

现代丝绸之路东段植物物种多样性格局及其影响因素研究

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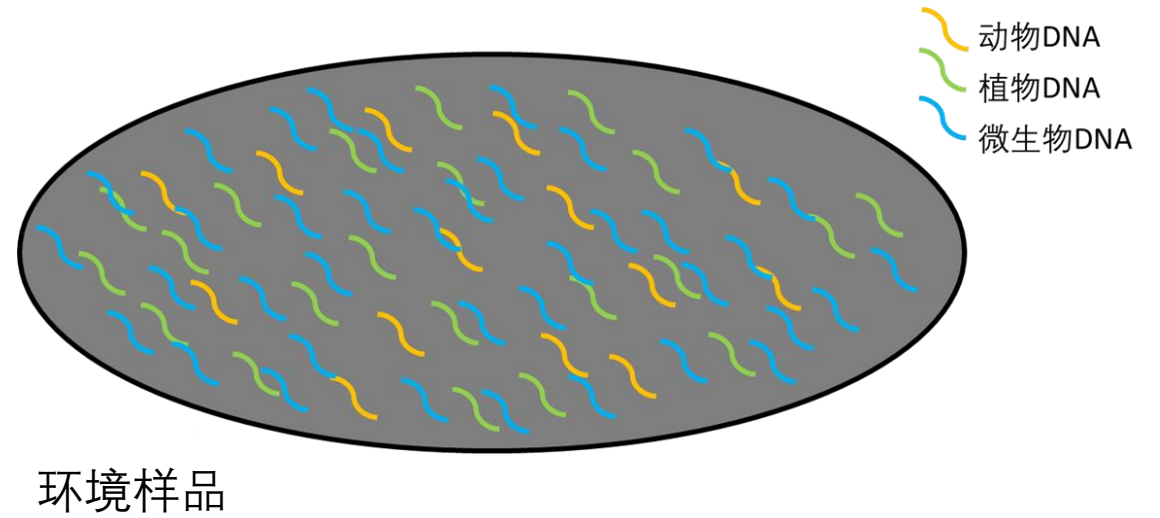
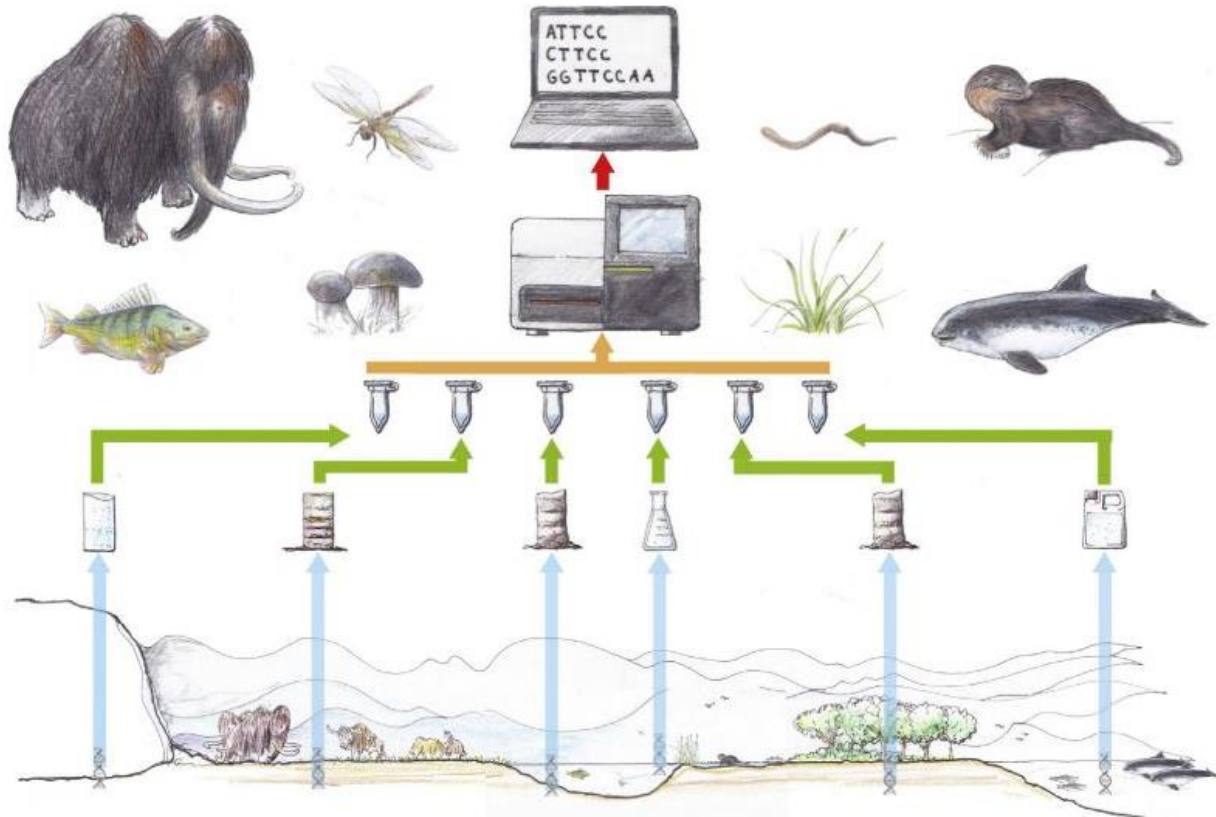
1. 河北工程大学园林与生态工程学院

2. 中国科学院植物研究所系统与进化植物学国家重点实验室



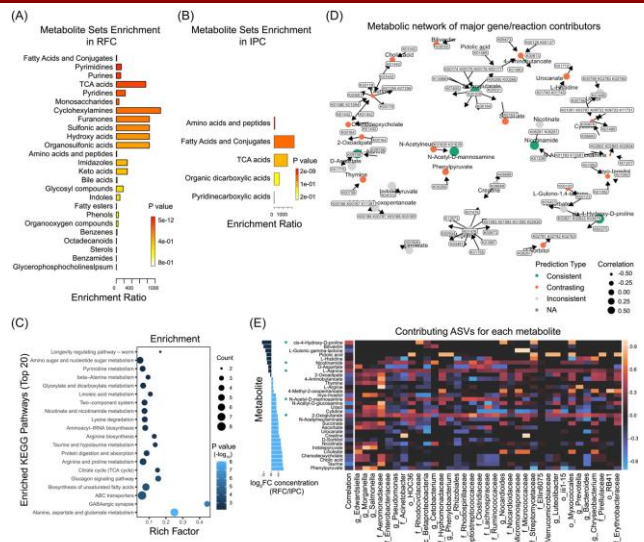
Liu, Yanlei, Chao Xu, Wenpan Dong, Xun Chen, Wen Zhang, Yuzhe Sun, Guohong Wang, Yufei Wang, and Shiliang Zhou. 2023. "What determines plant species diversity along the Modern Silk Road in the east?" *iMeta*.e74. <https://doi.org/10.1002/imt2.74>

引言

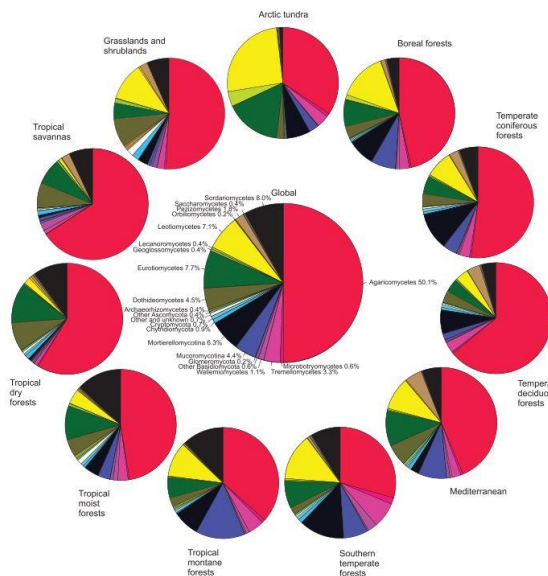


Thomsen & Willerslev, 2015. *Biological Conservation*

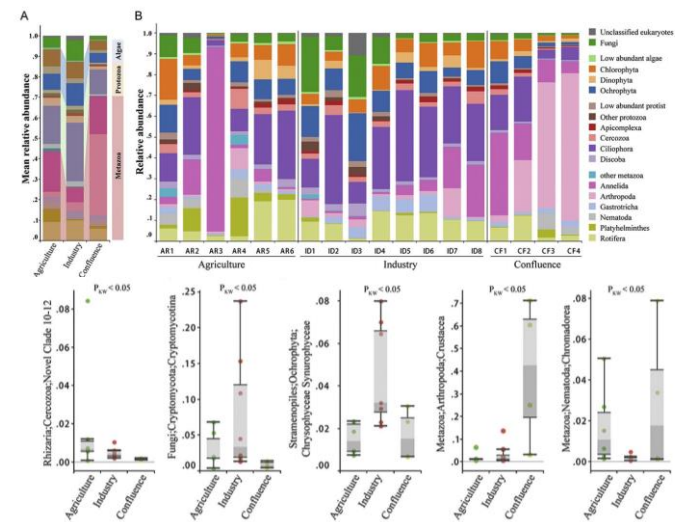
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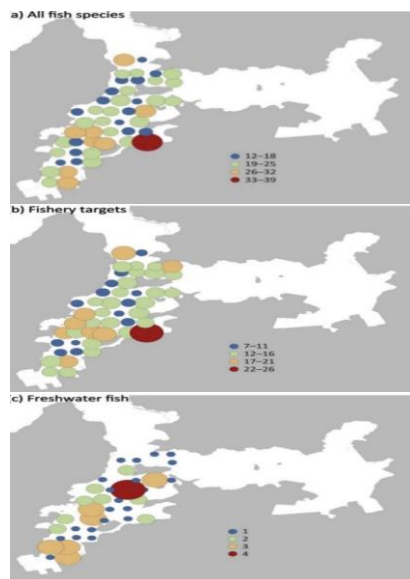
Ding et al. 2022. iMeta.



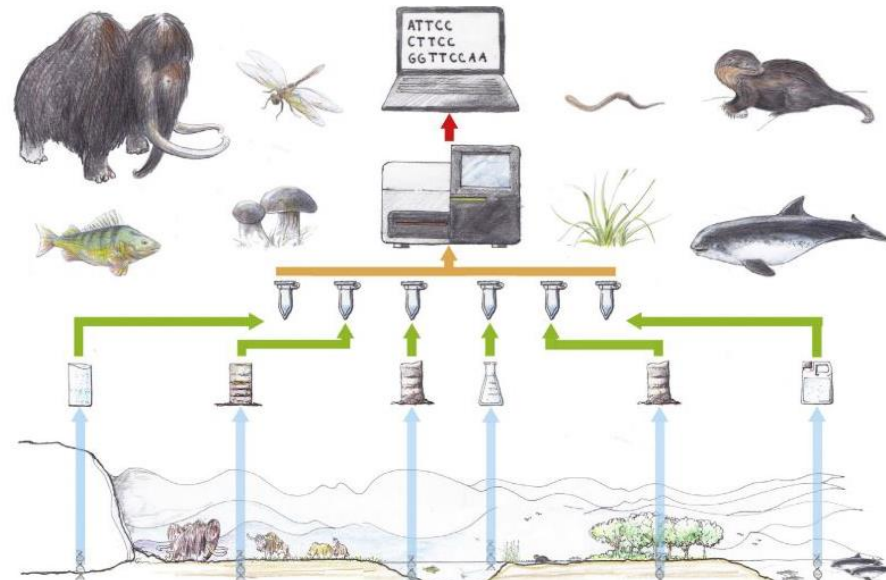
Leho et al., 2014. Science



Xie et al., 2017. Chemosphere

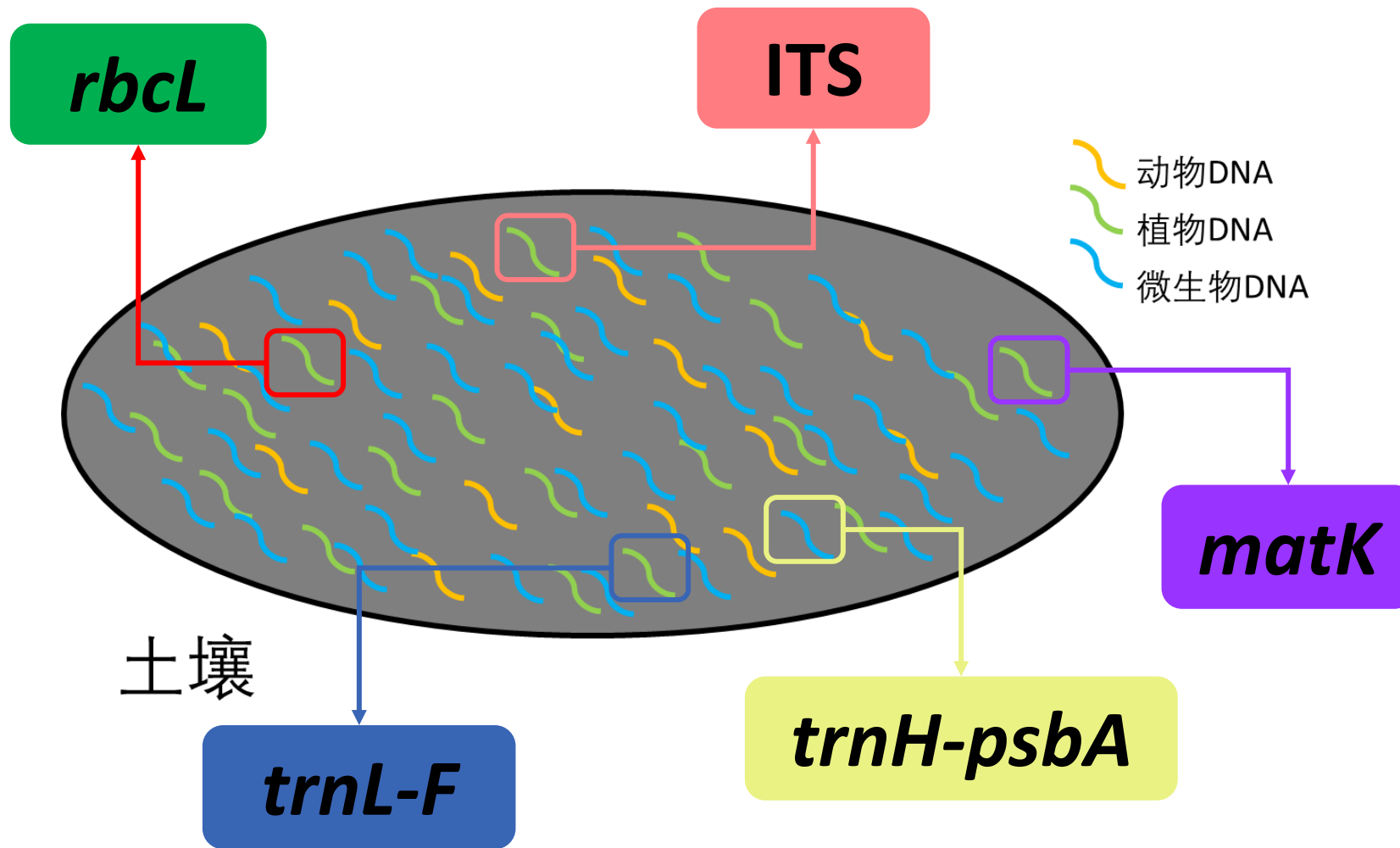


Yamamoto et al., 2017. Scientific Reports

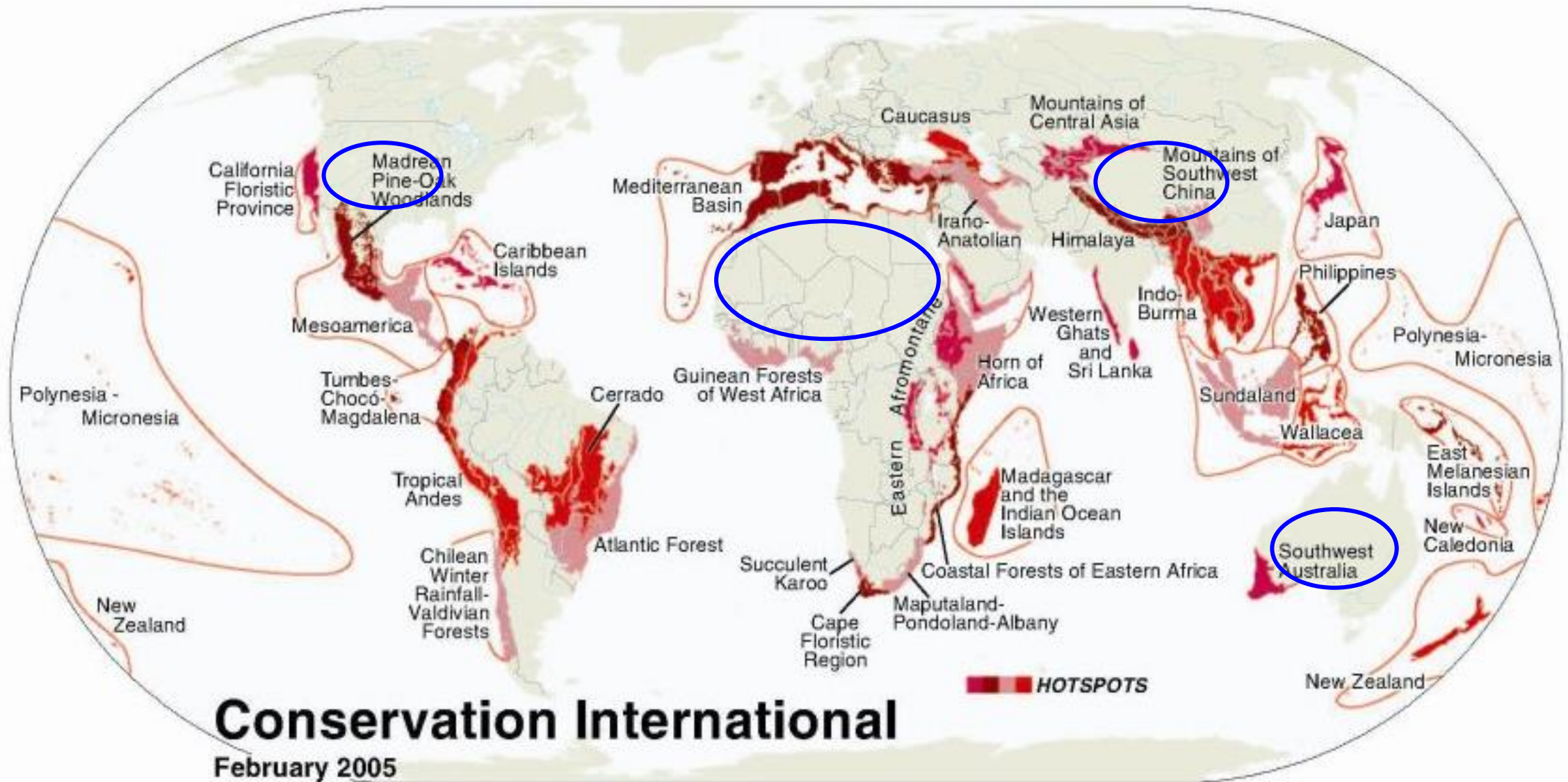


Thomsen & Willerslev, 2015. Biological Conservation

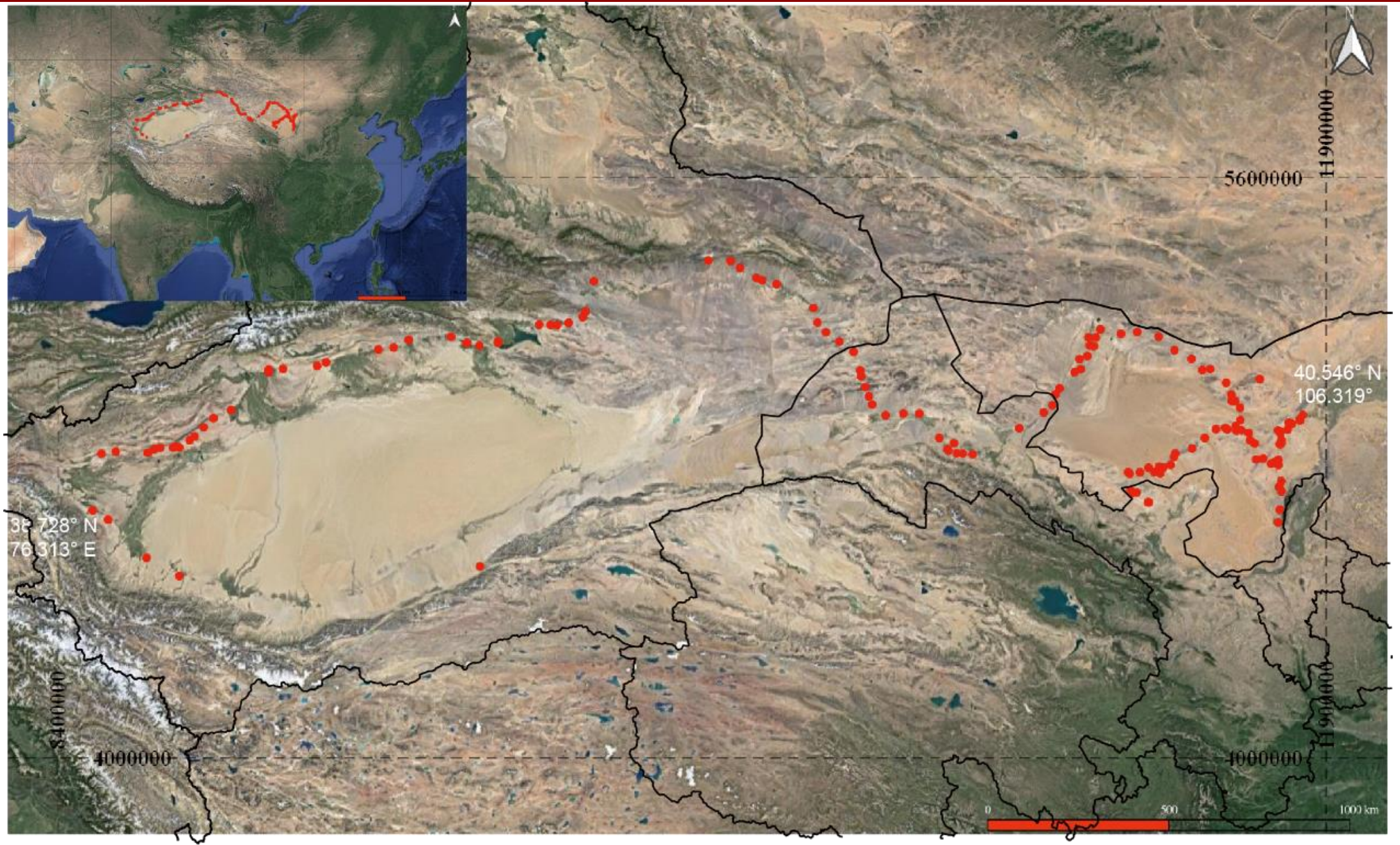
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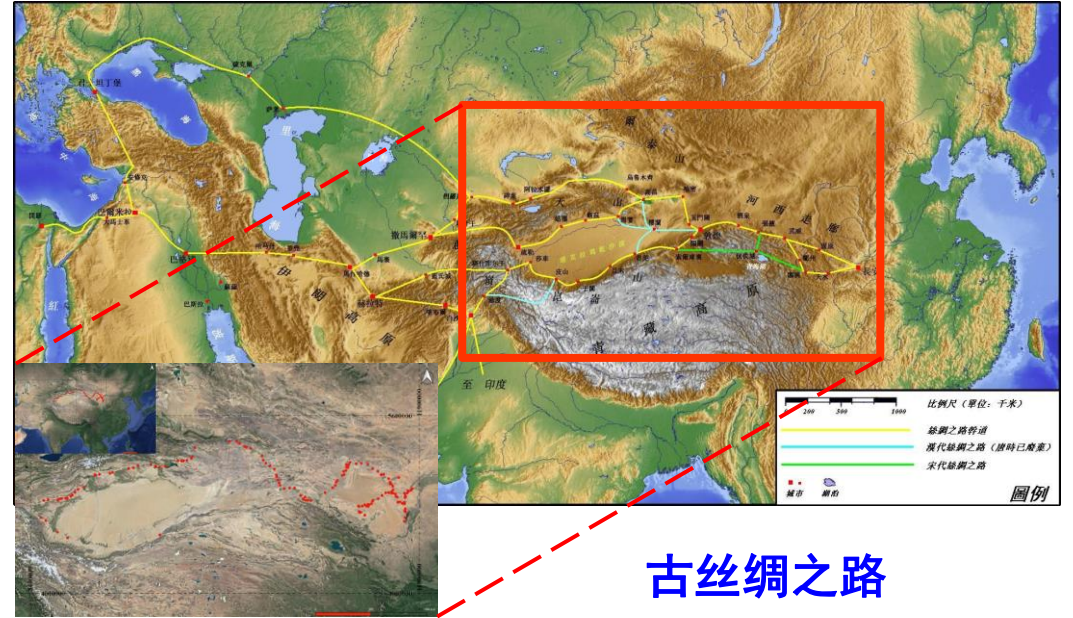
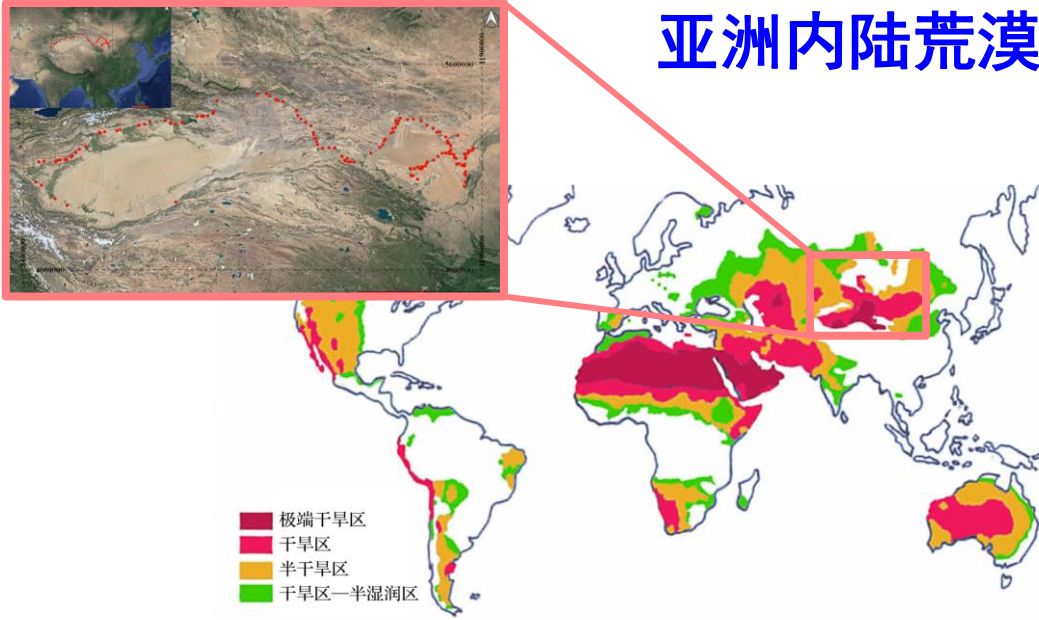


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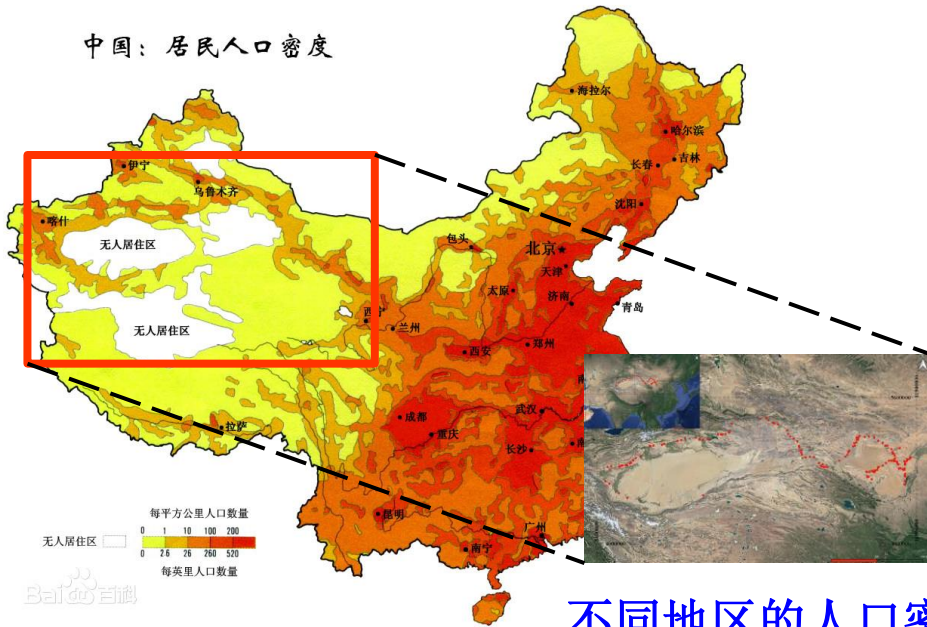
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亚洲内陆荒漠区东段

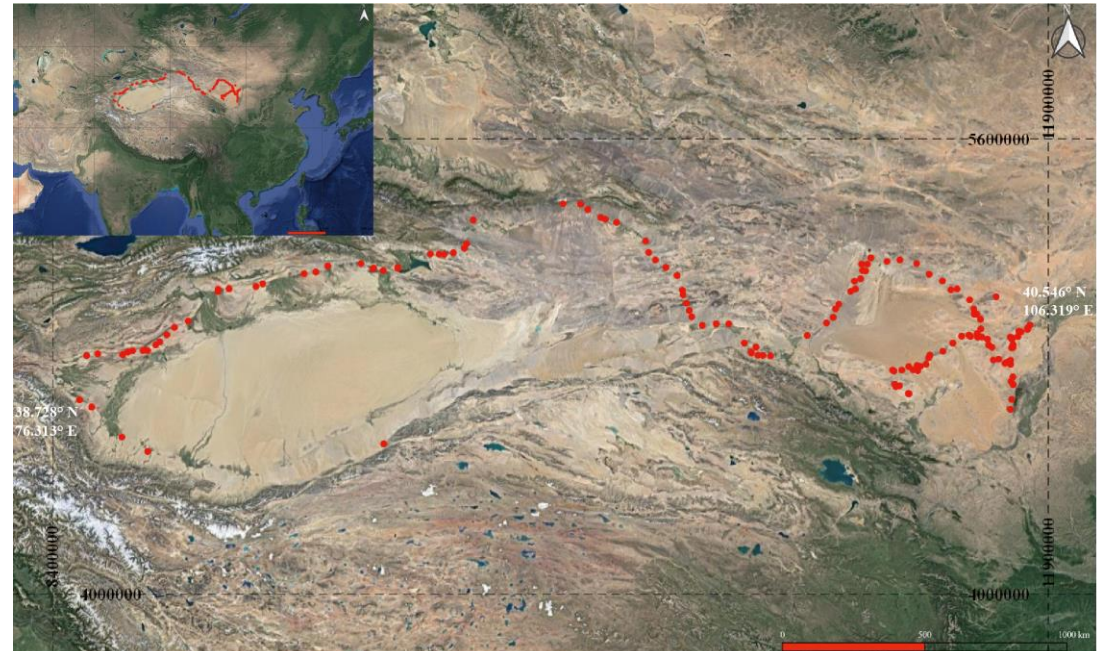


古丝绸之路

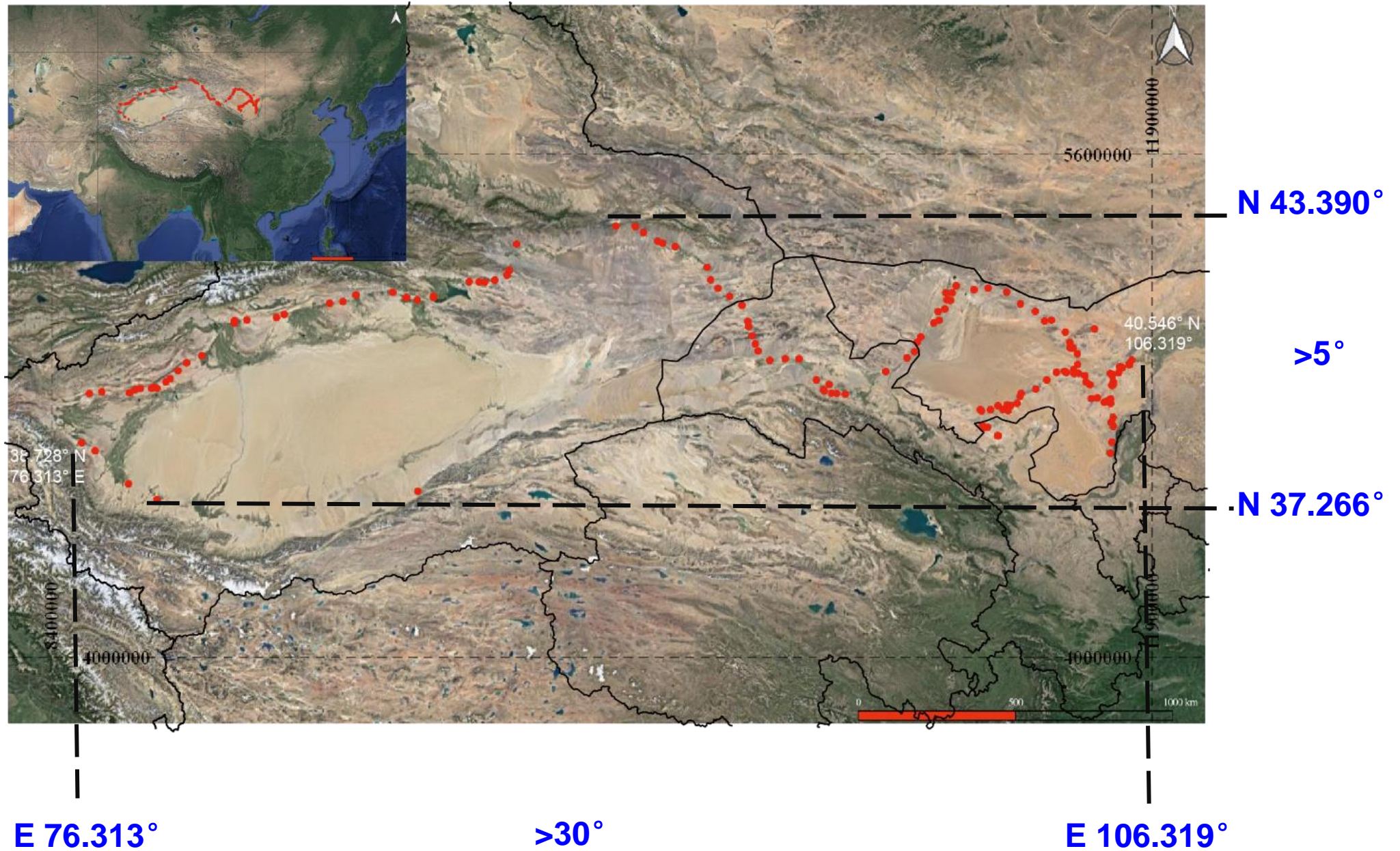
中国：居民人口密度



不同地区的人口密度差别较大



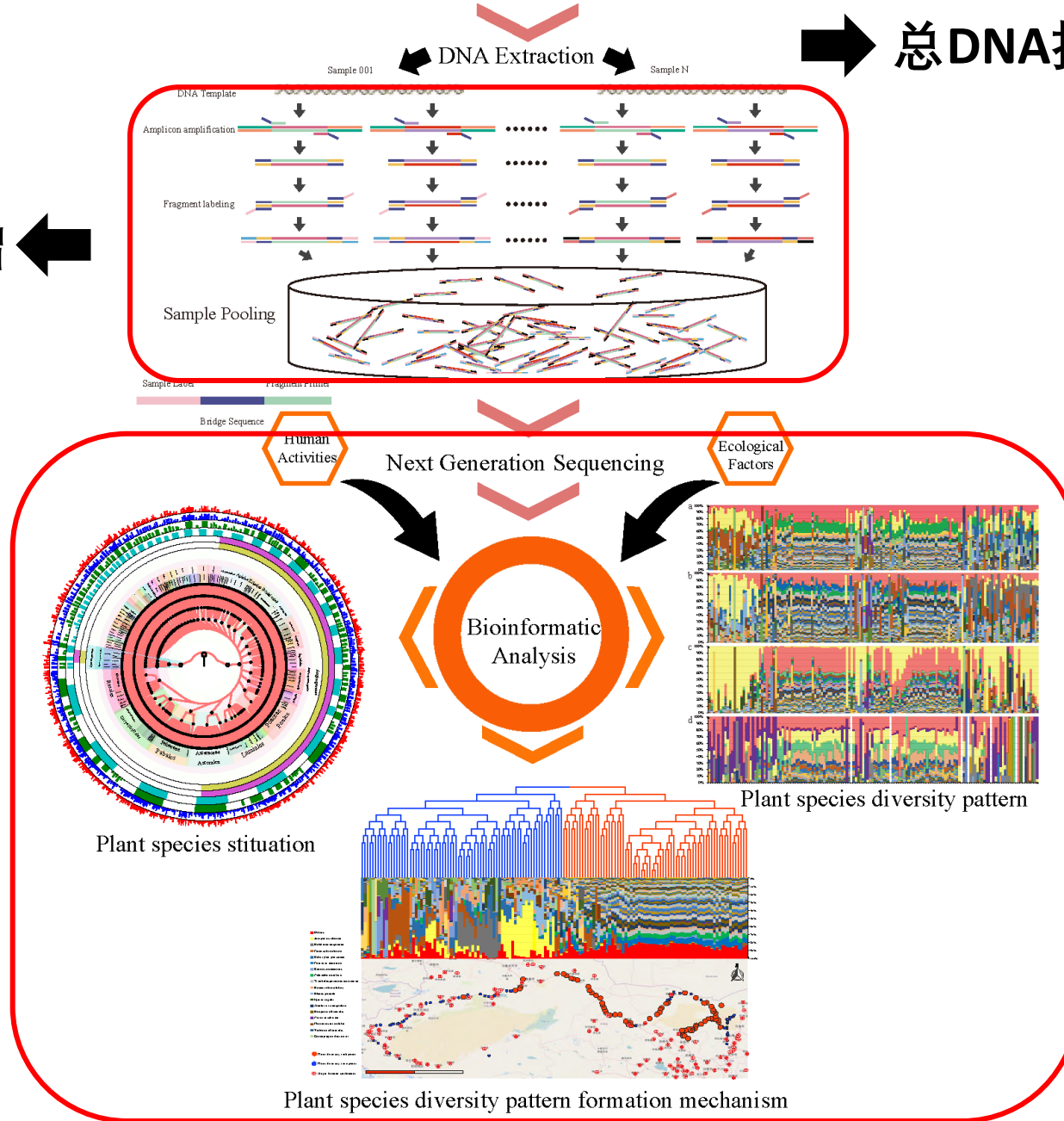
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标签PCR扩增 ←

→ 总DNA提取

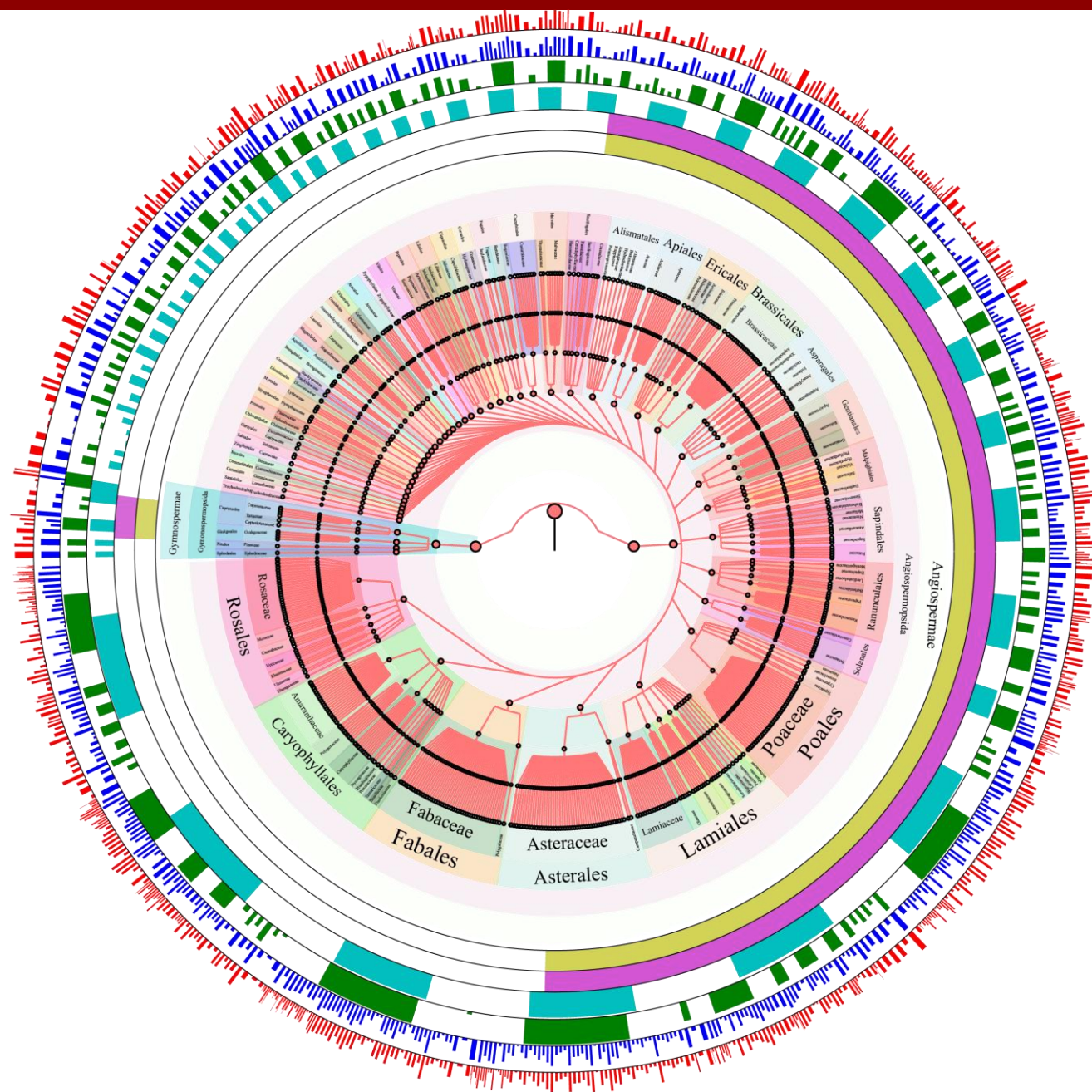


→ 生物信息学分析

结果与讨论

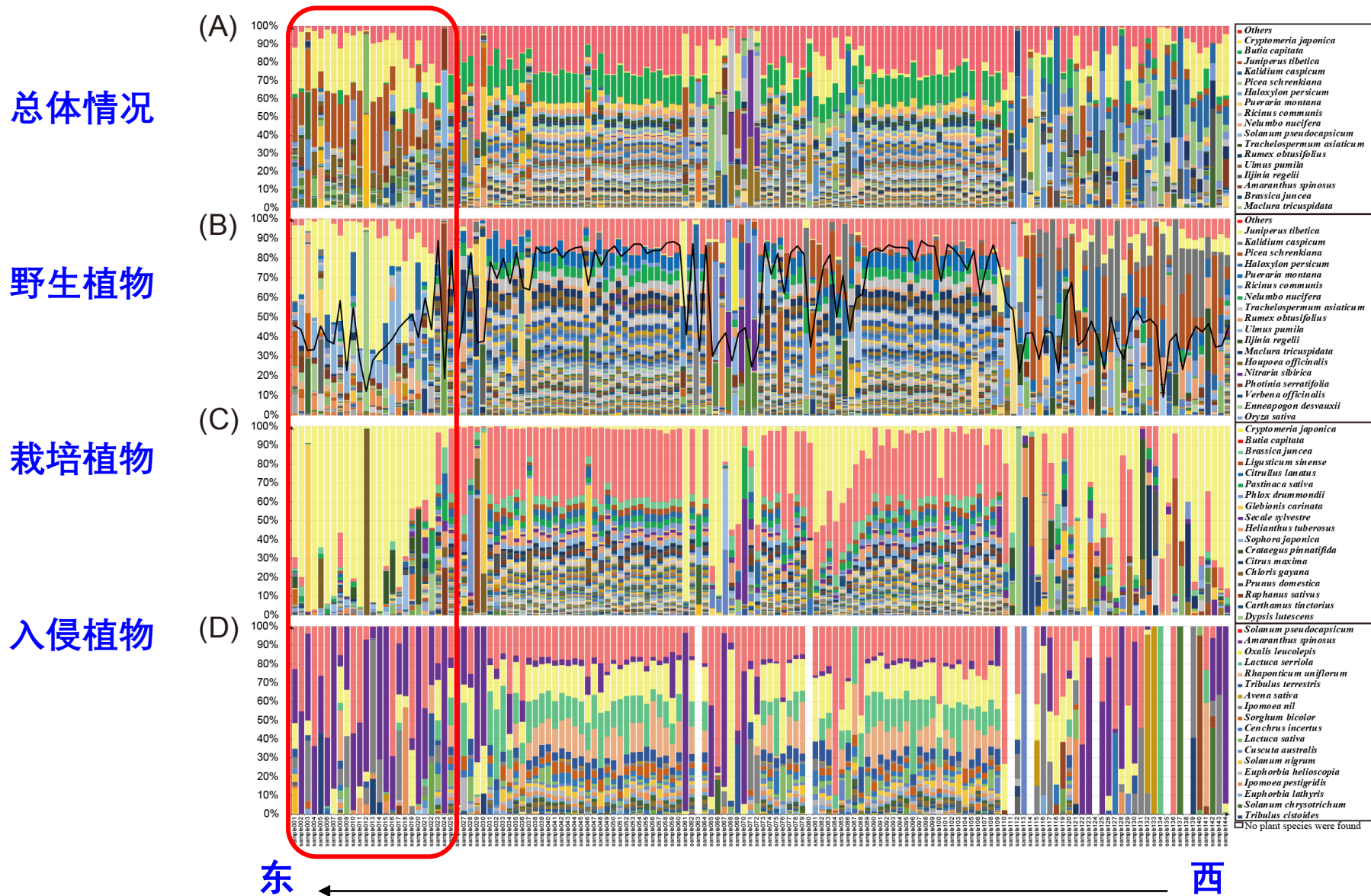
本研究共计发现65科、291属，共计671个植物物种，其中被子植物占总数的97.8%，裸子植物占总数的2.2%。

豆	科 (Fabaceae)	72种
菊	科 (Asteraceae)	56种
蔷薇	科 (Rosaceae)	55种
禾本	科 (Poaceae)	40种
苋	科 (Amaranthaceae)	35种
茄	科 (Solanaceae)	23种
十字花	科 (Brassicaceae)	22种

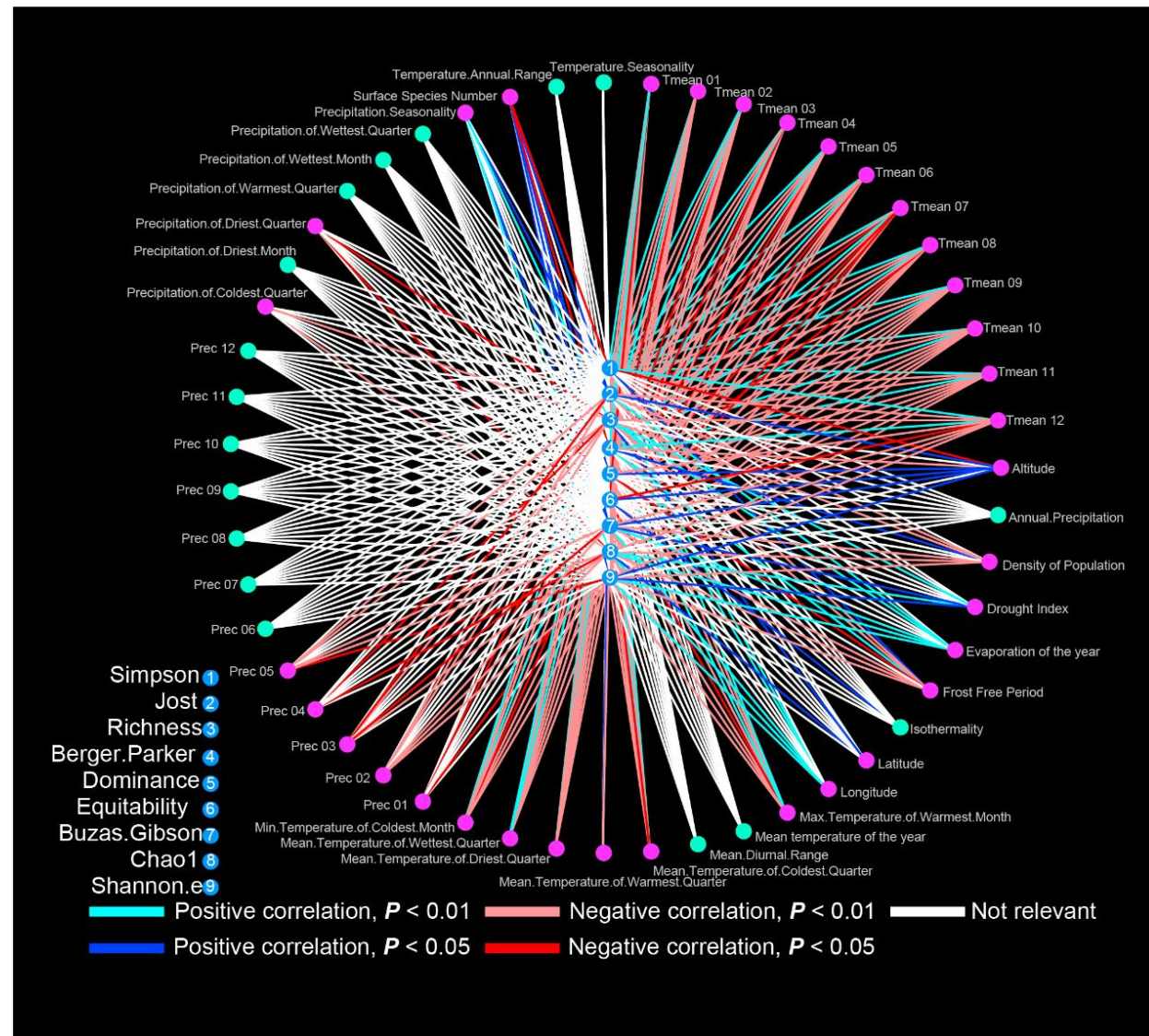
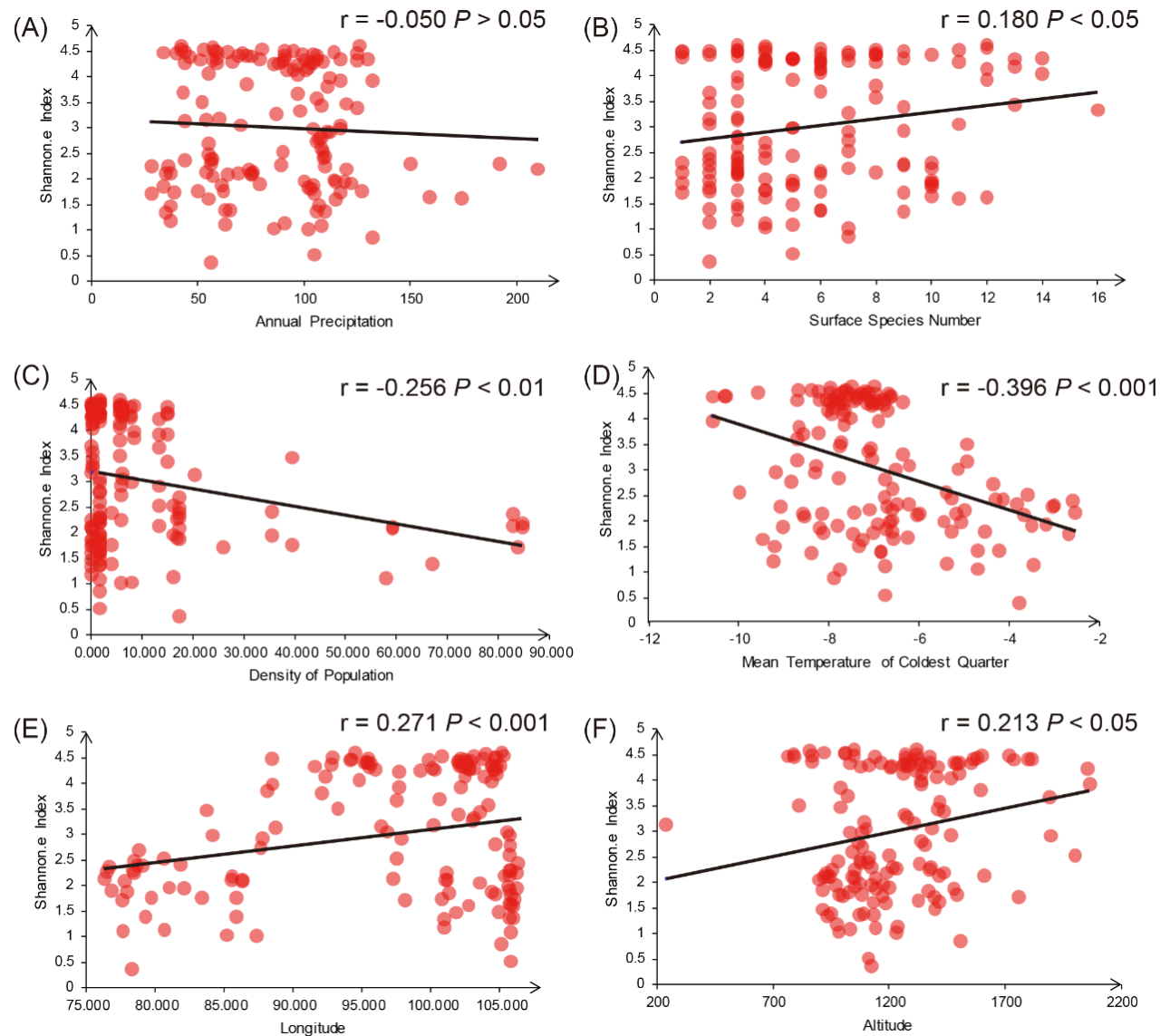


结果与讨论

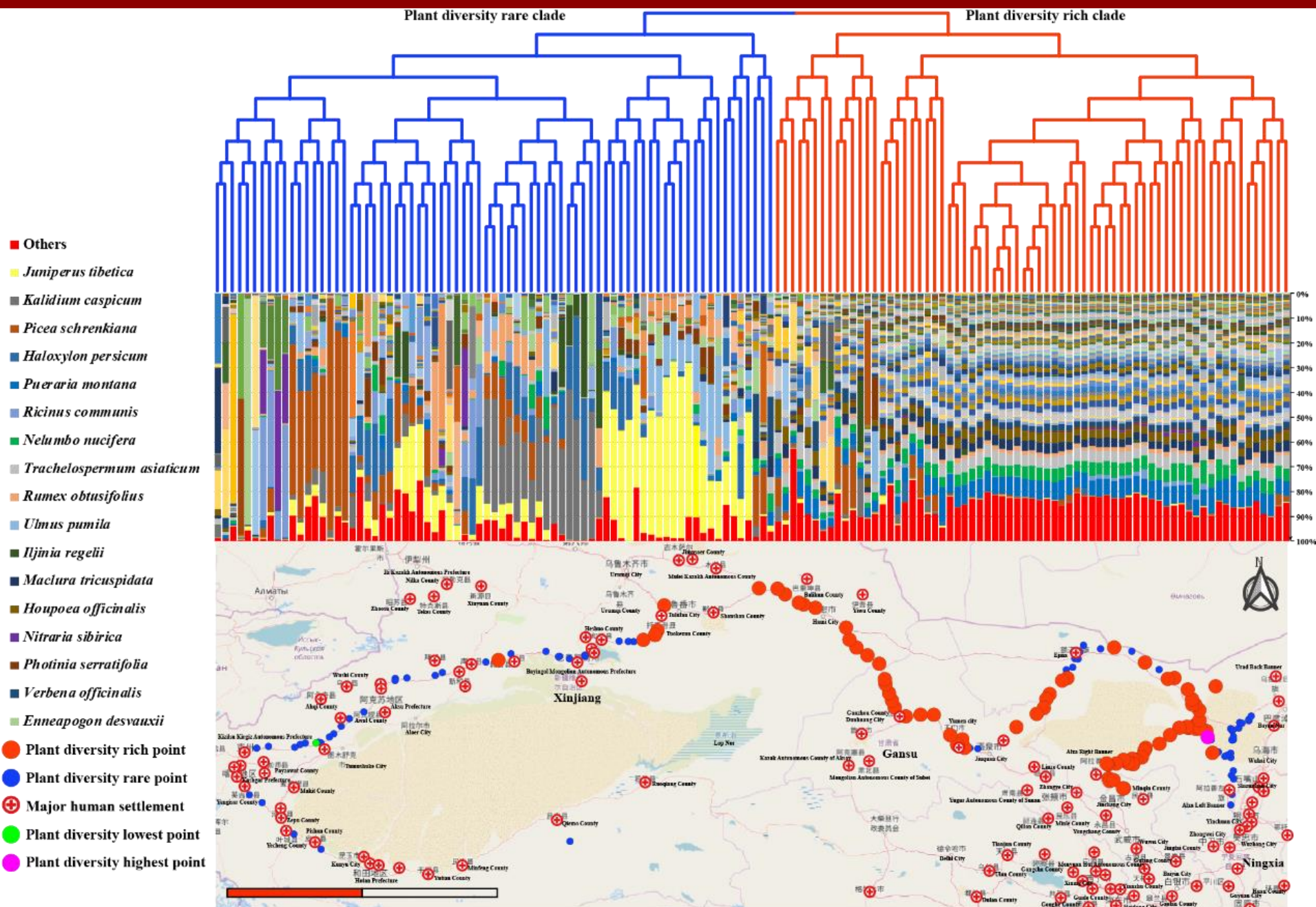
丝绸之路东段植物物种的空间格局



结果与讨论



结果与讨论



总结

环境DNA是快速准确评估植物物种多样性的指示因子

迄今为止第一篇利用环境DNA进行的大尺度植物物种多样性研究

温度是影响荒漠区植物多样性的主要生态因子

人类活动对荒漠区本地的植物多样性有负面影响

提出了荒漠区植被地下水依赖学说

iMeta: Integrated meta-omics to change the understanding of the biology and environment

WILEY



“*iMeta*” is an open-access Wiley partner journal launched by scientists of the Chinese Academy of Sciences. *iMeta* aims to promote metagenomics, microbiome, and bioinformatics research by publishing original research, methods, or protocols, and reviews. The goal is to publish high-quality papers (Top 10%, IF > 15) targeting a broad audience. Unique features include video submission, reproducible analysis, figure polishing, APC waiver, and promotion by social media with 500,000 followers. Three issues were released in [March](#), [June](#), and [September](#) 2022.



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