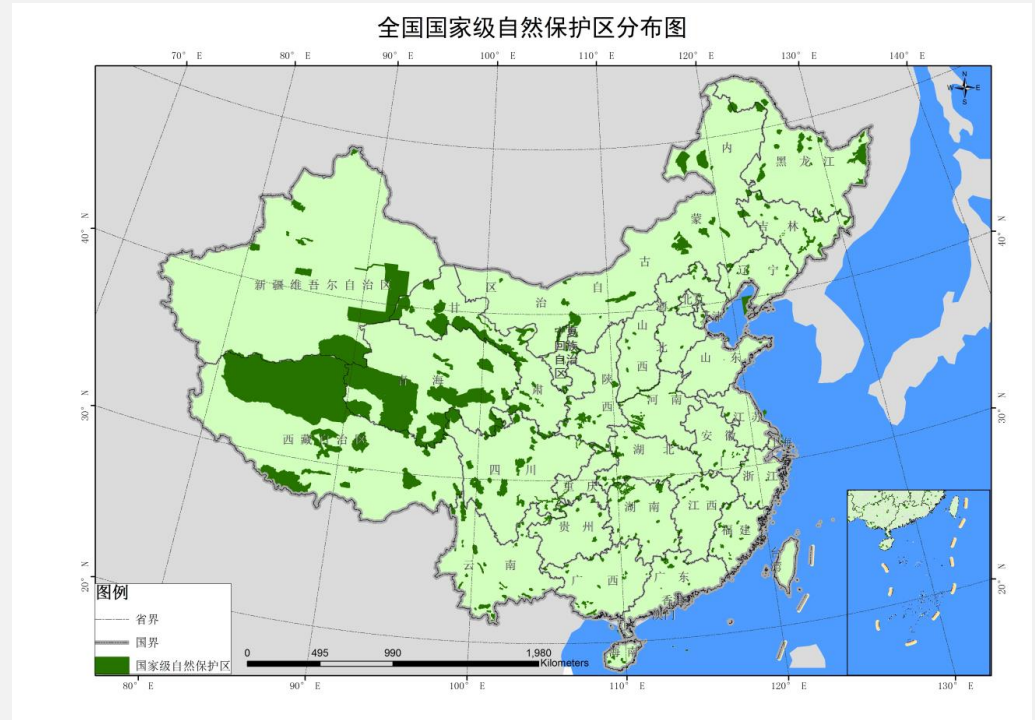
Geological  
disasters  
prevention zone

Protect and  
restore  
ecologically  
fragile areas



# ECR function: biodiversity conservation baseline

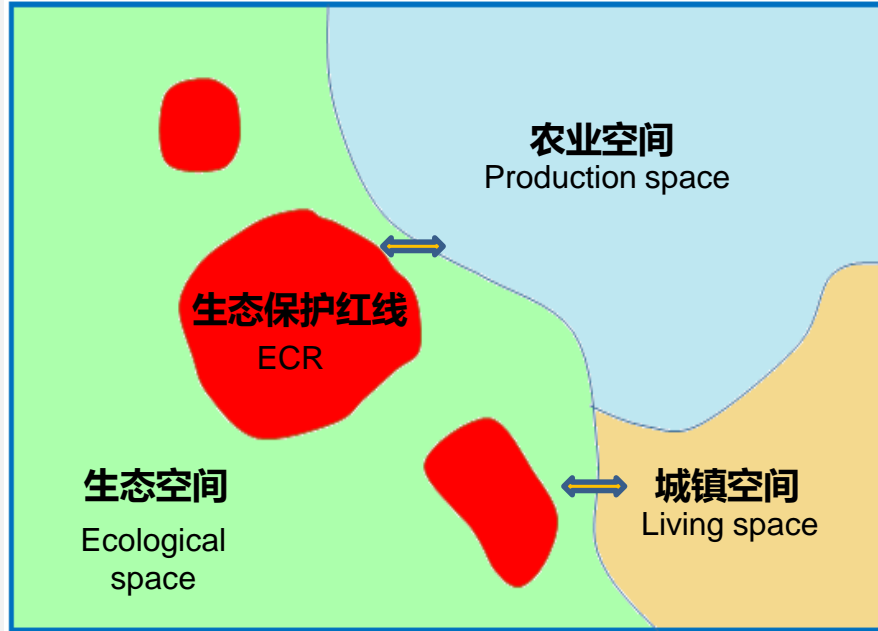
There are 12 K protected areas in China accounting for 18% of the terrestrial land. Even though, it is still around 15% of the country's key protected species outside of PAs.



ECR could ensure the percentage of the national key protected species up to 100%.



# ECR function: territorial development control line



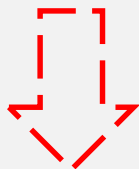
It is strictly prohibited to change the use and encourages the increase of ecological space and ECR.



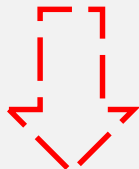
ECR has priority over space planning.

# How to delimit ECR

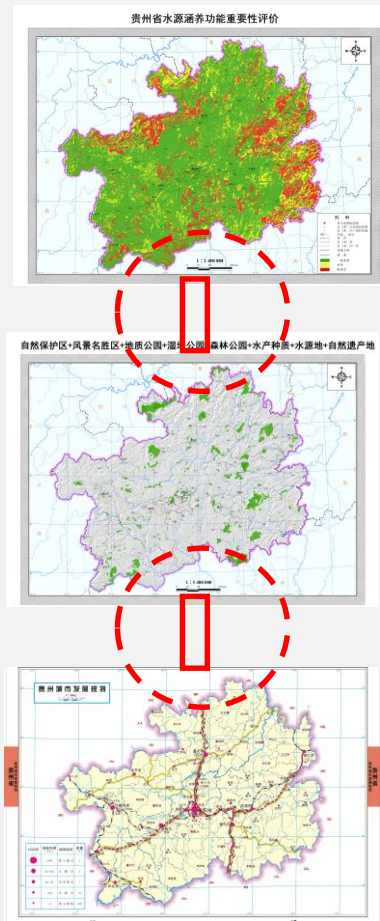
Scientific assessment: determine the range of ECR



Verify the existing protected areas: covering all important protected areas



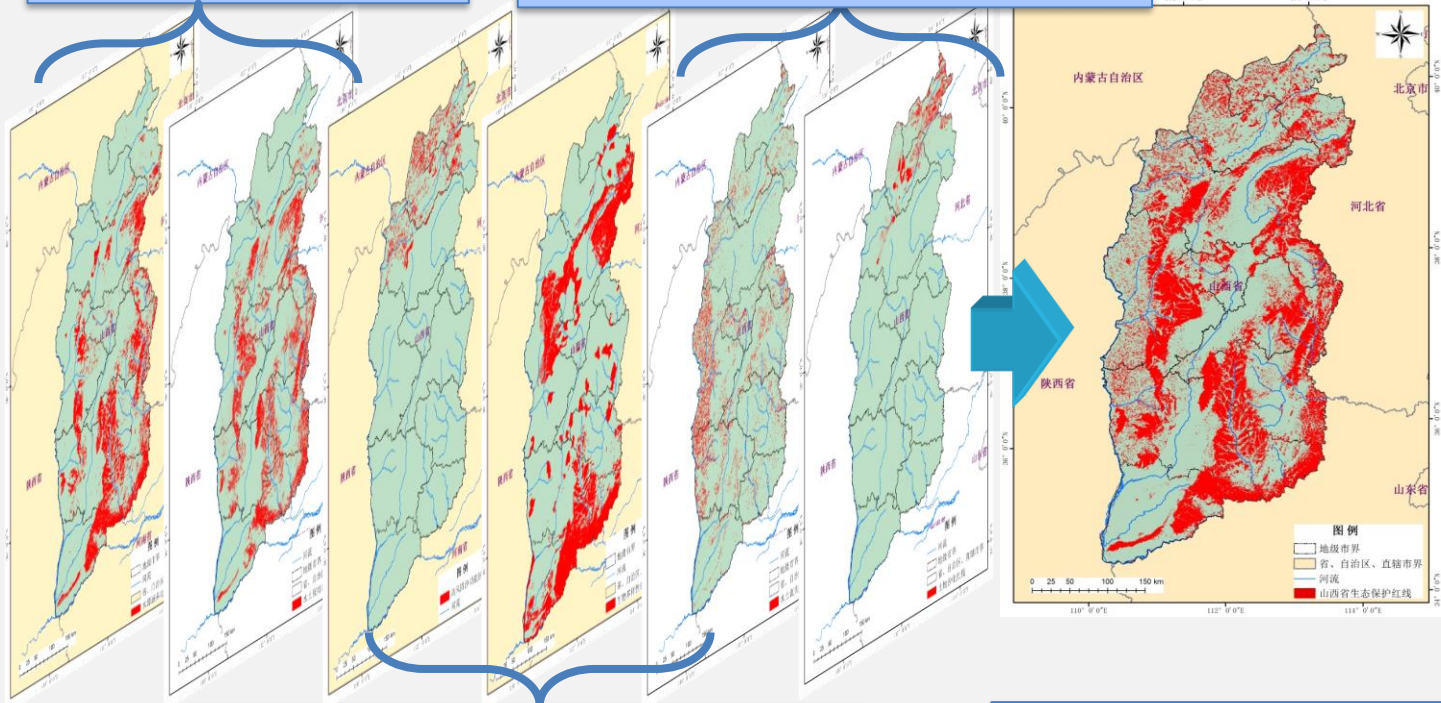
Coordinate with economic and social development: top level designing for development and conservation



# ECR delimitation process

Scientific assessment

Balance conservation and development

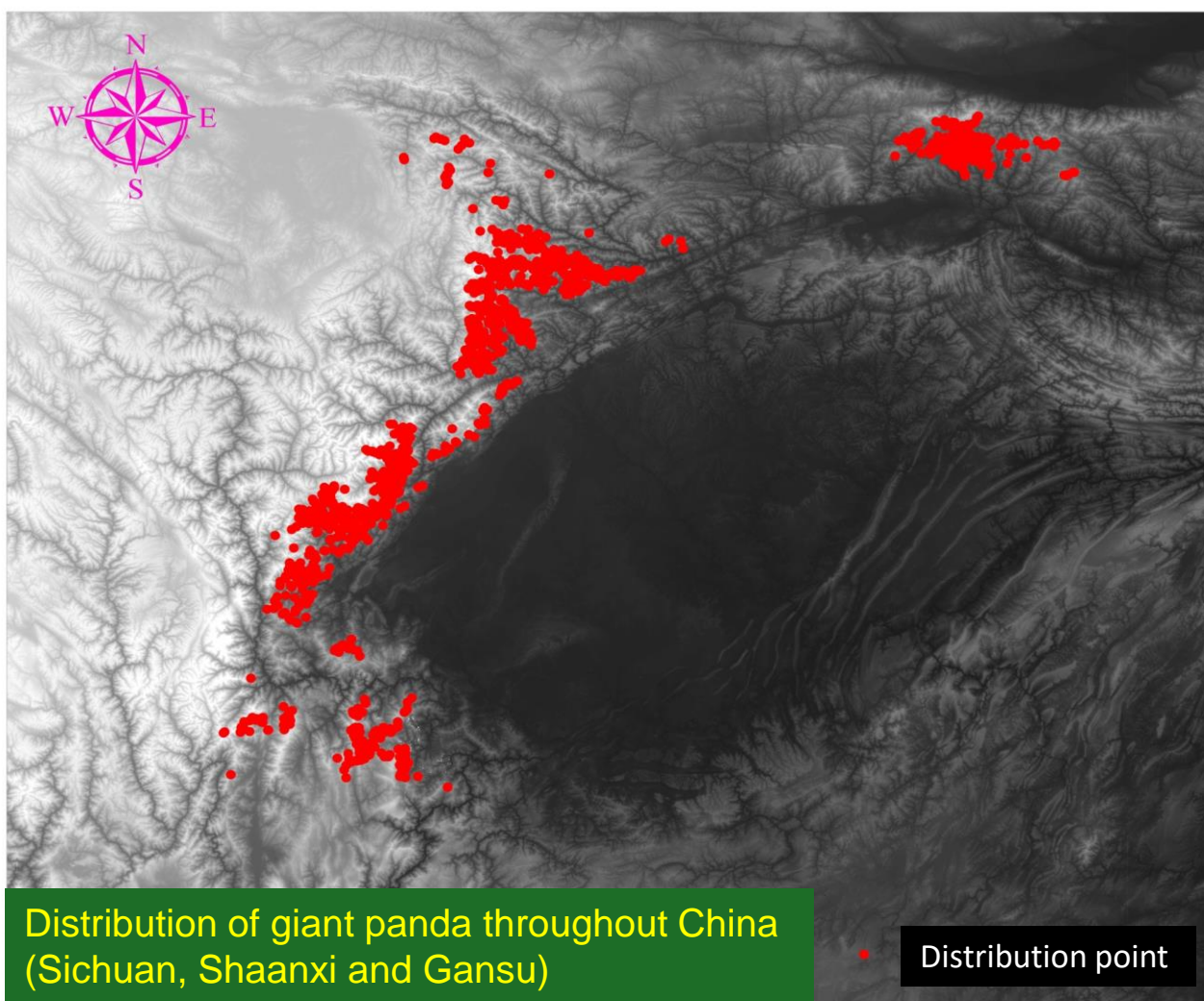


Verify the existing protected areas

Overlay evaluation results



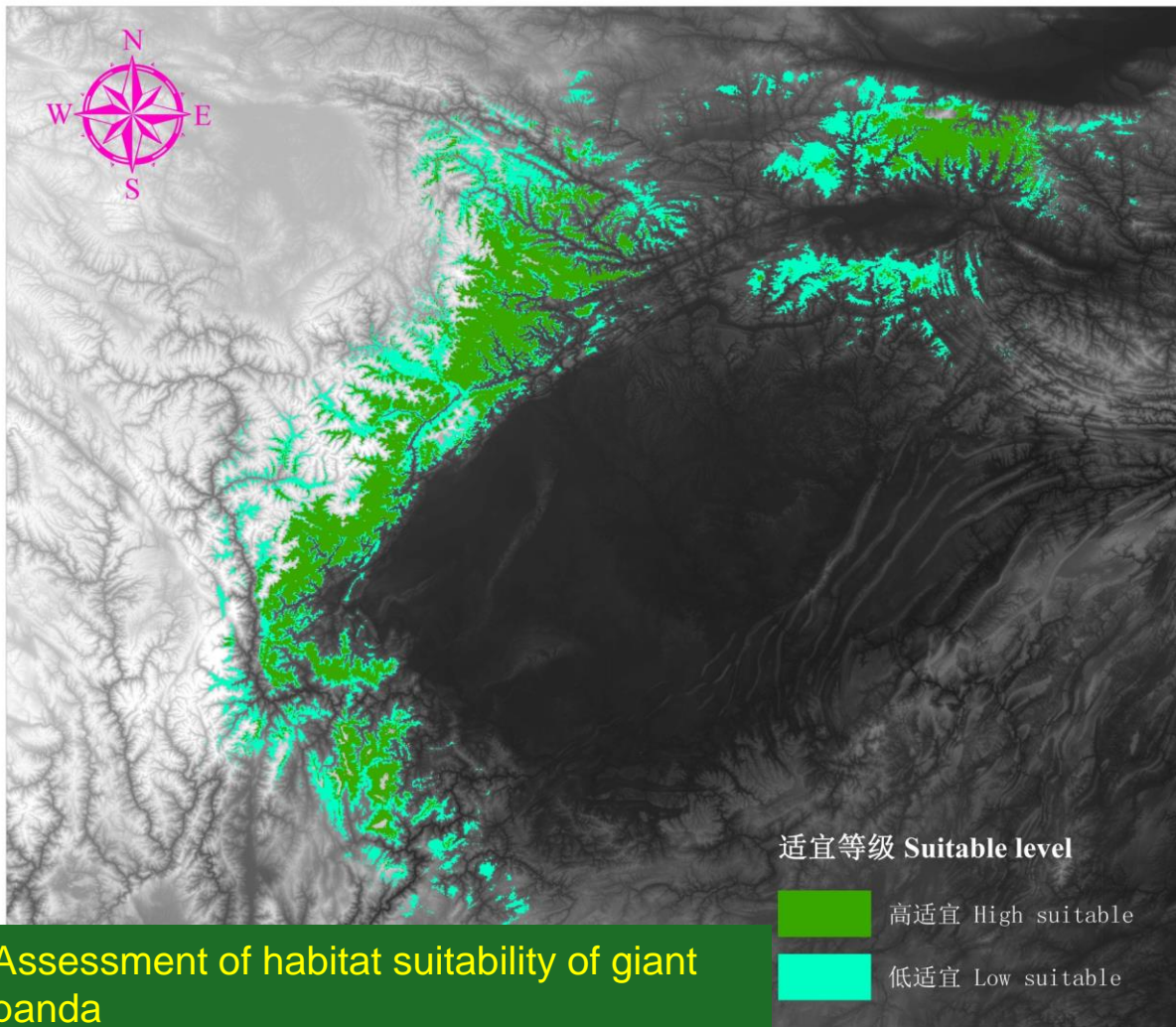
# ECR for giant panda





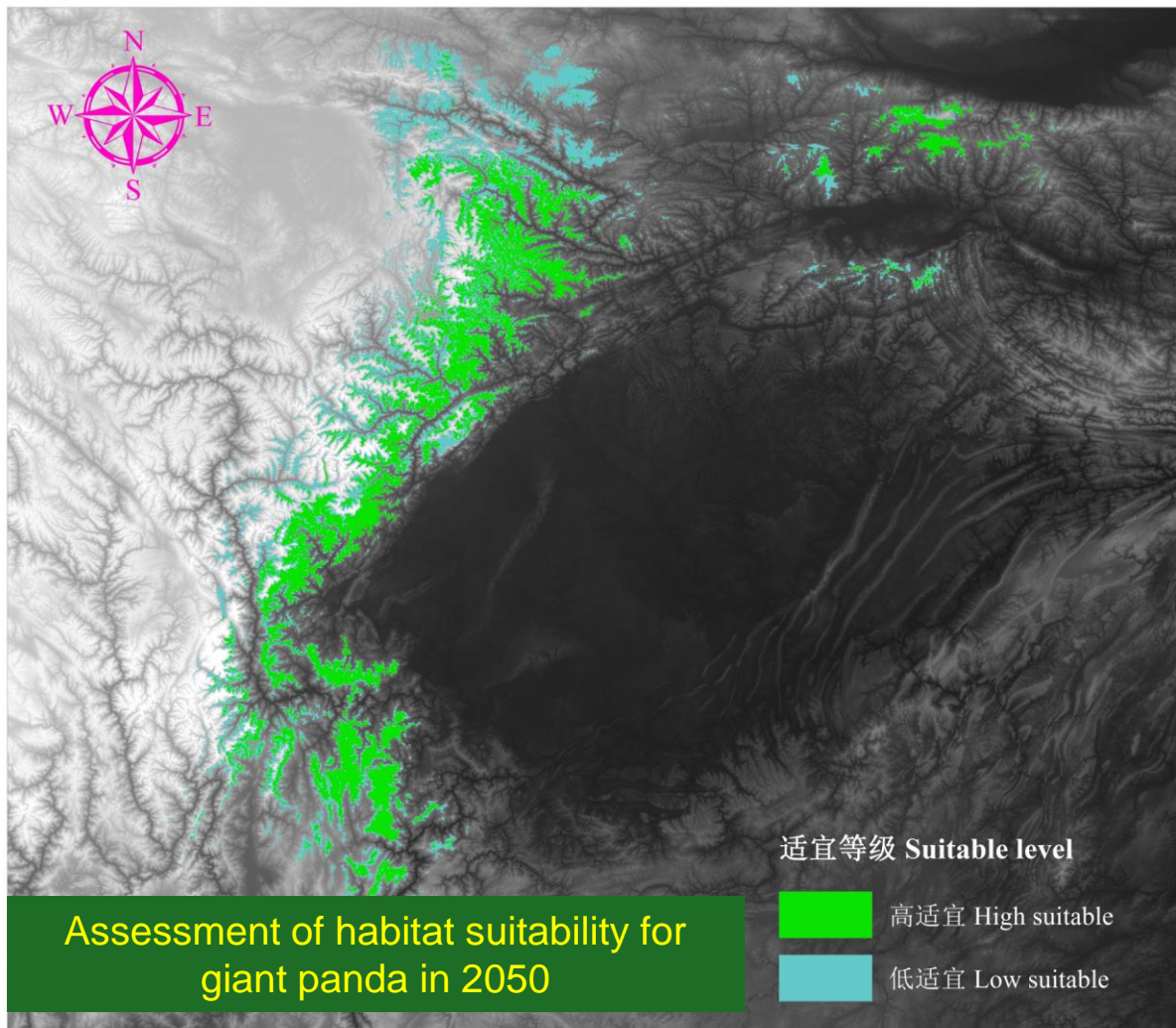
## ECR for giant panda

Assessment of habitat suitability of giant  
panda





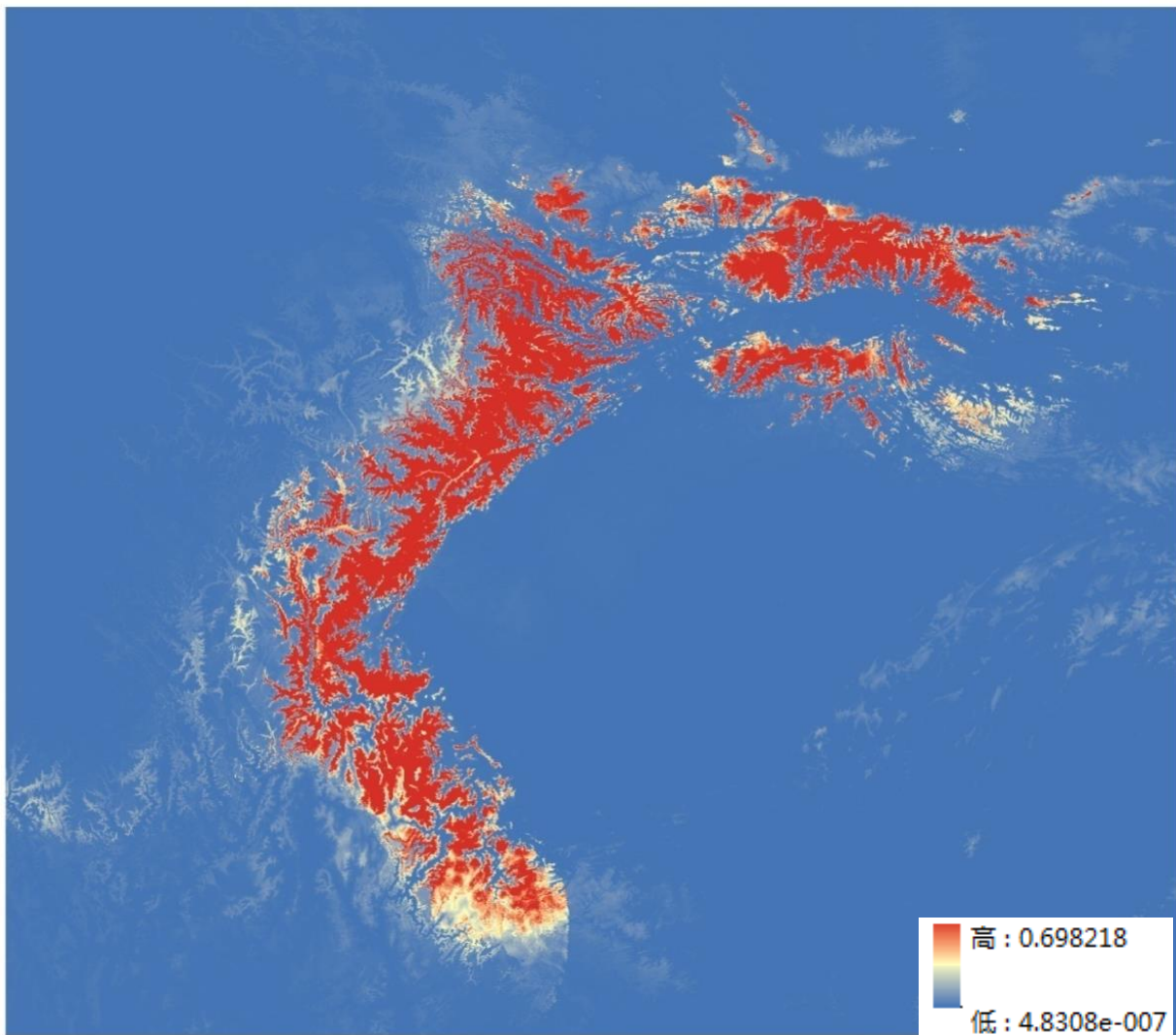
# ECR for giant panda





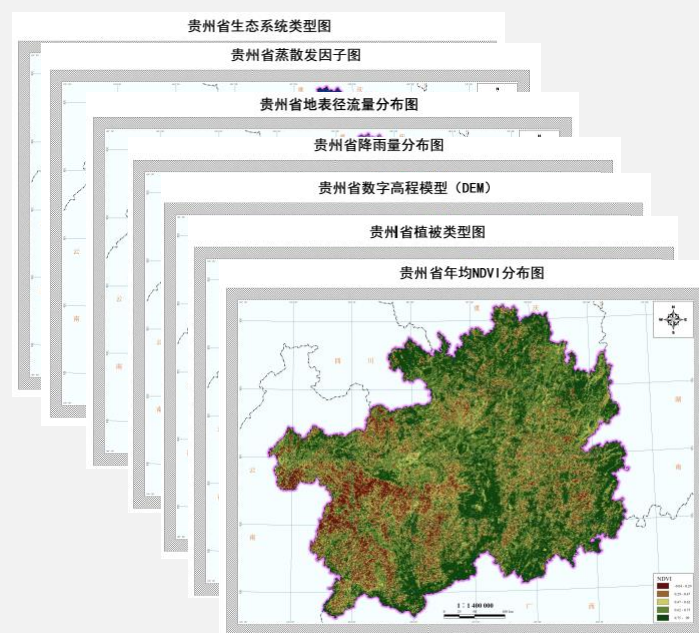
## ECR for giant panda

Suitability index of  
different habitats for  
giant panda

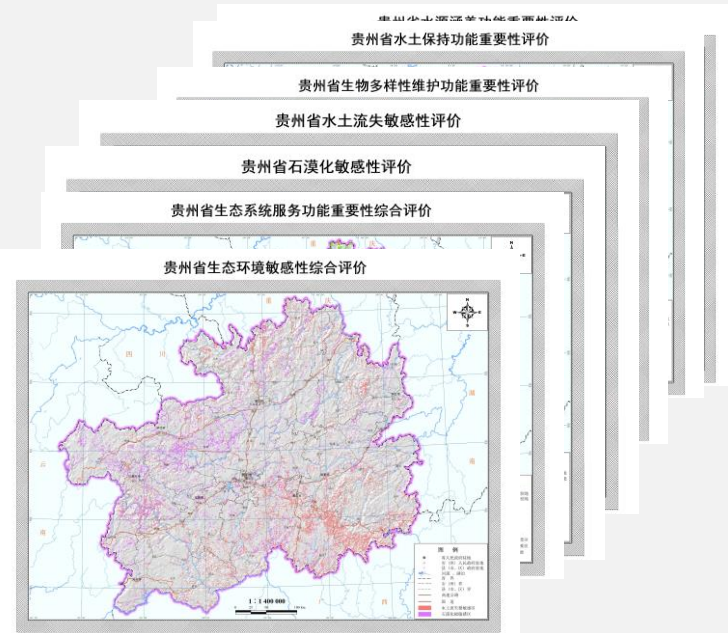


# Single factor ecological assessment results overlay (Guizhou province)

Collect datasets required  
for evaluation

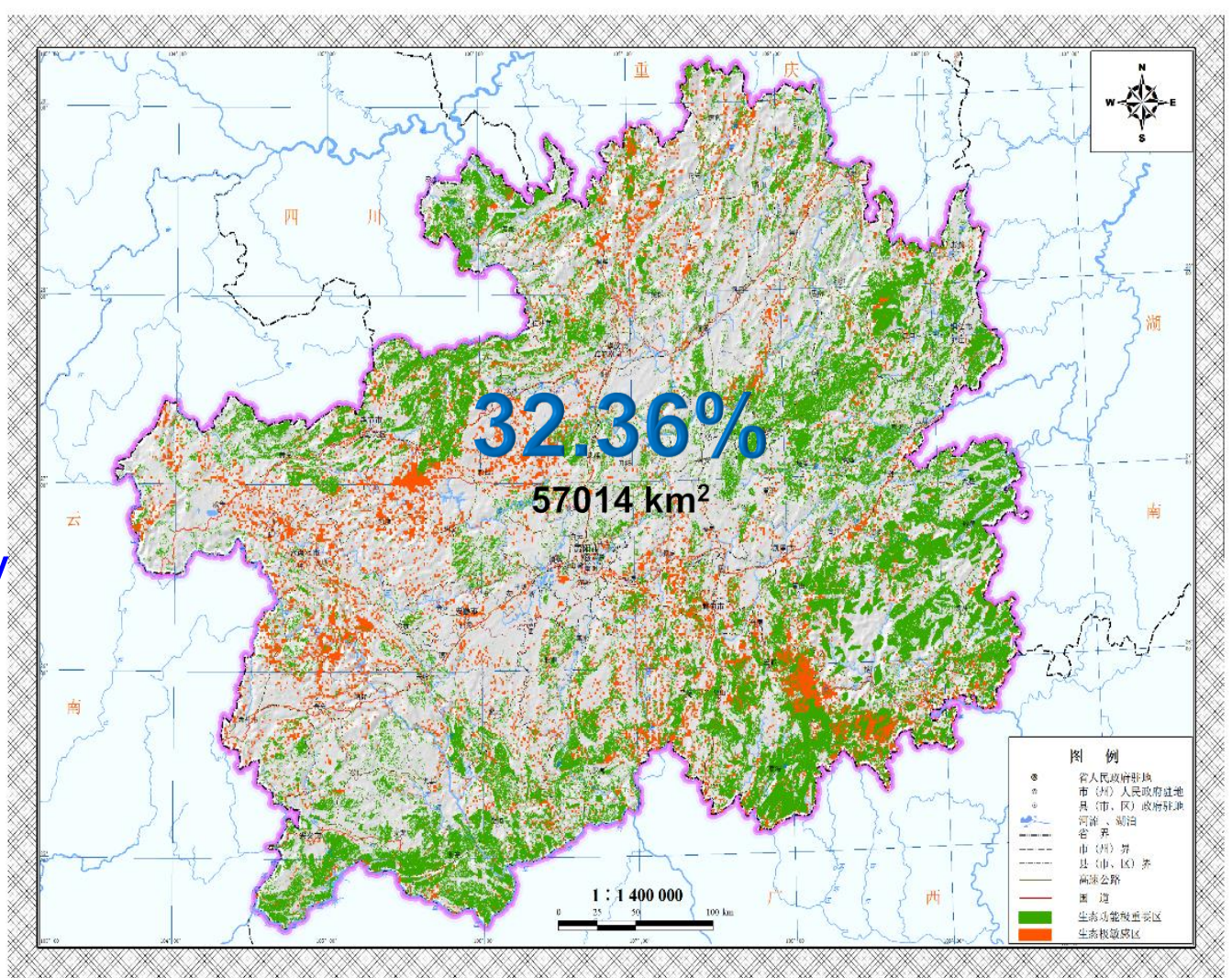


Overlay all the evaluation  
results





Map for extremely important ecological-function areas and ecologically sensitive areas (Guizhou province)



# All existing protected areas shall be included

Covering all the national and provincial development prohibited zones, and other protected areas

Nature reserves



Wetland parks



Forest parks



Scenic spots



Geological park



Drinking water sources



Natural and cultural heritages



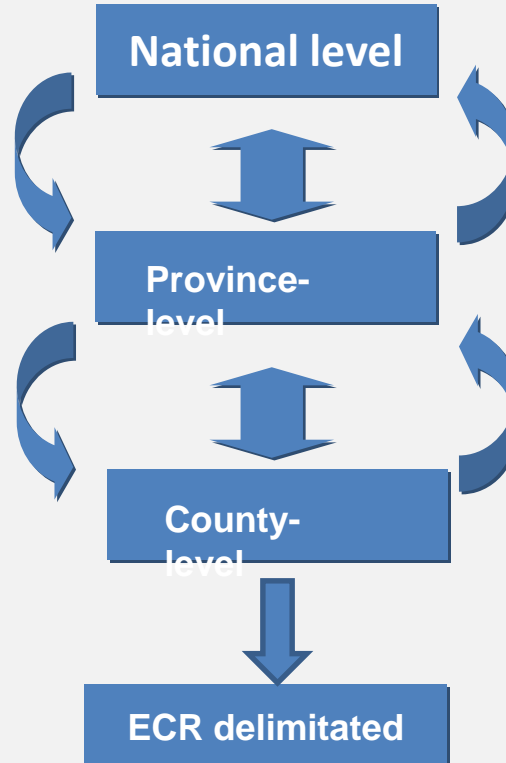
- National parks
- Aquatic germplasm resources protection areas
- National public welfare forest
- Important wetlands (including coastal wetlands)
- .....

# Top-down and bottom-up mixed working model

## Top down approach

Ensure key areas related to national and regional ecological security included in ECR

Focus on ecosystem integrity and management feasibility



## Bottom up approach

Keep an open mind to local opinions and coordinate with relevant plans for stakeholders

Land boundary with high level of resolution at county level

# Communications with related departments



- Ecology and Environment Department
- Commission of Development and Reform
- Department of natural resources
- Water Resources Department
- Bureau of Surveying, Mapping and Geoinformation
- Meteorological Bureau
- .....

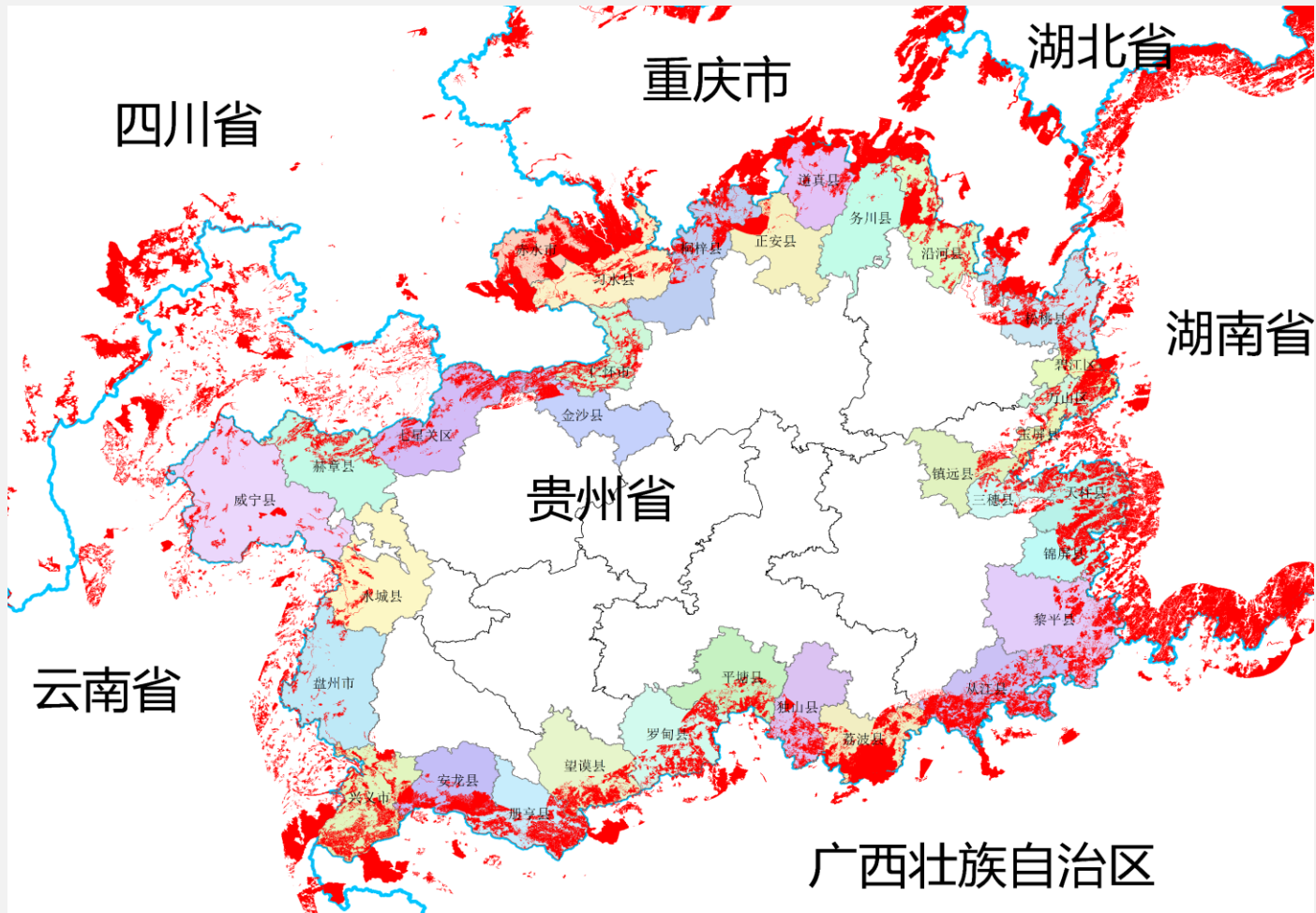
# Communications with the local governments

Keep an open mind to local opinions and reaching consensus after revision.



# Coordination at political boundaries

Guizhou has 32 counties bordering 37 counties in five provinces (Yunnan, Sichuan, Chongqing, Hunan and Guangxi).



# Niu shou - Zu tang scenic area

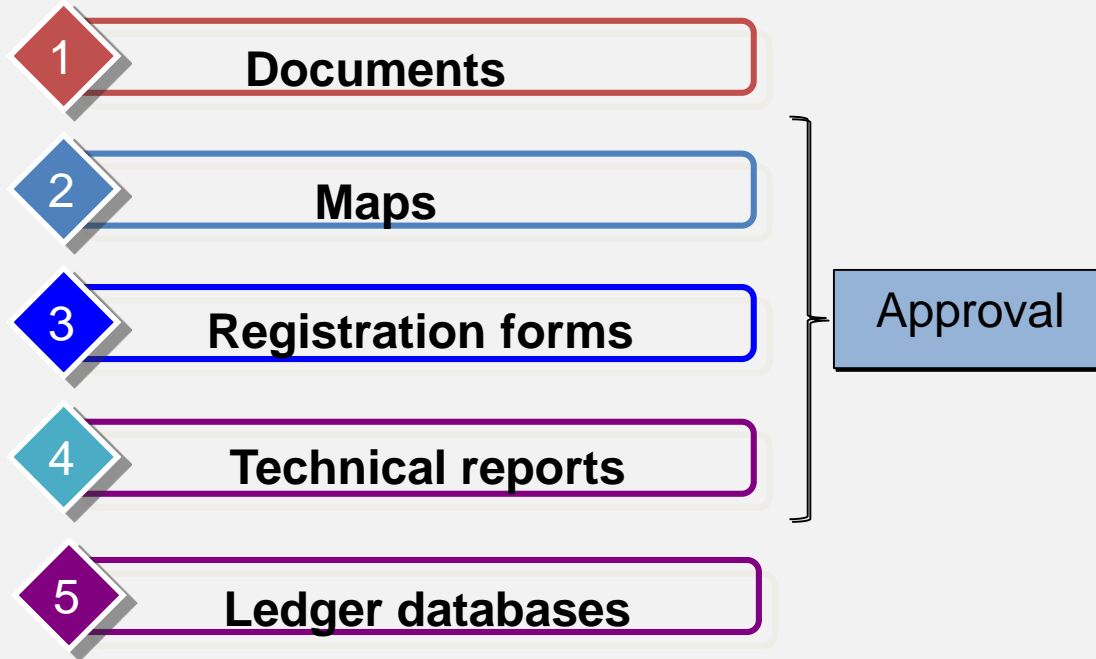
Area:24.29km<sup>2</sup>

Bulletin board: 8

Boundary marker: 333

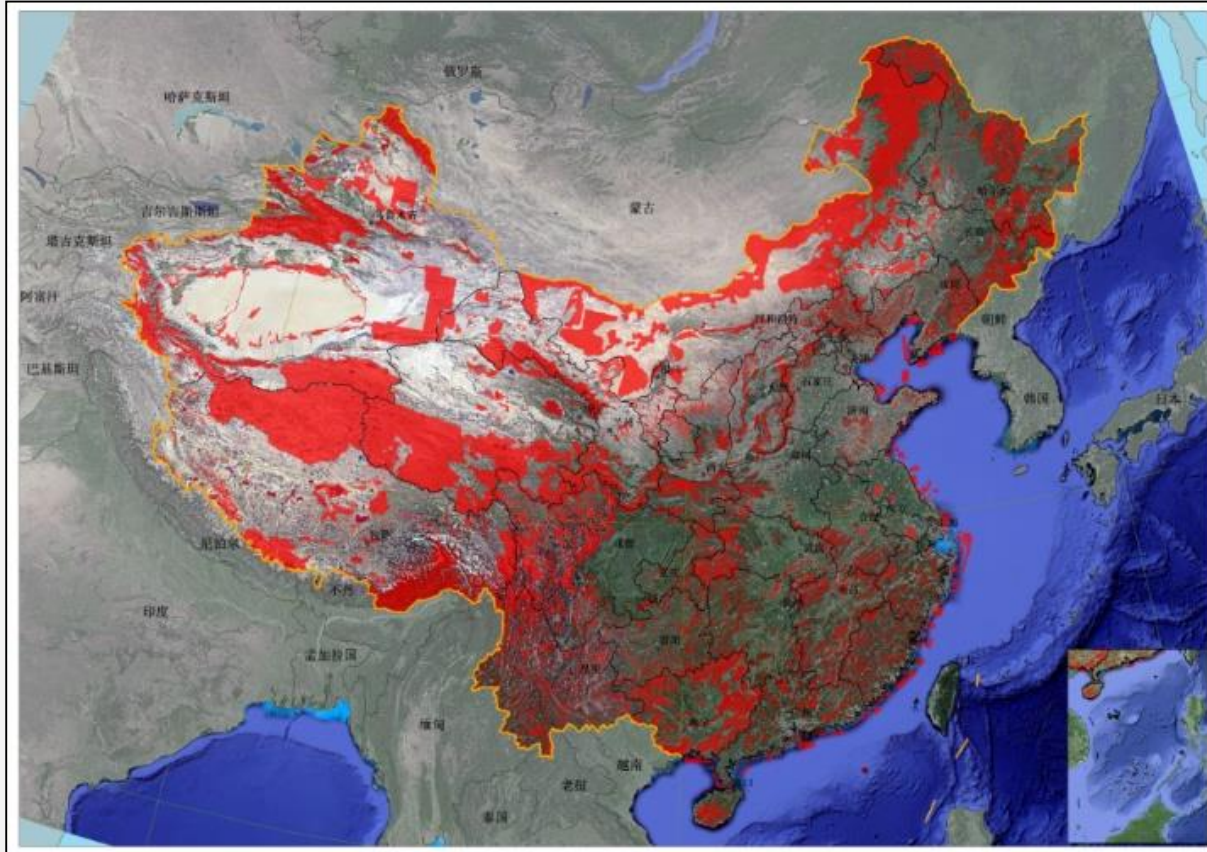


# Procedure for ECR delimitation at province level



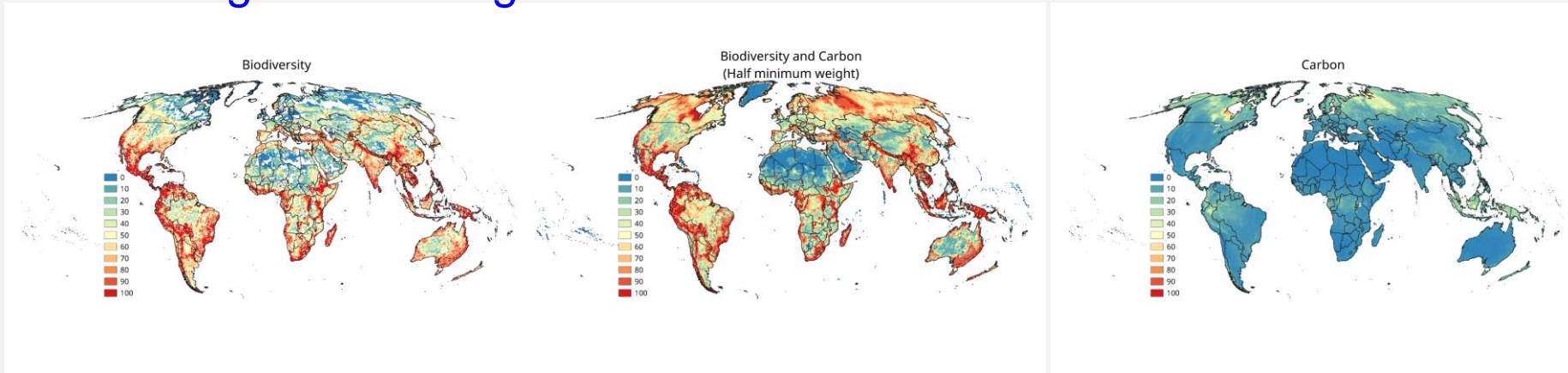


# A preliminary ECR map for China



# Chinese Academy of Sciences partnership with Nature Map

- Develop China Nature Map and include carbon in ecological redline;
- Share data and methodologies;
- Support BRI and other countries wishing to develop their version of ecological redlining.





Thanks

Gutianshan National Nature Reserve, 2019