

Guangzhou, China



What are the top three challenges concerning urban ecological and land use planning and green urban infrastructure development?

- Guangzhou Municipality, with 11 districts covering over 7400 sq.km, population of 18,676,600, diversity on ecological landscape
- Climate change: urban heat, sea level rise
- Break points of ecological network: remediation and increase of green connectivity
- Future urban spatial structure: compact VS. expansion

What actions should be taken to address the challenges?

- Beyond only green: integration of ecosystem services on green infrastructure (eco footprint, biodiversity, food safety, climate resilience, natural cool source, outdoor activities for health)
- Balancing people oriented urban comfort and natural conservation (outdoor activities vs wild nature)
- Green finance: quantify the value of green infrastructure and innovation in cost sharing

Is there any ongoing project (s) and initiative(s) that support ecological planning and green urban infrastructure?

□ Guangzhou Conghua district is carrying out biodiversity conservation. It is a key ecological node in the Greater Bay Area

- Conghua District is located in the northeast of Guangzhou, covering a total area of 1985km^2 , with a population of 719,800. The Tropic of Cancer stretches across the territory, enjoying a subtropical mild climate and a forest coverage rate of 69.1%. It is known as the "botanic garden of Guangzhou" and "Pearl on the Tropic of Cancer".
- As the ecological core area of the Guangdong-Hong Kong-Macao Greater Bay Area, Conghua has integrated biodiversity conservation into the framework of ecological civilization and promoted the long-term benefits for environmental conservation. Advantaged natural assets and appropriate intervention together provides a lively habitats for various creatures.



Regional and metropolitan context of Conghua district

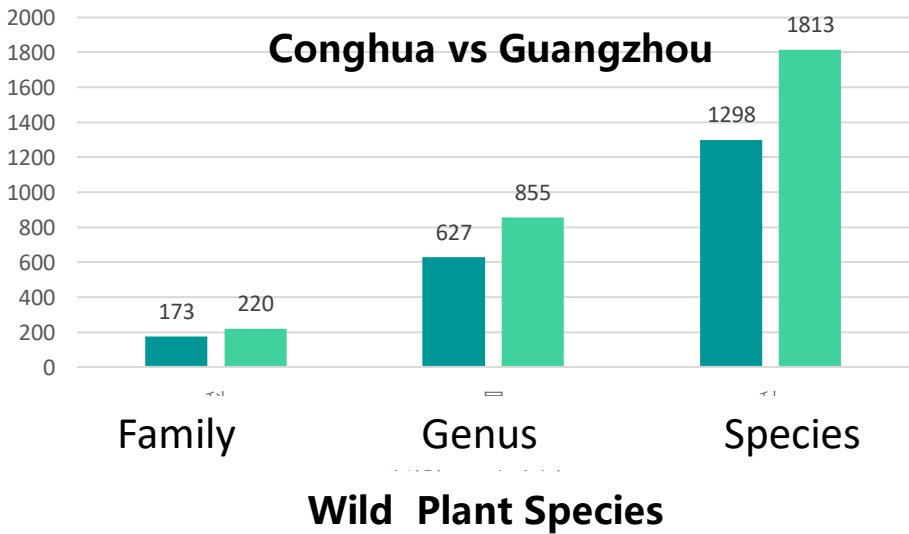
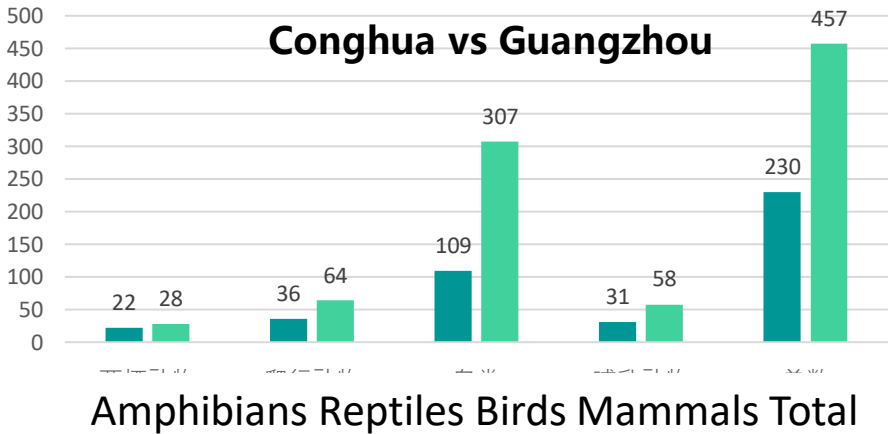
Is there any ongoing project (s) and initiative(s) that support ecological planning and green urban infrastructure?

□ Biodiversity in Conghua district is an important embodiment of biodiversity in Guangzhou

- According to the survey, the biodiversity of Conghua district is relatively rich, among which the number of wild animals in Conghua district accounts for more than 50% of the diversity level of Guangzhou city, and plant species contribute 72% of the diversity level of Guangzhou City.
- Conghua has more than 50 percent of the national rare and endangered species.

从化区国家重点保护野生动物一览表

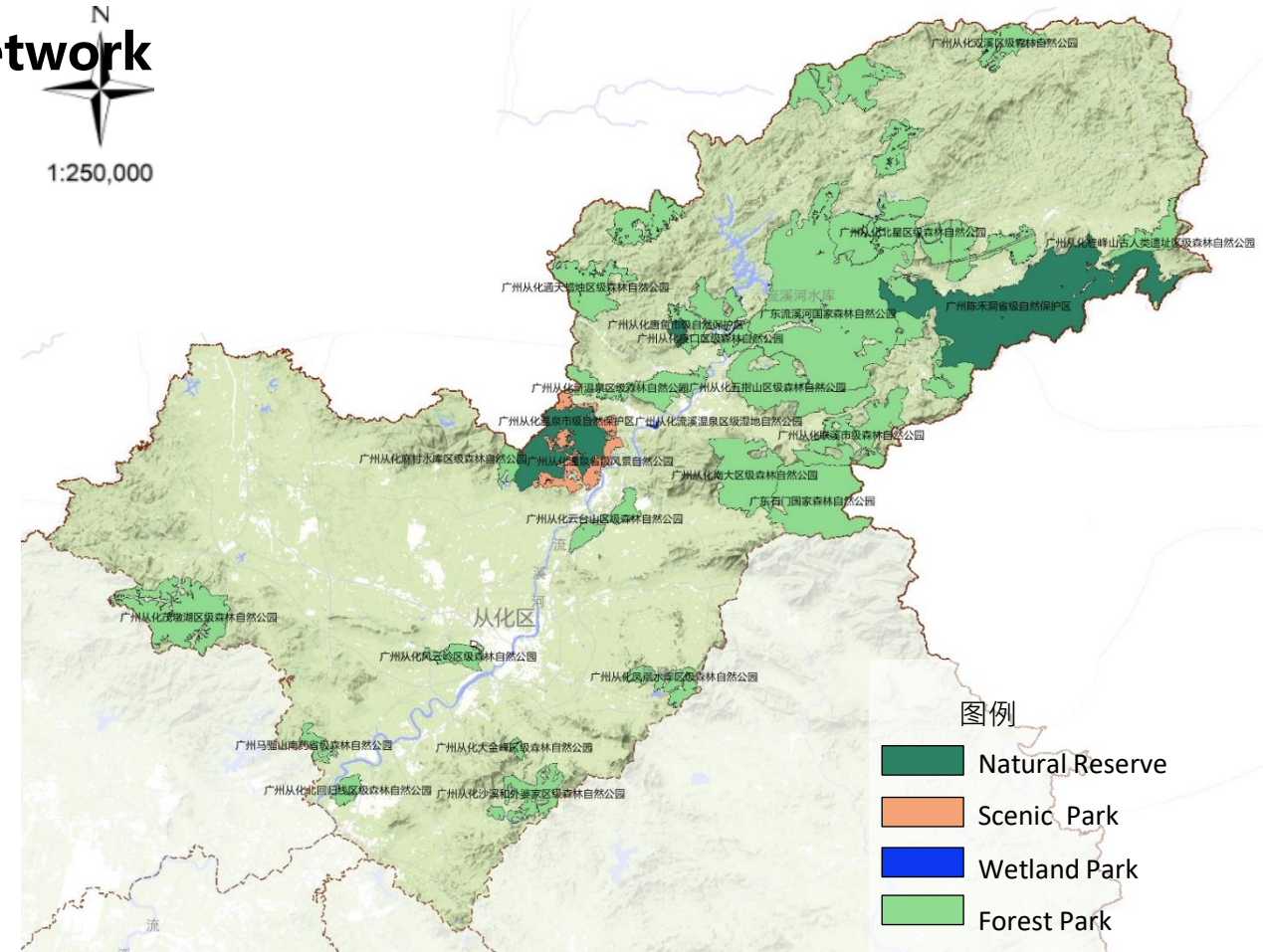
Level		Species name	Conghua	Guangzhou
National rare species list	I	蟒蛇 <i>Python molurus</i>	1	3
	II	虎纹蛙 <i>Rana tigrina</i> , 黑翅鸢 <i>Elanus caeruleus</i> , 鸢 <i>Milvus korschun</i> , 雀鹰 <i>Accipiter nisus</i> , 松雀鹰 <i>Accipiter virgatus</i> , 普通鵟 <i>Buteobuteo</i> , 蛇鹗 <i>Spilornis cheela</i> , 红隼 <i>Falco tinnunlus</i> , 白鹇 <i>Lophura nycthemera</i> , 褐翅鸦鹃 <i>Centropus sinensis</i> , 草鸮 <i>Tyto capensis</i> , 领角鸮 <i>Otus bakkamoena</i> , 领鸺鹠 <i>Glaucidium brodiei</i> , 斑头鸺鹠 <i>Glaucidium cuculoides</i> , 鹰鸮 <i>Ninox scutulata</i> , 小灵猫 <i>Viverricula indica</i>	16	29



Is there any ongoing project (s) and initiative(s) that support ecological planning and green urban infrastructure?

□ Based on scientific natural reserve conservation system, Guangzhou has established a comprehensive ecological network

- Currently, Conghua district has set up a total of 27 nature reserves, forest parks and other natural conservation clusters, covering an area of about 395 km^2 , accounting for 40% of the total area of natural reserve in Guangzhou.
- Large areas of protected natural areas provide good natural conditions for wildlife to survive.



从化区自然保护地分布

Is there any ongoing project (s) and initiative(s) that support ecological planning and green urban infrastructure?

❑ **Ecological restoration approaches such as ecological corridors and the treatment of water environment in river basins have been carried out. Ecological conservation compensation policies have been established to improve the biodiversity.**

- Conghua district promotes urban forest project to improve the biodiversity. In 2021, 3 new pocket parks, 14.03km corridors and 30 kilometers of greenways were built. Monthly monitoring of water quality in the basin is carried out to clarify the source of pollution and improve the water environment in the basin.
- Guangzhou has established ecological protection compensation mechanism in forest, cultivated land, ecological protection red line and water environment of river basin. Compensation for ecological protection shall be made to administrative regions, organizations or individuals based on such factors as ecological protection area, water quality of transboundary sections, investment in ecological and environmental protection, financial guarantee capacity and assessment results of protection effects.



**Ecological corridor of
Yadong River**



Liuxi River Forest Park



Conghua Greenway



Lianma Village

What are your key takeaways from this Deep Dive Learning? Any suggestions for the C4B program?

- Application of advanced ICT technology to improve understanding of the urban green infrastructure, also attract more public/ corporate engagement (Ecological planning tools, Glasgow NBS Lens)
- 3rd party diagnose of the overall sustainability status: LA Report Card
- Streamlining the process from planning at different scales of spatial context towards implementation
- Knowledge sharing platform of C4B

NINGBO, CHINA



What are the top three challenges concerning urban ecological and land use planning and green urban infrastructure development?

- About Ningbo: an important industrial and port city in eastern China
- Challenge 1: The coordinated development of economic growth and ecological protection requires greater efforts
- Challenge 2: Urban growth leads to erosion of ecological space and loss of biodiversity
- Challenge 3: Lack of financial instruments to support ecological conservation and "investing in nature"

What actions should be taken to address the challenges?

- Action 1 Strengthen the importance of ecological protection and biodiversity in urban development from top-level design
- Action 2 Develop a systematic approach to Ecological Planning, Urban biodiversity and green infrastructure
- Action 3 Establish reliable green financial modality

Is there any ongoing project (s) and initiative(s) that support ecological planning and green urban infrastructure?

- Ningbo is the first and only city in China to carry out the pilot work of the comprehensive improvement of the regional territorial space.

Improvement of
agricultural land+

Village
renovation



Ecological
protection and
restoration



Improvement of
industrial land+



Urban and
inefficient land
redevelopment



Is there any ongoing project (s) and initiative(s) that support ecological planning and green urban infrastructure?

- GEF7: GREEN AND CARBON NEUTRAL CITIES

Support the development of green and low-carbon indicators

Blue and Green Natural Assets Accounting pilot

Strategy and Action Planning for Biodiversity Conservation

Develop a roadmap and time frame for visions toward carbon neutrality

NBS design options in pilot sites

Innovative green finance modality

What are your key takeaways from this Deep Dive Learning? Any suggestions for the C4B program?

- Key takeaways: Ideas and practices from various professional fields.
- Suggestions: Need more cases about how to maintain or protect the outcomes of the project
- Ningbo will benefit from international cases on innovative financial modality that supports biodiversity protection such as rhino bonds.

Chengdu

Vickey

A genuine city at the foot of snow mountains

Total area is 14335 square kilometers

Permanent resident population is 21.192 million

Urbanization rate is 79.48%



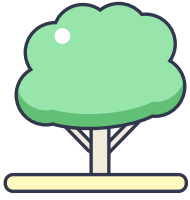
What are the top three challenges concerning urban ecological and land use planning and green urban infrastructure development?

- Challenge1 How to Promote Industrial Transformation and Upgrading and Realize the Coordinated Development of Economic Environment?
- Challenge 2 How to embody ecological value in urban construction?
- Challenge 3 How to deal with the relationship between the rapid economic development and the protection of the ecological environment

What actions should be taken to address the challenges?

- Action 1 Carry out “park city construction” and optimize "ecological production and living space"
- Action 2 Strengthen ecological protection and explore the path to realize ecological value
- Action 3 Innovate ecological protection management mechanism and technology

Challenge & Action



- Challenge1 How to Promote Industrial Transformation and Upgrading and Realize the Coordinated Development of Economic Environment?

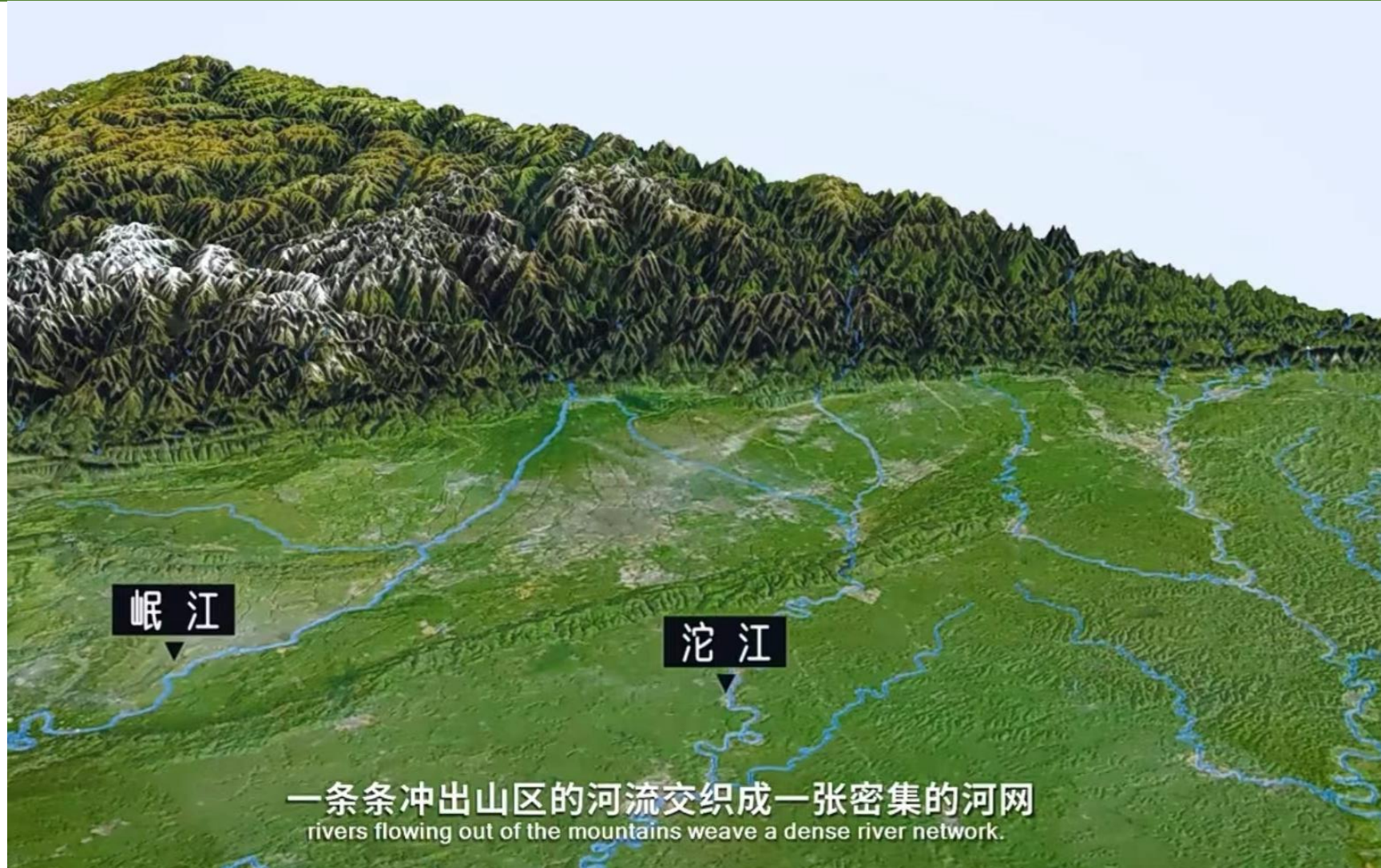


- Action 1 Carry out park city construction and optimize "ecological production and living space"
- **KEY WORDS:** Park city

Park city

Why We Created Park Cities?

- Good ecological background
- Most well-being city
- Creation of green and low-carbon space scene



Park city

• Construction principles



- Strengthen green ecology background and shape the beautiful form of the park city

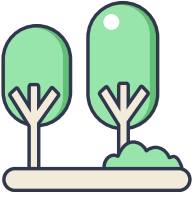


- Create good environment for business and stimulate the economic vitality of the city

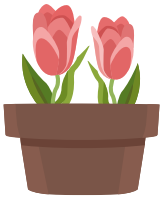


- Create a livable and beautiful life and improve the well-being of people in the city

Challenge & Action



- Challenge 2 How to embody ecological value in urban construction?



- Action 2 Strengthen ecological protection and explore the path to realize ecological value

- **KEY WORDS:** Greenway

Longquan Mountain Urban Forest Park

Greenway

➤ **Planning concept:** Accessibility, Participation, Landscaping

regional	1920Km
urban	5380Km
community	10000Km

Covers 73 ecological corridors



Greenway

- Implement land use reduction policies in important ecological green zones; promulgate regulations on the construction of park cities and regulations on the protection of ecological zones around the city.



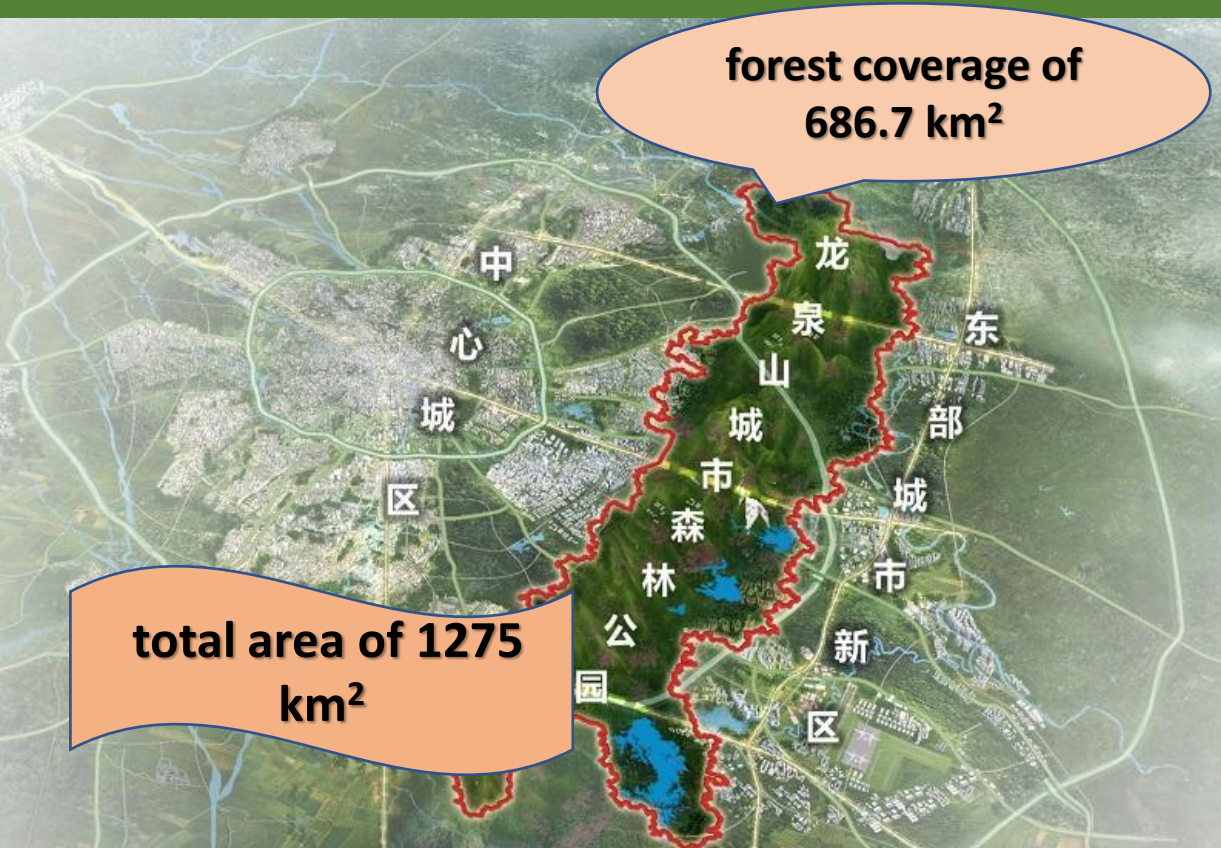
- Create more living consumption scenarios around greenways, increase the utilization rate of greenways, increase the time citizens stay in greenways, and promote economic development



- Greenway ecological conservation and conservation of ecological resources "stock" 11,500 square kilometers of ecological base, promoting greenways to connect 55 ecological zones, 155 green belts, and 139 parks.



Longquan Mountain Urban Forest Park



Ecological
conservation



economic
benefits



Challenge & Action



- Challenge 3 How to deal with the relationship between the rapid economic development and the protection of the ecological environment



- Action 3 Innovating ecological protection management mechanism and technology
- **KEY WORDS:** Ecological protection red line, Biodiversity ,Giant panda Park,Water ecology

Ecological protection red line



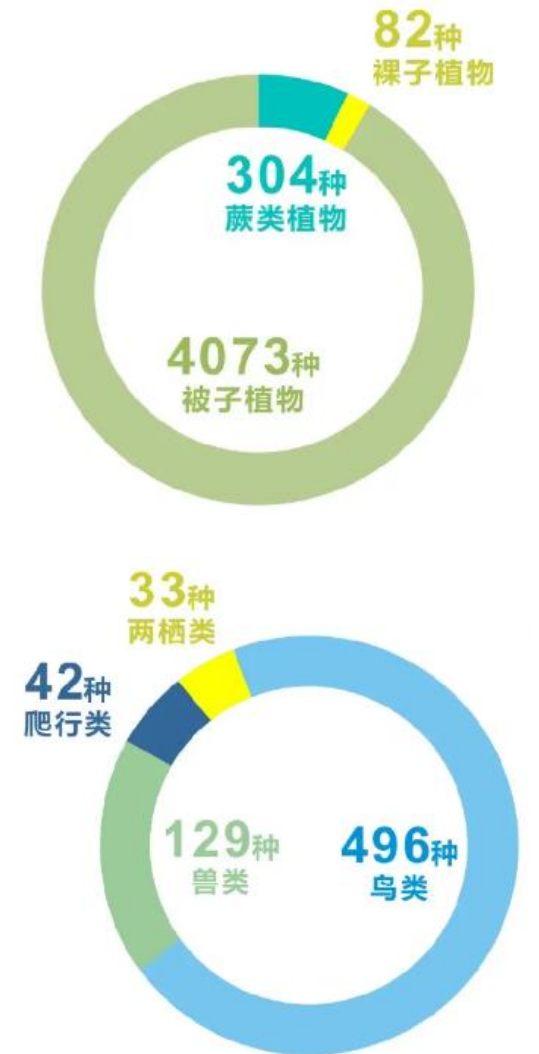
- In 2021, the ecological protection red line delimited in Chengdu covers an area of 1503 km², accounting for about 10.48% of the land area of Chengdu。

Biodiversity Protection



- the forest area of Chengdu is 5762km²
- the forestland area is 3912.4km²
- the forest stock volume is 36.7735 million cubic meters.
- The city's forest coverage rate is 40.20%,
- the forest greening rate is 44.89%.
- added a park area of 42.99 square kilometers,
- the park green space has reached 18,900 hectares

Biodiversity Protection



Biodiversity Protection

- Compared with the 3,390 species of higher plants recorded in the domain in 2019, 1,069 species of plants were newly recorded in Chengdu in 2020, 27 species of national key protected plants were newly recorded.

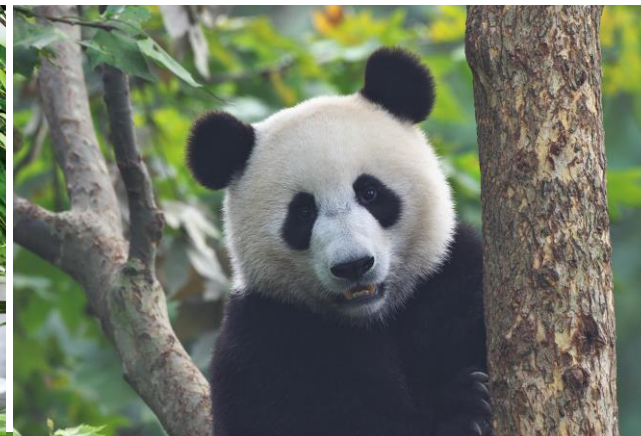


- Compared with the 625 species of terrestrial wild animals recorded in the area in 2018, 75 new species of animals were recorded in Chengdu in 2020.

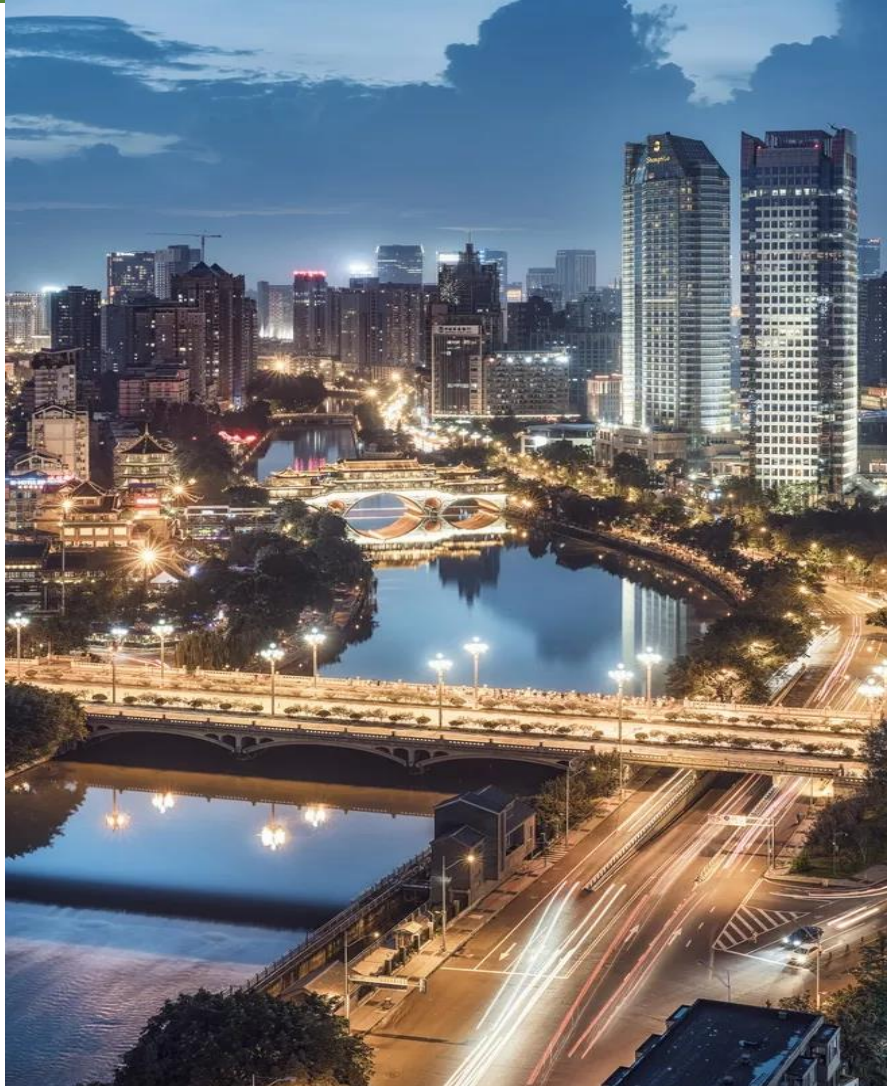
Giant panda National Park



- The Chengdu area of giant panda National Park mainly involves four counties (cities), with a total area of 1459.48 Km².
- This area is a key corridor hub for the gene exchange of giant panda populations in Qionglai Mountain and Minshan Mountains. It is a large-scale complex ecological transition area where various geographical elements meet and transition and one of the key areas for biodiversity conservation.



Water ecology



- Compile plans for water ecological environmental protection.
- Create water ecological environment goals.
- Incorporate the assessment objectives into each street's and relevant department's performance and environmental responsibility assessments.
- Carry out water ecological investigation and research work, improve the ability of water ecological research, monitoring, and scientific research.
- Promote water ecological restoration and implement water conservation areas, wetlands, and ecological buffer zones protection and restoration projects.

Chengdu Biodiversity Blue Book



—by

Chengdu Academy of Environmental Sciences



WELCOME
TO
CHEGNDU

Chongqing, China

重庆，中国



What are the top three challenges concerning urban ecological and land use planning and green urban infrastructure development?

关于城市生态和土地利用规划和绿色城市基础设施发展的三大挑战是什么？

- Chongqing, located in the south west of China, directly under the Central Government, known as “the City of Mountains” or “the Foggy City”, is famous for its mountainous landscape and foggy weather. With an area of 84,000 square kilometers and a population approximately 32 million. The main urban area constitutes of nine districts, and covers an area of 5,475 square kilometers with a population over 10 million.
- 重庆位于中国西南部，是中央政府直属城市，被誉为“山城”，以其多山的景观和多雾的天气而闻名。面积8.4万平方千米，人口约3200万人，中心城区共有9个区，5475平方千米，人口超过1000万。
- Urban sprawl and increased use of fossil fuels contribute to climate change
- 气候变化：城市扩张、化石能源的需求利用增加
- Fragmentation of green infrastructure : too small to be systematic
- 绿色基础设施的碎片化，规模小难以成体系
- Sustainable development: utilization and conservation
- 可持续发展：有限利用与规模保护

What actions should be taken to address the challenges? 应该采取什么行动来应对这些挑战?

- Instead of encroaching on the green ecological network, mankind should improve the efficiency of resource and land use, Green infrastructure should be given a higher priority
- 应该提高资源和土地的使用效率，而不是不断侵占绿色生态网络来发展，应该把绿色基础设施放在更加重要的位置上
- We should make relevant plans and schemes scientifically and strictly to maintain a balance between human needs and nature
- 我们应该科学和严格制定相关规划和方案，维持需求与自然之间的平衡
- Green finance: Make the value of green infrastructure more visible and lead to a greater private sector involvement
- 绿色金融:让绿色基础设施的价值更加显而易见，引导更多的私营部门参与

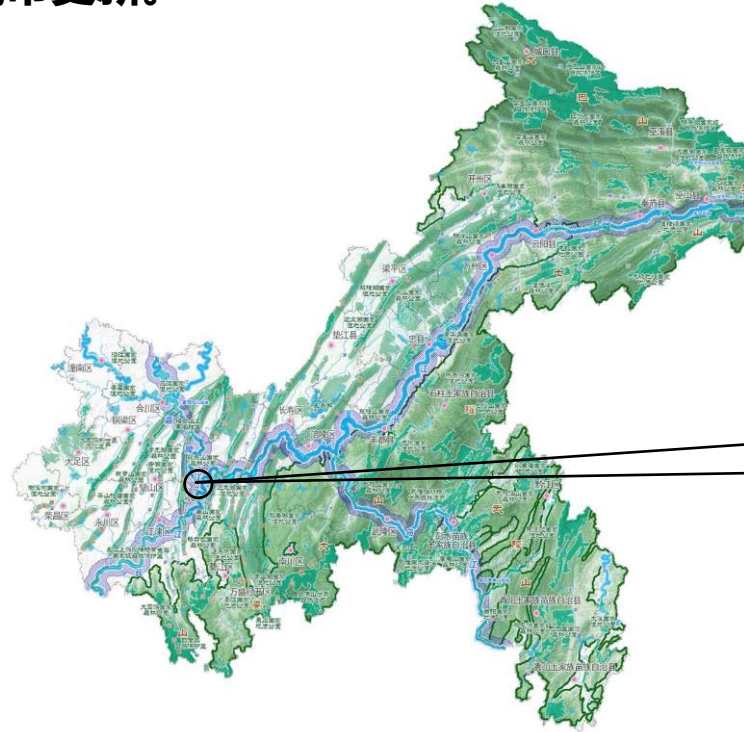
Is there any ongoing project (s) and initiative(s) that support ecological planning and green urban infrastructure?

是否有任何正在进行的项目和倡议支持生态规划和绿色城市基础设施?

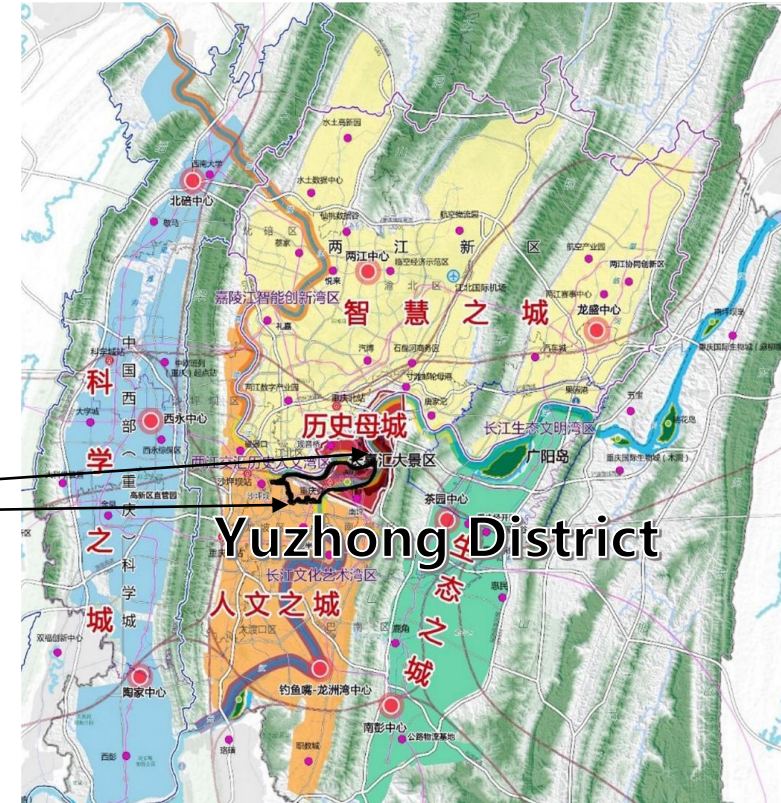
□ Yuzhong District of Chongqing is carrying out urban ecological restoration and urban renewal

□ 重庆市渝中区正在开展城市生态修复与城市更新。

- We plan to build a "three belts and four barrier screens, multiple corridors and multiple dots" ecological security pattern, build important ecological barriers in the upper reaches of the Yangtze River, and accelerate the appreciation of natural capital in urban and rural areas, to make Chongqing a picturesque and beautiful city.
- 规划构建“三带四屏多廊多点”的生态安全格局，筑牢长江上游重要生态屏障，推动城乡自然资本加快增值，使重庆成为山清水秀美丽之地。
- Yuzhong District is located in the core of the city, with a total area of 24 square kilometers - a small area for a population of 600,000. It has subtropical monsoon climate, and the whole built-up area is relatively cramped. Yuzhong District is known as the "mother city of Chongqing".
- 渝中区位于中心城区的核心，总面积24平方千米，人口60万人。属亚热带季风气候，面积狭小，全域建成区。它被誉为“重庆母城”。



Layout diagram The ecological network of Chongqing



Regional and metropolitan context of Yuzhong district

Is there any ongoing project (s) and initiative(s) that support ecological planning and green urban infrastructure?

是否有任何正在进行的项目和倡议支持生态规划和绿色城市基础设施?

□ “Rivers and four Waterfront Lines ” project, Mainly around the Yangtze river and Jialing River

□ “两江四岸品质提升”工程，主要围绕长江和嘉陵江展开。

- Give priority to ecology, fully protect and utilize the existing ecological base, repair and improve the ecological environment in the water-level area;
- 生态优先，充分保护利用现有生态基底，修复提升消落区生态环境；
- Optimize external and internal traffic flow;
- 优化外联内通交通流线；
- Improve landscape quality, activate site function, reduce invalid human intervention and construction, optimize urban facade image;
- 提升景观品质，活化场地功能，减少无效人工干预与建设，优化城市立面形象；
- Highlight cultural connotation and enhance attractiveness. Reconnect the ecology of the city and the Yangtze River, make the park interweave with the wetland in the fluctuation zone, optimize the ecological environment while strengthen the interaction between people and the river, and enhance the vitality of the riverside area.
- 彰显文化内涵，提升吸引力。重新连接城市与长江生态，让公园与消落区湿地交织，实现生态环境优化的同时，加强人与江的互动、提升滨江区域活力。



“Rivers and four Waterfront Lines ” project

Is there any ongoing project (s) and initiative(s) that support ecological planning and green urban infrastructure?

是否有任何正在进行的项目和倡议支持生态规划和绿色城市基础设施?

- Carefully protect the natural landscape, increase parks, and create an ecological space that highlights the interdependence of landscape and city
 - 精心保护好自然山水，打造彰显山水相依、景城一体的生态空间
- The construction of Shancheng Park, consisting of five sub-parks with an area of 20 hectares, to improve biodiversity.
 - 建设山城公园，由5个子公园组成，面积20公顷，提高生物多样性。



Shancheng Park

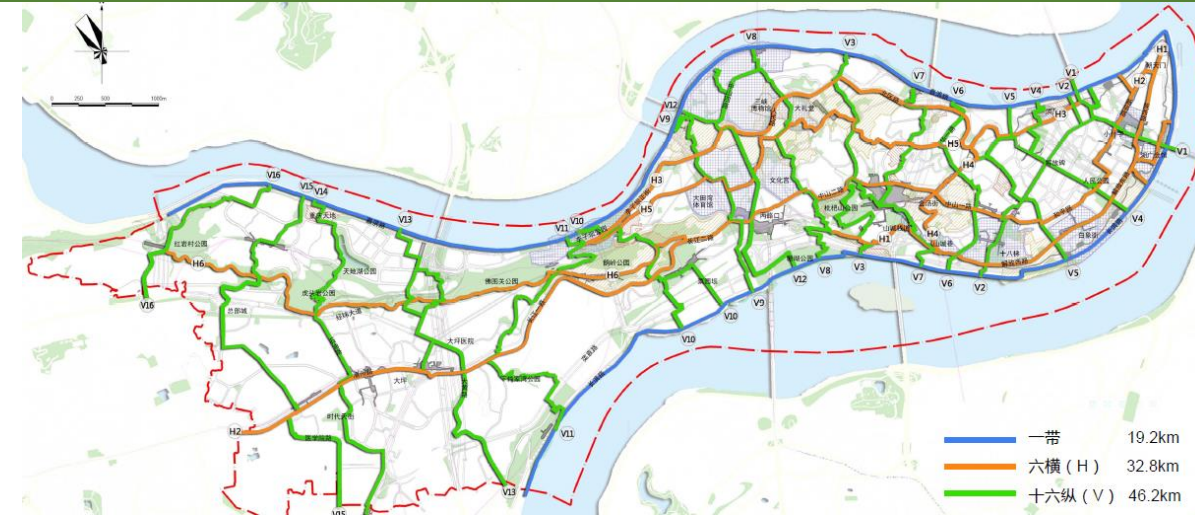
Is there any ongoing project (s) and initiative(s) that support ecological planning and green urban infrastructure?

是否有任何正在进行的项目和倡议支持生态规划和绿色城市基础设施?

□ Green Transportation——Walking system

□ 绿色交通出行——步行系统

- To build several walking tour routes in the form of one belt with six horizontal and sixteen vertical (98.2km) , that characterizes as "the most humane, mountainous , and dynamic" .
- 形成“最人文、最山城、最活力”“一带六横十六纵”（98.2km）多条特色步行旅游线路。
- Seven special routes (48km) will be created to enhance experience.
- 打造7条特色路线（48km）,强化体验性。



Walking system



What are your key takeaways from this Deep Dive Learning? Any suggestions for the C4B program?

你从深度学习中学到了什么?对C4B项目有什么建议吗?

- To understand the understanding of green infrastructure in different countries, the different problems they face and the measures they take.
- 各个国家对绿色基础设施的理解，面临不同的问题以及采取的措施。
- Advanced technology makes our project implementation to be more accurate and effective.
- 先进技术让我们的项目实施更加准确与有效。
- It is suggested to carry out more training activities or build a project resource pool so that people can learn more about the project in details.
- 建议举办更多的培训活动或者建立一个项目资源库以便学习更多更详细地项目。