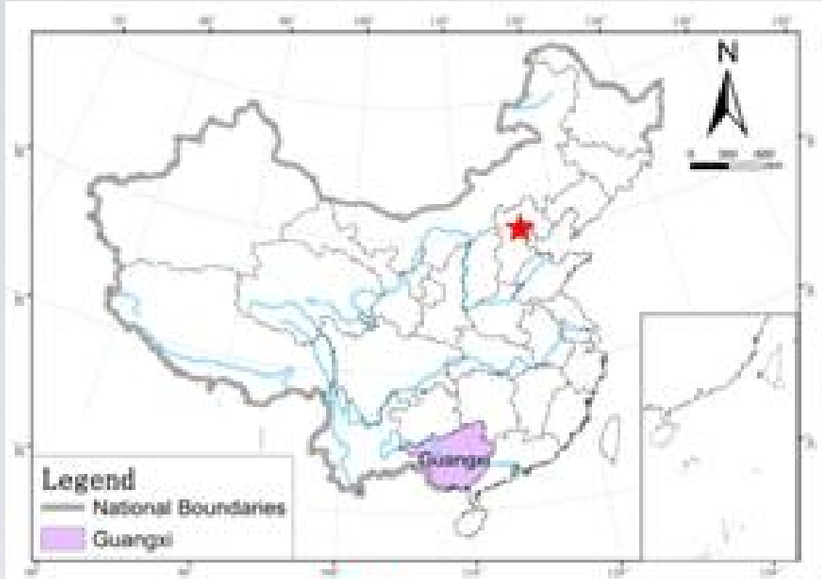
Journal of Zhejiang University-SCIENCE A

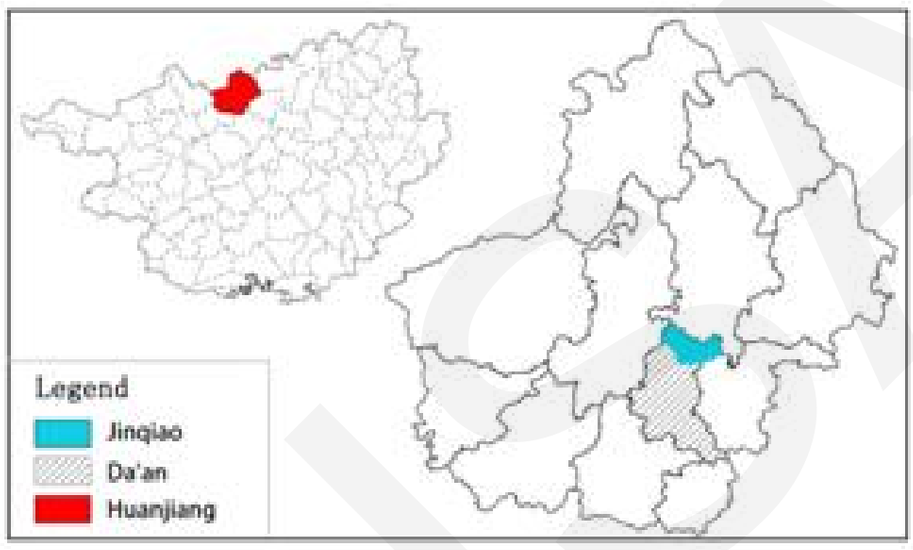
Environmental impact assessment of ecological migration in China: a survey of immigrant resettlement regions

Key words:
Ecological migration; Environmental impact; Ecological footprint; Immigration area; China

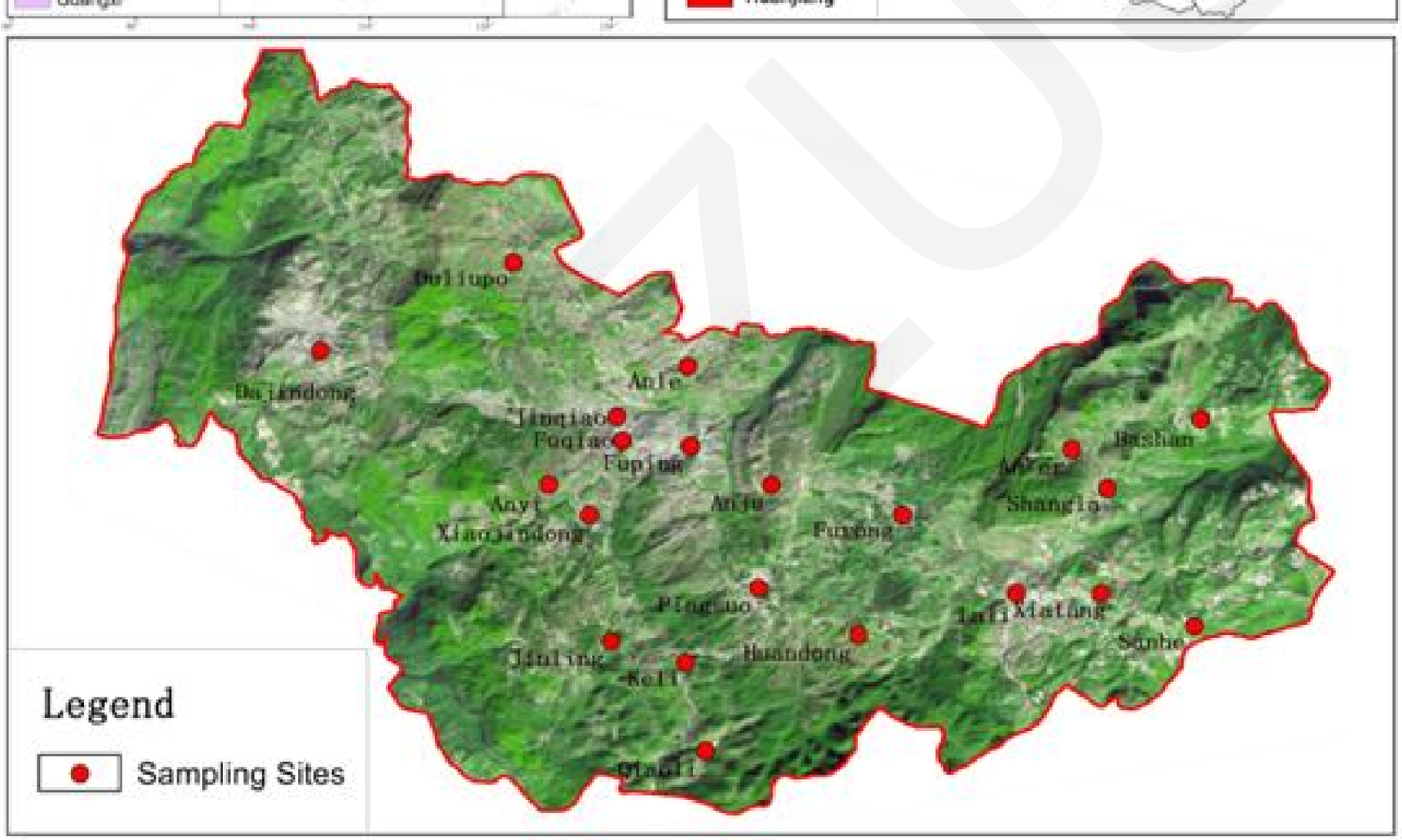
Cite this as: Ye-cui Hu, Wei Zhou, Tao Yuan, 2018. Environmental impact assessment of ecological migration in China: a survey of immigrant resettlement regions. *Journal of Zhejiang University-SCIENCE A (Applied Physics & Engineering)*, 19(3):240-254. https://doi.org/10.1631/jzus.A1600669

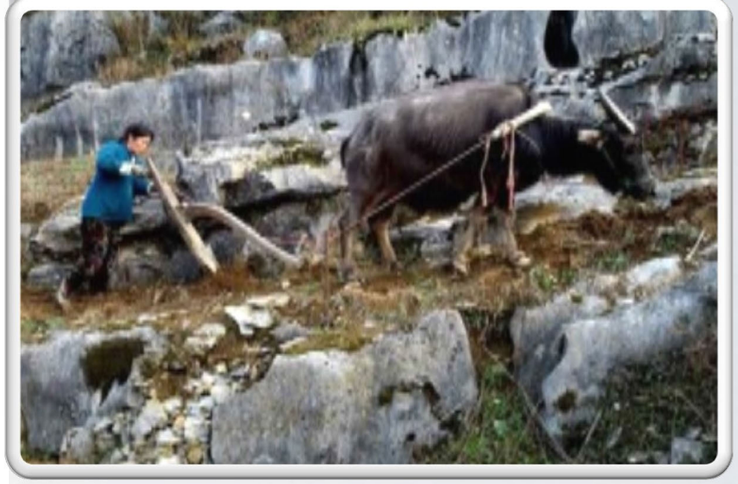
RESEARCH AREA













DATA SOURCES AND METHODS

Household Survey

A comprehensive household survey were conducted . The final number of questionnaires found to be satisfactorily completed was 131, of which 95 were completed by migrants and 36 by native residents.

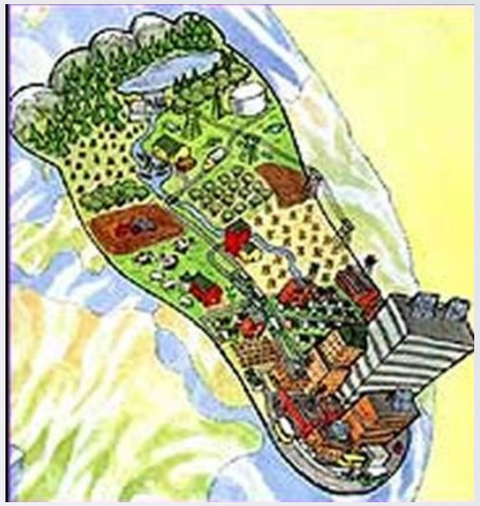
Ecological Footprint Model

$$EF_p = \sum P_i/Y_{N,j} \cdot YF_{N,j} \cdot EQF_i = \sum P_i/Y_{W,j} \cdot EQF_i$$

$$BC = \sum A_{N,j} \cdot YF_{N,j} \cdot EQF_i$$

$$ED = EF - BC \ (EF > BC)$$

$$ER = BC - EF \ (BC > EF)$$



STIRPAT Model

the STIRPAT model was established with explanatory variables of population (*P*), affluence (*A*), consumption modes (*C*), and livelihood (*L*) to explore the effect of the socioeconomic activities of rural households on the per-capita EF in eco-migrant resettlement areas.

RESULTS AND CONLUSIONS

- In the past 20 years of implementing eco-migration policies, the EF per capita constantly increased, biocapacity (BC) per capita constantly decreased, and the ecological deficit gradually increased, indicating an extremely negative impact of eco-migration projects on the ecological environment in the immigration area.
- Cropland and forest land are the most important components of the per-capita EF. The per-capita EF of cropland experienced overall a first increasing and then decreasing trend, and the per-capita EF of forest land constantly increased and showed the most rapid increase among all types of EFs in the last two decades.
- The proportion of per-capita EF of different types of productive land is in the order of forest land> cropland > carbon uptake land > built-up land > grazing land from high to low, and this is a significant change from the original order of cropland > forest land> carbon uptake land > grazing land > built-up land.
- Because of unequal possession of ecologically productive resources, the overall per-capita EF, overall per-capita ECC, overall per-capita ecological deficit of productive land use by migrants, and their component values of different types of productive land use are all lower than the corresponding values of the natives. The ecological deficit of natives is more severe than that of migrants.
- Whereas population growth and overexploitation of resources lead directly to the increased pressure on the ecological environment in the immigration area, increasing nonagricultural income and improving the consumption structure can reduce the dependence of farmers on the land, thus inhibiting the increase of EF.