There are two research questions:

1. how landscape has impact on bird richness in these developed cities?
2. how these socio-economical factors and city tree composition influence urban bird diversity?

**Appendix**

Brief summary of all studying variables

|  |  |  |
| --- | --- | --- |
| **Variable** | **Description** | **Source** |
| Province | Province where studying cities located | China Statistical Yearbooks Database |
| City | 40 studying cities’ names | China Statistical Yearbooks Database |
| Population | 2018 residential population of each city | China Statistical Yearbooks Database |
| GDP (10 thousand RMB) | Studying cities’ GDP in 2018 | China Statistical Yearbooks Database |
| Lat | Latitude of cities | Simplemap (<https://simplemaps.com/data/cn-cities>) |
| Long | Longitude of cities | Simplemap |
| Farmland | The proportion of farmland area to the total urban area. Farmland includes paddy field and dry farm. | Resource and Environment Science and Data Center |
| Forest | The proportion of forest area to the entire city area. Forest includes forest (both artificial and natural), shrubland, open forest land and other type of wood land. | Resource and Environment Science and Data Center (http://www.resdc.cn/data.aspx?DATAID=264) |
| Grassland | The proportion of grassland area to whole urban area. | Resource and Environment Science and Data Center |
| Water | The proportion if water area to entire urban area. Water includes channels, lakes, rivers, ponds, reservoirs, glaciers, riparian and tide area, and ocean. | Resource and Environment Science and Data Center |
| Buildings | The proportion of impervious surface area to city area. This includes urban using land (built-up area), countryside, and other constructing land such as roads, industrial area and mine area etc. | Resource and Environment Science and Data Center |
| Unused | The proportion of unused land to city area. The unused land refers to lands which is not used until the mapping time, including sandy land, Gobi, saline land, marshland, barren land and other unused land. | Resource and Environment Science and Data Center |
| Trees | The number of tree species richness in Chinese cities | UrbanEcology |
| Birds | The number of total avian species in studying cities | Bird Report (<http://www.birdreport.cn/> ) |
| Migrant | The number of migrant bird species in studying cities | IUCN Red List (<https://www.iucnredlist.org/>) |
| Resident | The number of residential bird species in studying cities | IUCN Red List (<https://www.iucnredlist.org/>) |
| B.water | The number of water bird, whose habitat is wetland or marine area in studying cities | IUCN Red List (<https://www.iucnredlist.org/>) |
| B.forest | The number of forest bird, whose habitat is forest in studying cities | IUCN Red List (<https://www.iucnredlist.org/>) |
| B.grassland | The number of grassland bird in studying cities | IUCN Red List (<https://www.iucnredlist.org/>) |
| B.shrubland | The number of shrubland bird in studying cities | IUCN Red List (<https://www.iucnredlist.org/>) |
| Report | Observation records, which are published by Bird watchers per city | Bird Report (<http://www.birdreport.cn/> ) |