Biodiversity Assessment and Monitoring Framework in China

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Part I Biodiversity Assessment in China

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- Background and Methods
- Species Richness Hotpots
- Conservation Gaps

Background and Methods

• The spatial patterns of China's species richness remain poorly documented, even though considerable progress has been made in empirical description of biogeography and quantitative analysis of partial taxa.





- Under the auspices of the Ministry of Environmental Protection of China, the National Biodiversity Assessment Program (NBAP) was initiated in January 2007 and completed in March 2012.
- We considered wild vascular plants, fish, amphibians, reptiles, birds and mammals in the terrestrial and inland water ecosystems of China.
- We used 'county' as the basic assessment unit. Urban areas of a municipality, Hong Kong and Macau were considered as one







- We collected richness data through three means:
- Species distribution information in Flora of China, Fauna of China, provincial and local monographs on plants and animals, and other relevant literatures;
- ➤ Collection information of specimens in herbariums of the Chinese Academy of Sciences and relevant universities (some information is uploaded in the Chinese Virtual Herbarium: http://www.cvh.org.cn);
- > Field surveys in different regions by different institutions and experts.



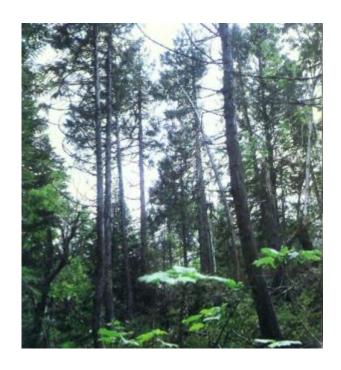
• We established a data set of wild vascular plants and vertebrates that is based on 2376 counties and covers most of the vascular plants and vertebrates native to China, with 34 023 plant species belonging to 303 families and 3103 genera, and 3865 vertebrates, including 1142 fish species, 373 amphibian species, 388 reptile species, 1339 bird species and 617 mammal species.





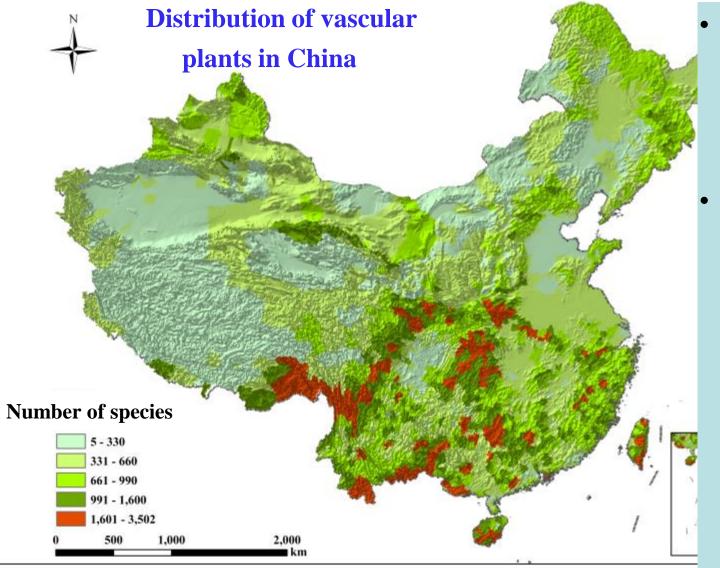
• The dataset was peer reviewed by taxonomists specialized in specific taxon across China. More than 20 workshops were held for the review, with 85 taxonomists from the Chinese Academy of Sciences (CAS) and universities involved in the peer view.



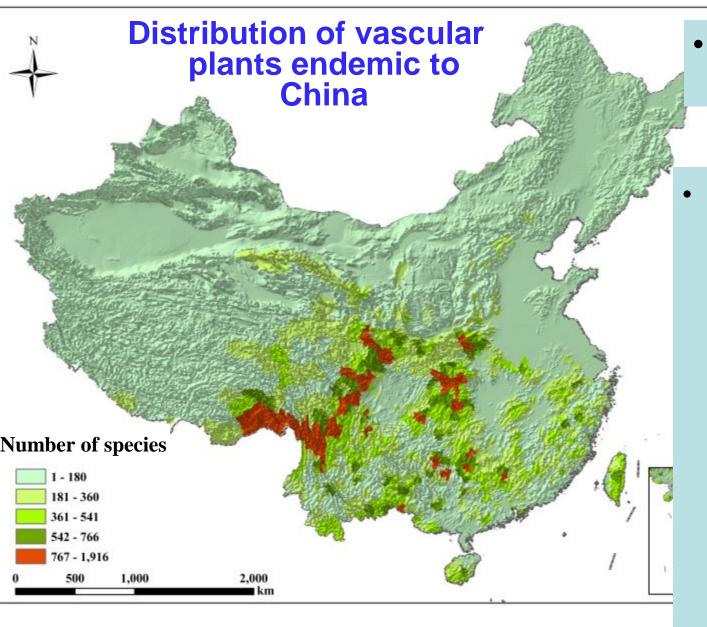


Species Richness Hotspots

• 34039 species (subspecies)



- P Red areas are hotspots defined as the richest 5% of county areas for plant richness.
- **Hotspots around** high mountains in the Qinling Mountains and further south, and the southeast section of the **Mount Everest**the Hengduan **Mountains and** further east.



 19079 species (subspecies)

Hotspots in Minshan Mt, Qionlaishan Mt, Hengduan Mt, southeast section of the Mount Everest, Qinling Mt, Dabasha Mt, Funiushan Mt, Wuling Mt, and Nanling Mt, etc

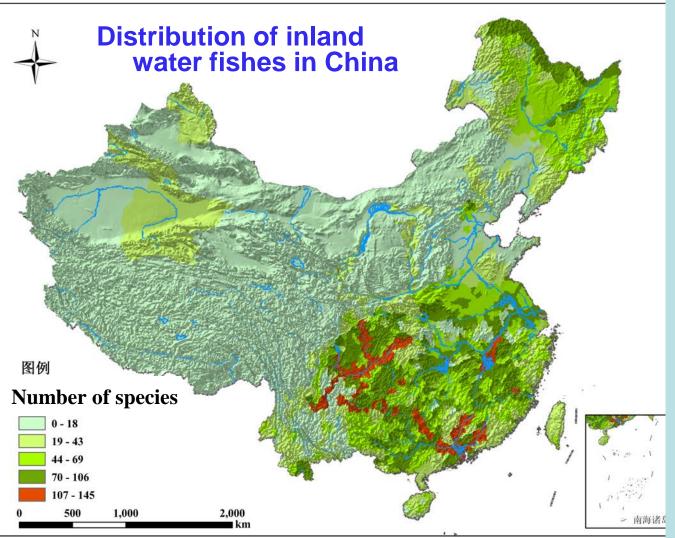
Distribution of endangered vascular plants in China **Number of species** 11 - 2081 - 374

1,000

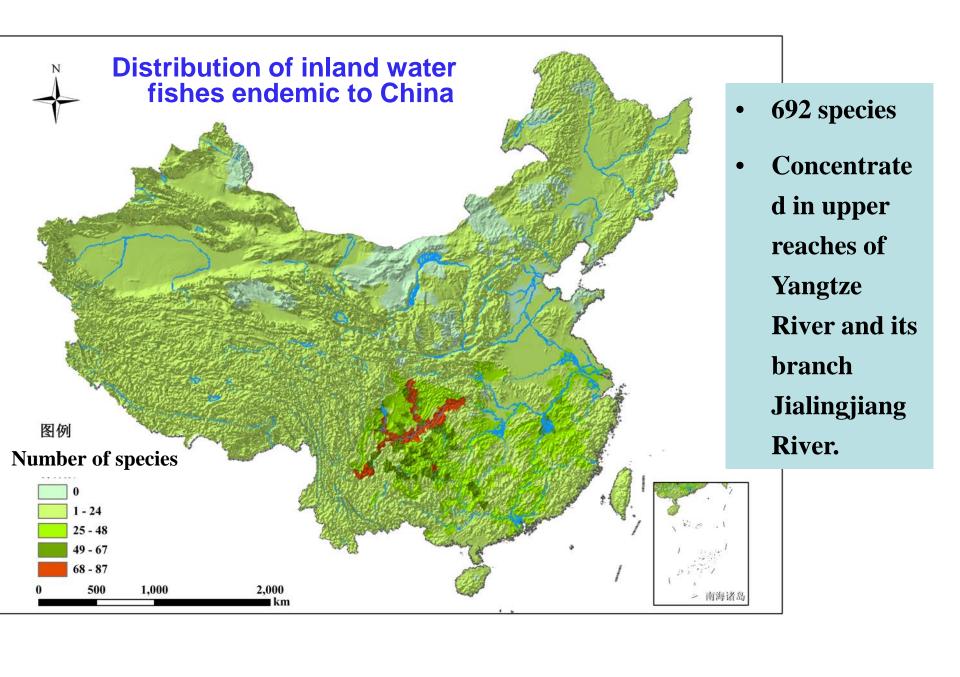
2,000

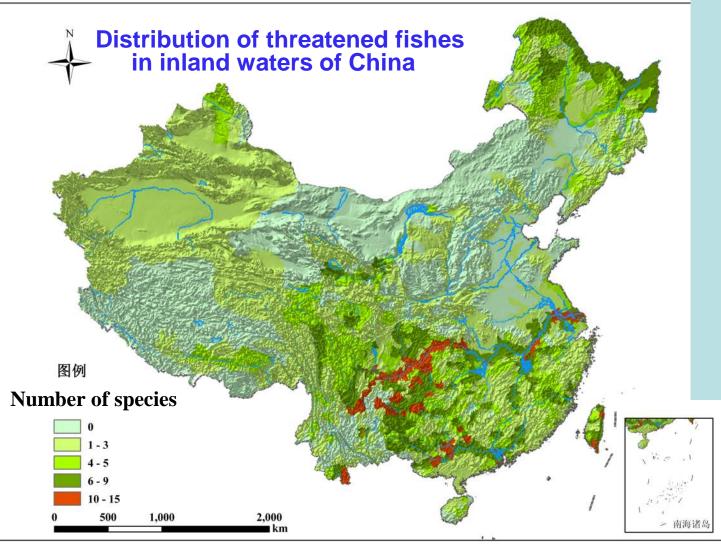
3650 species
 (subspecies)

 Consentrated in the Qinling
 Mountains and further south, and the Hengduan
 Mountains and further east.



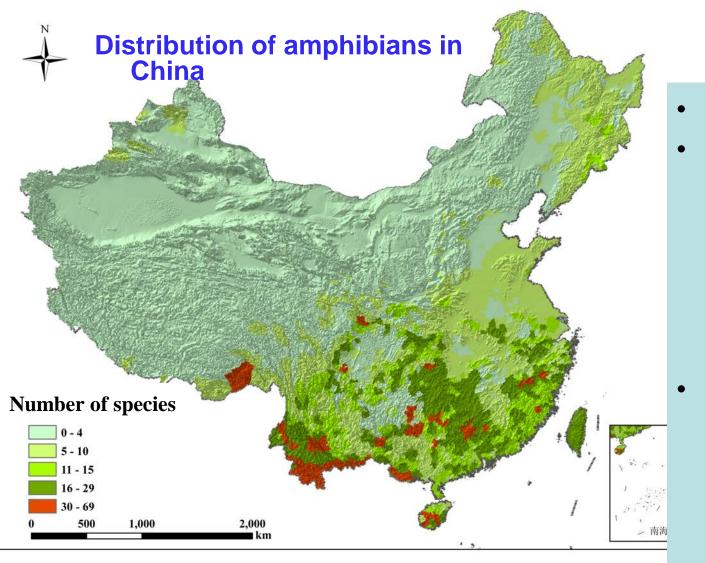
- 1142 species (subspecies)
- Red areas are hotspots defined as the richest 2.5% of county areas for fish richness.
- reaches of Yangtze
 River and its branch
 Jialingjiang River,
 Wujiang River,
 Pearl River,
 Minjiang River,
 Poyanghu Lake and
 Dongtinghu Lake.



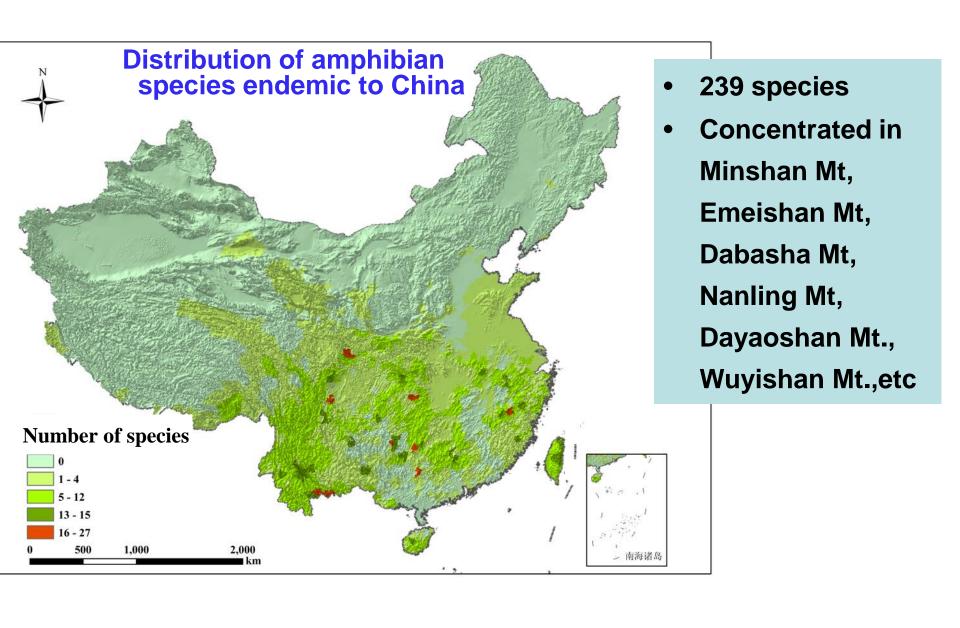


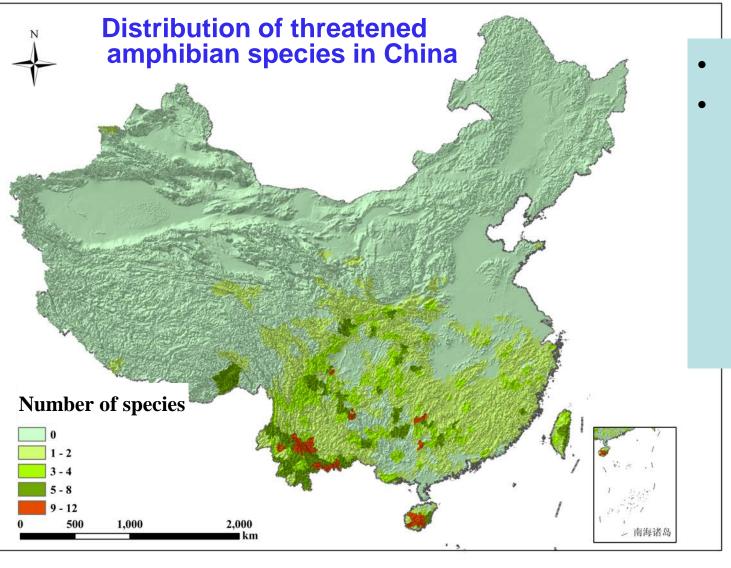
• 173 species.

Concentrated in upper reaches of **Yangtze River** and its estuary, Xijiang River, Pearl River, Poyanghu Lake, Dongtinghu Lake, and regions in south Taiwan and northeast Taiwan.



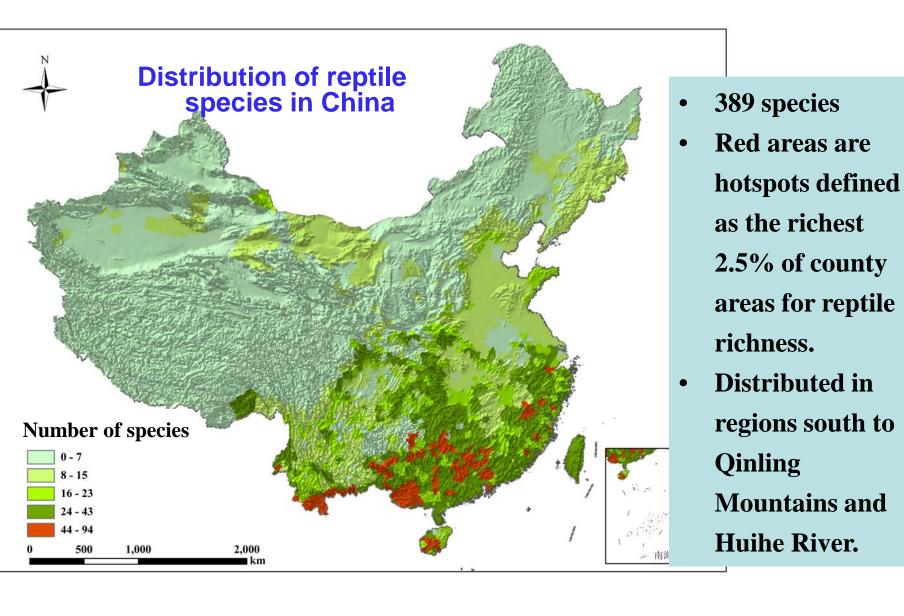
- 384 species
- Red areas are
 hotspots defined as
 the richest 2.5% of
 county areas for
 amphibian
 richness.
- Distributed in regions south to Qinling Mountains and Huihe River.

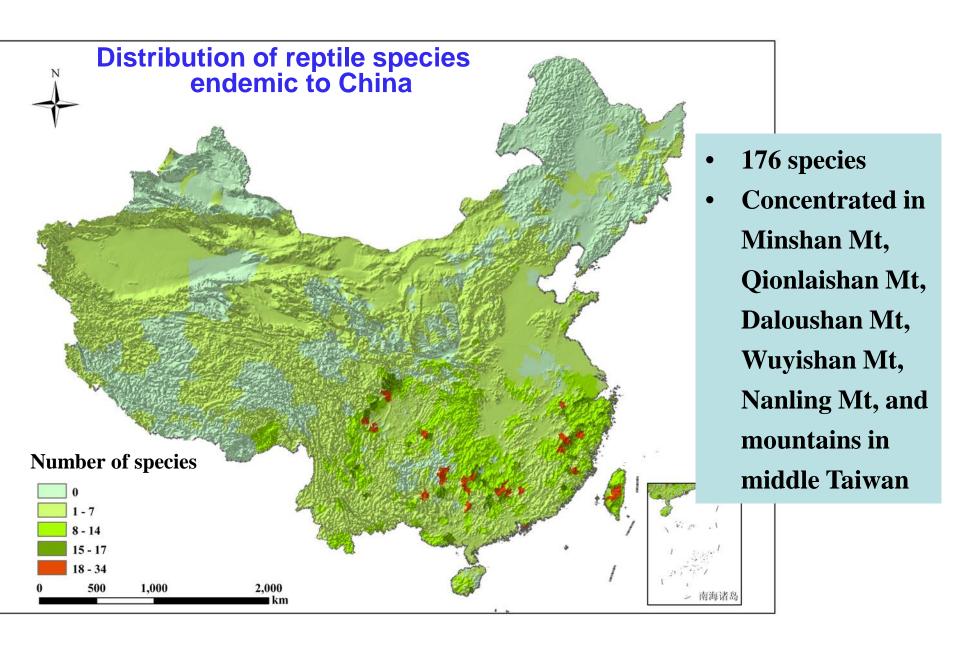


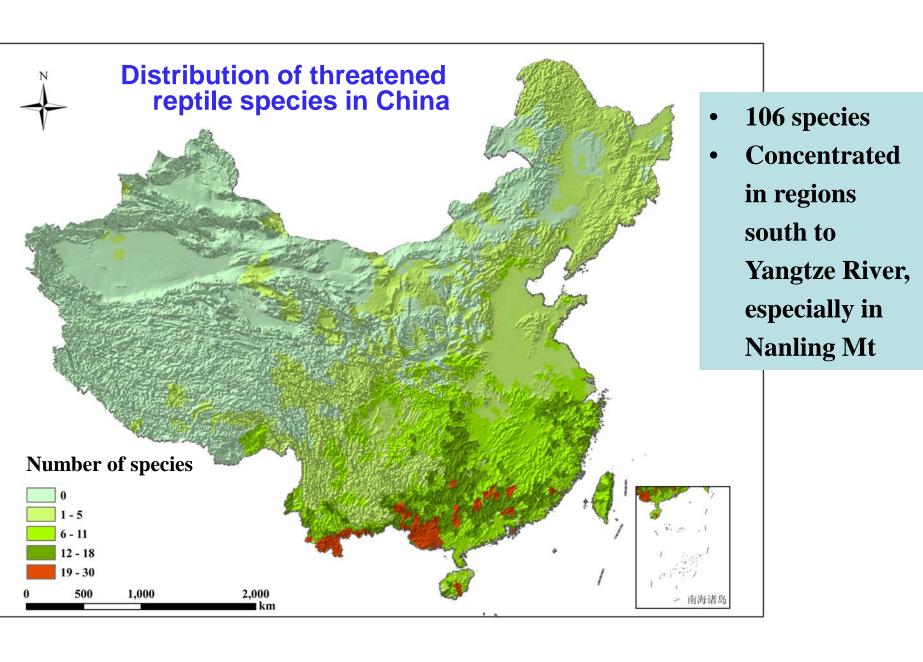


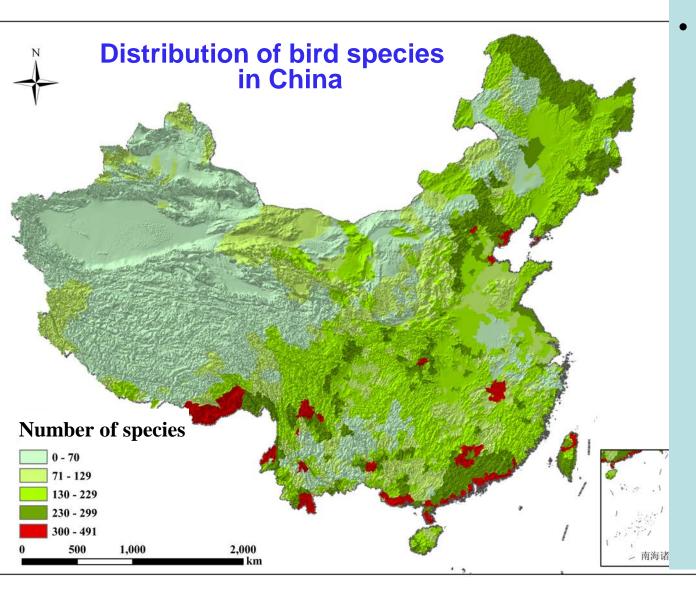
• 112 species

 Concentrated in Emeishan Mt, Ailaoshan Mt, Wuliangshan Mt, Nanling Mt, Wuzhishan Mt.,etc.

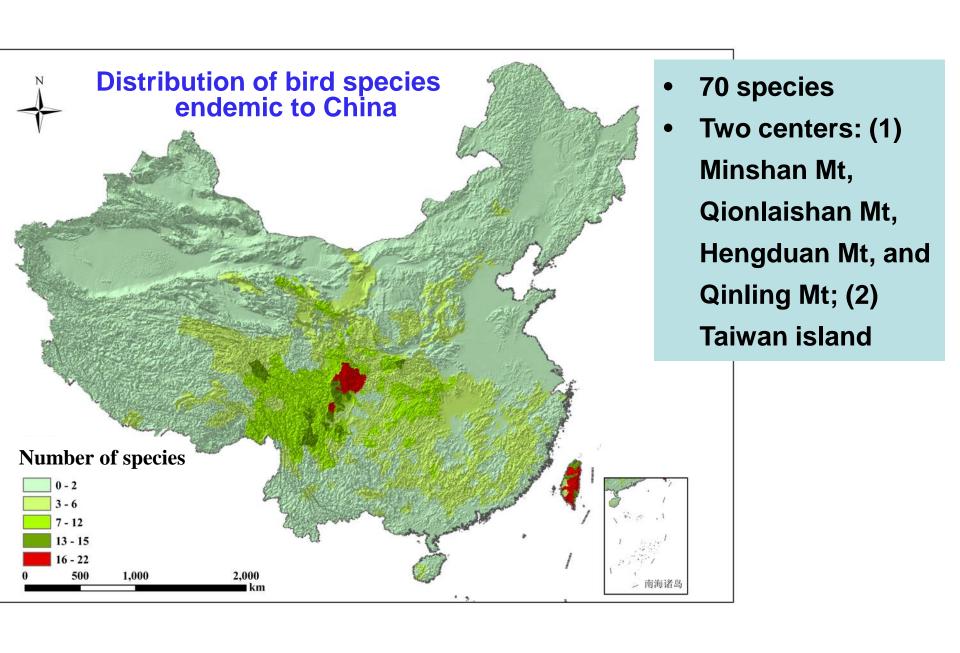


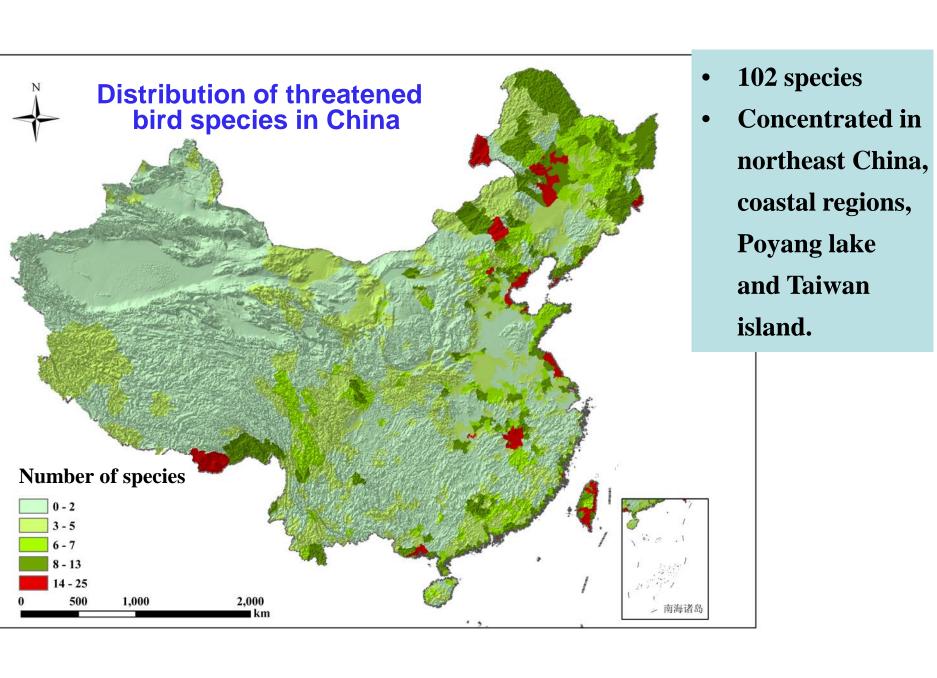


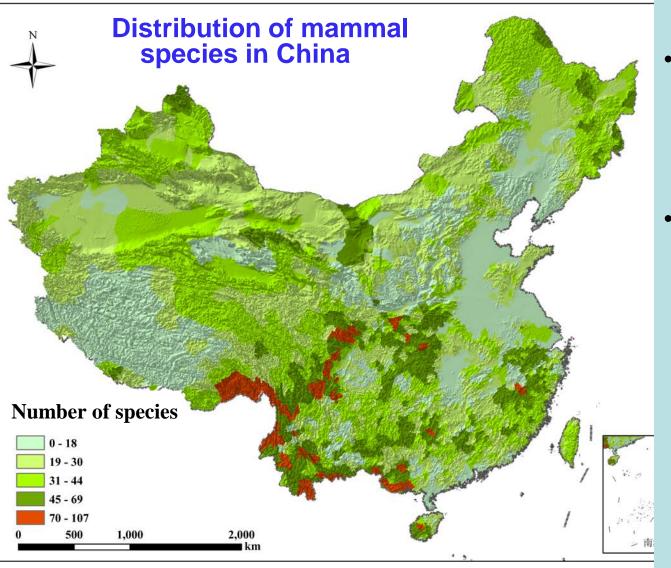




- **1339** species
 - **Concentrated in** coastal Bohai regions, Taiwan island, coastal regions in Guangdong and Guangxi, Poyanghu lake, southeast Tibet, Hengdunshan Mt., northwest Yunnan, Xishuangbanna region.

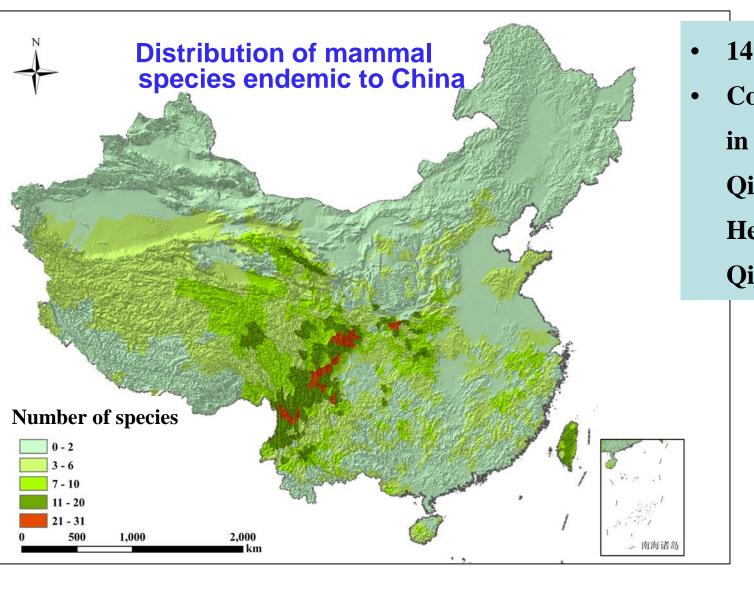






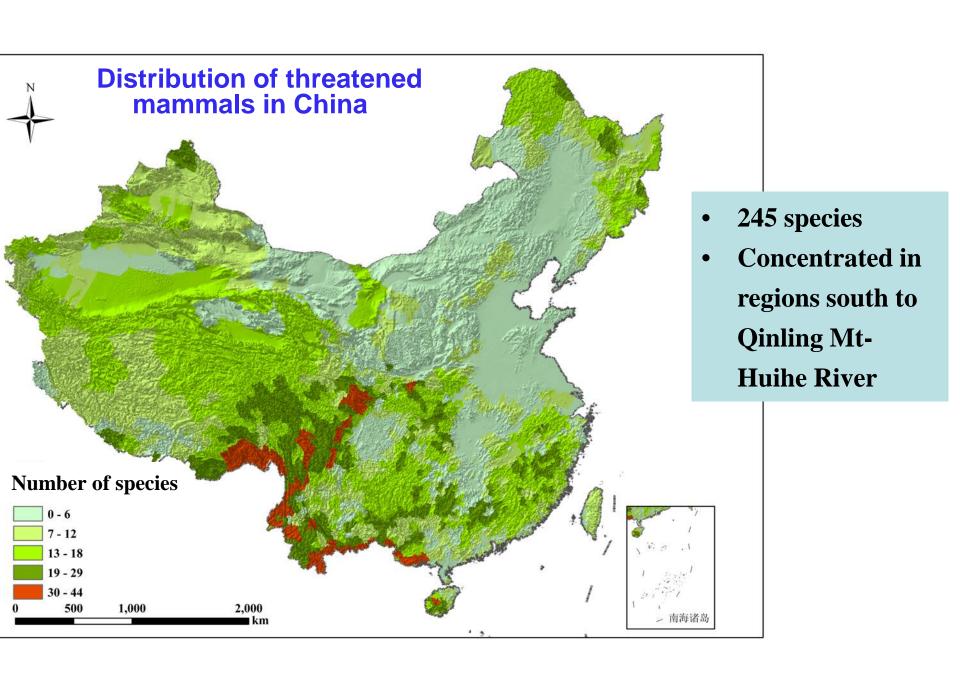
- 611 (not including marine mammals)
- Red areas are hotspots defined as the richest
 2.5% of county areas for mammal richness.
 - **Concentrated in** Minshan Mt, Qionlaishan Mt, Hengduan Mt, southeast section of the Mount Everest, Qinling Mt, Dabasha Mt, Wuyishan Mt, Xishuangbanna region, southwest Guangxi

mountains

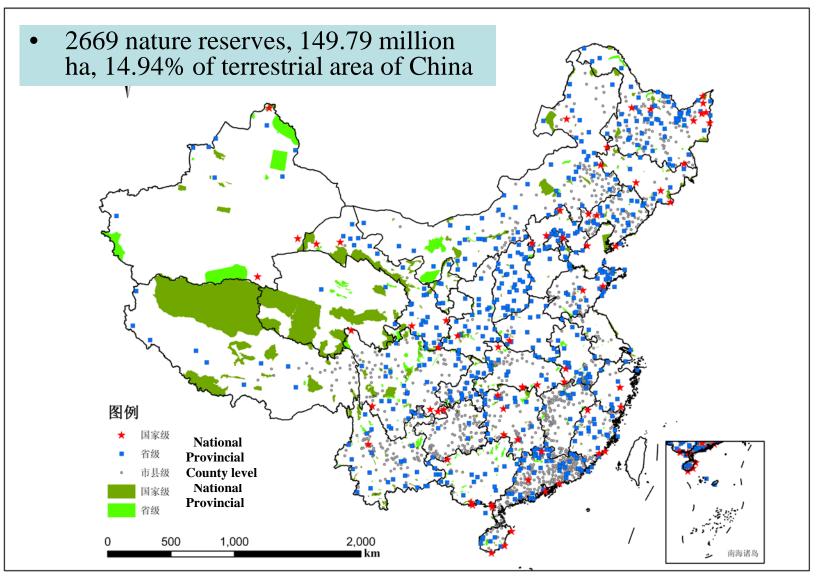


• 146 species

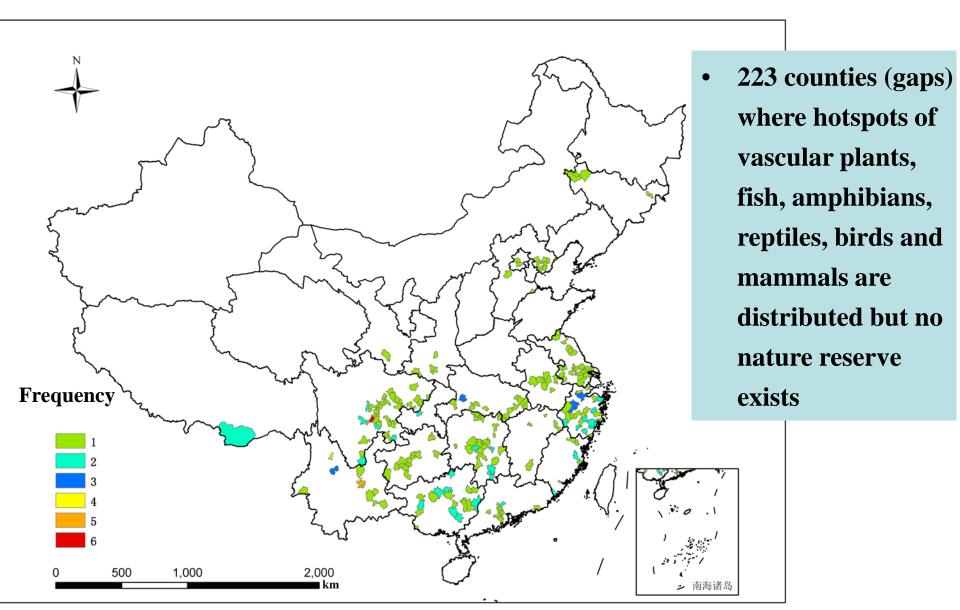
Concentrated
 in Minshan Mt,
 Qionlaishan Mt,
 Hengduan Mt,
 Qinling Mt.



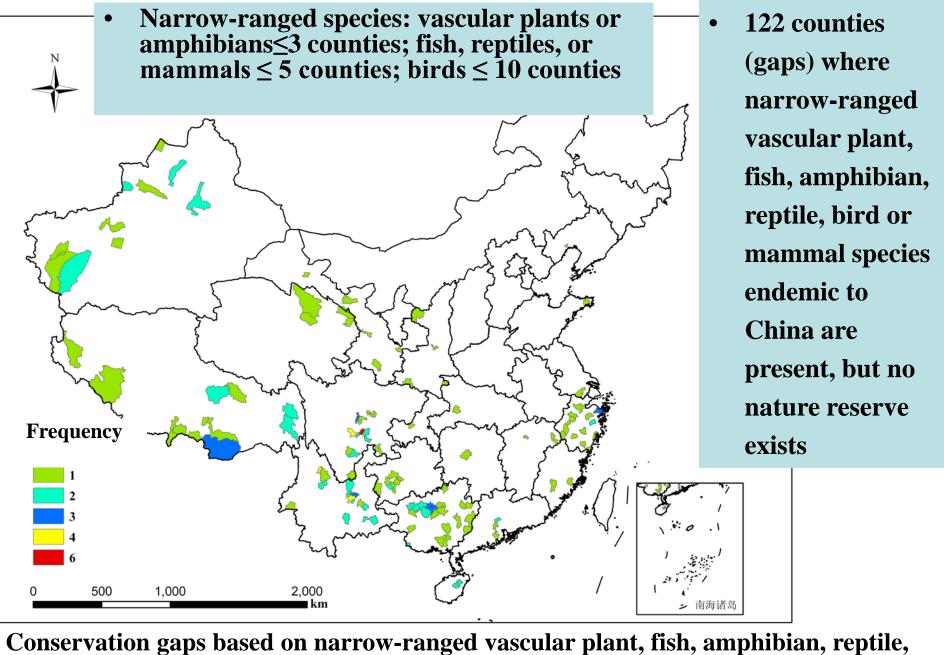
Conservation Gaps



Distribution of nature reserves in China



Conservation gaps based on richness of vascular plants, fish, amphibians, reptiles, birds and mammals (Frequency in the figure means the times that a unit was treated as a gap)



bird and mammal species endemic to China (Frequency in the figure means the times that a unit was treated as a gap)

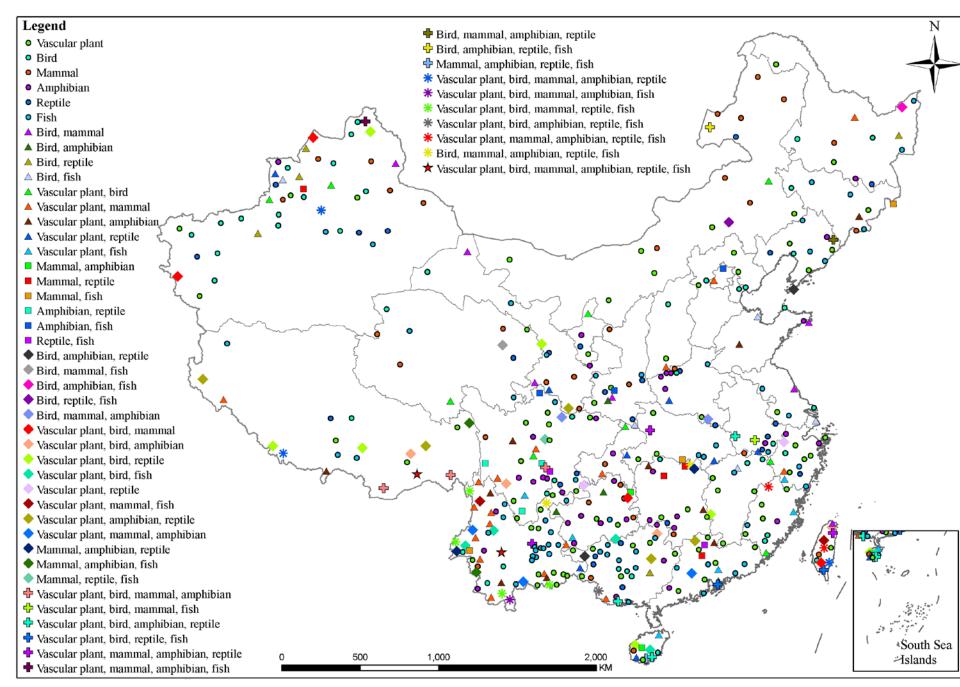
Part II Biodiversity Monitoring Framework in China

Contents

- Background and Methods
- Sampling Sites for Monitoring
- Current Work

Background and Methods

- Monitoring objects: vascular plants, fishes, amphibians, reptiles, birds and mammals
- Target: Minimum sampling points covering maximum species
- Methods: Complementary analysis and expert knowledge
- Data source: Biodiversity assessment data

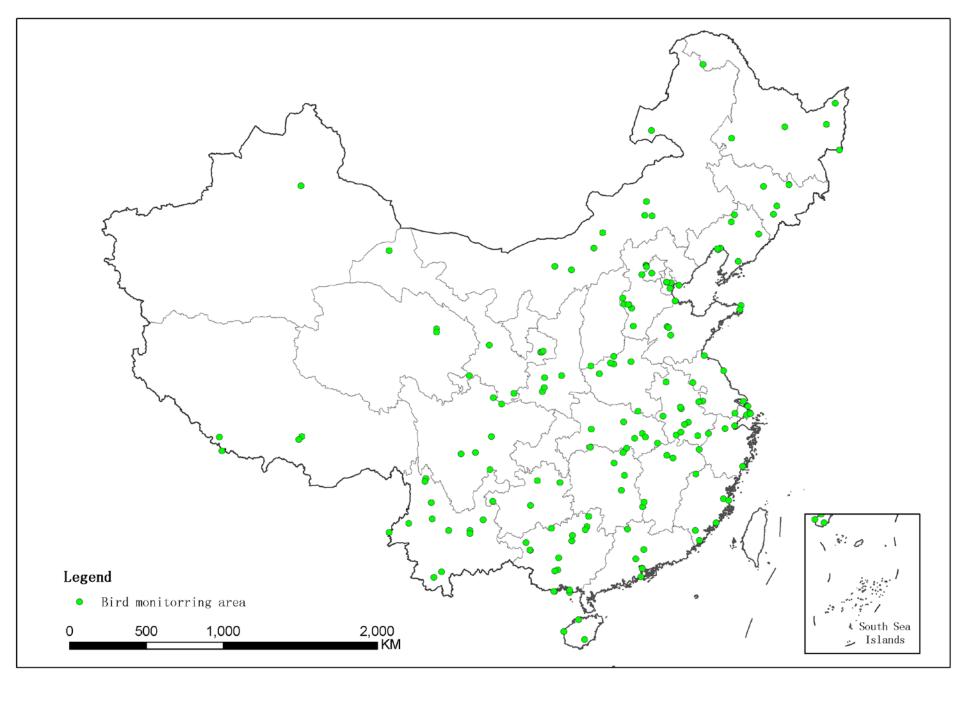


Sampling sites for monitoring

Current work

- MEP has established bird and amphibian monitoring programmes in China since 2011.
- More than 300 experts participated in the monitoring programme
- Monitor biodiversity every year



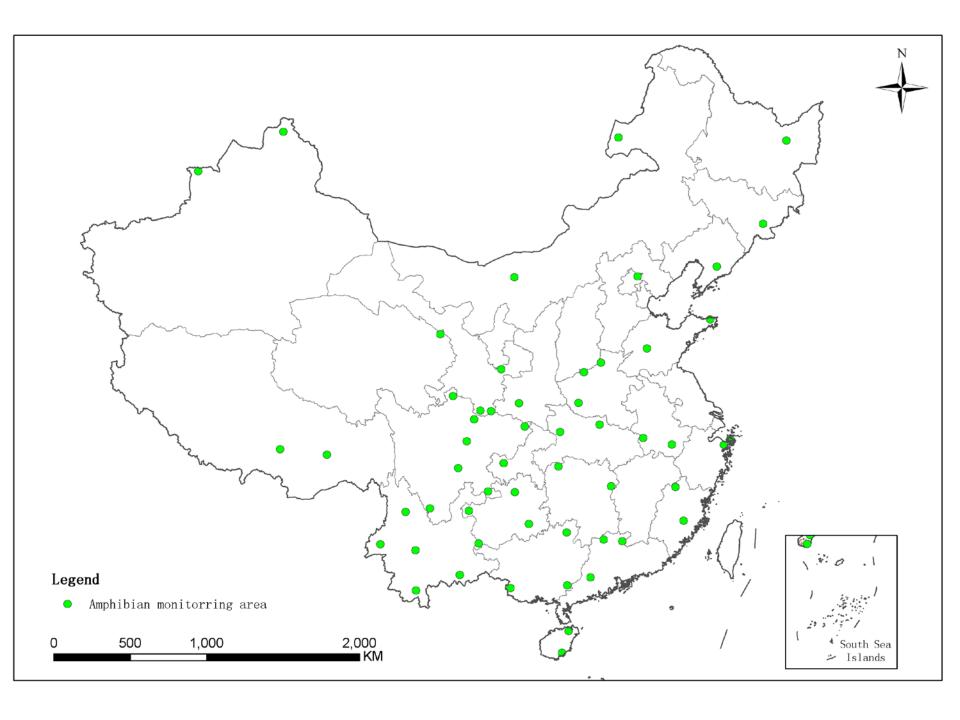


Methods for bird monitoring

- Breeding birds:
 - Line transect
- Wintering birds:
 - Counting method



	第十次((Line transe	ct)鸟类调查	登记录表			
日月		2013.5.28	天气情况	青况 多云		2 t	25-34°C	
观察人		加大林	记录人	31273	样线编号		桂址AI	
地点			郊区半塘				150-167 m	
起点 GPS 坐标		E 110°19.60	(N 25°15.763	开始时间	F始时间 16:27		样线长度	
终点 GPS 坐标			N 25° 14. 024			3km		
注: 距离	尺度中≤25	m iZ A: >25m≤1	00m iZ B; >100m	记 C: 飞行鸟类				
物种名	称 数	量 距离尺度	生境信息	物种名称	数量	距离尺度	生境信息	
0 公头海	2	A	B13)	9 面层	1	13	B,B	
五麻雅	4	B	E2(5)	可沙遊	1	D		
2 八百	3	D		山館夢	1	A	BIG	
八克	2	A	E 20	的教给	1	A	BIE	
麻木	2	B	Z20 (力小移為	1	D		
八哥	3	3 (B,(3)	后给给	2	4	T,OD	
的北海	3	В	BAD之标本	138 85	1	13	BB	
开教的	1	B	Z23 (国有到	9	В	下,③晚钱	
1 永亮	4	D		品層	1	C	BIB	
敦施	3	A	E2网旗 (B3克斯科多	1+2	0	3,3	
F14/12	7	A	E=@	公义验	2	D	3	
6 以致当	1	A	B, @ (的声松鹃	1	C	BIB也系木	
八哥	2	((2次看术)	田麻省化劳	1	3	下,回处齐才	
1898	1	. A	E20)	残的构物	1+1	B	BB	
10 支车	3	B	最次有术		2	6	BB	
八百	1	C	B/3 (的经验等	1	A	BID	
2 6档线	1	В	E20 (DE 1993	2	B	BID	
麻卷	t	- B	E20)	Bette	6	A	7,00	
8 长尾缝。	增 1	A	Z20	6头彩	3	B	720	
公义至	3	B	B,3	粉粉	1	A	E23	





Line transect





Artificial covers



Artificial refuges

Thank you for your attention!