



Study on the interception effect of Hani rice terraces wetlands based on source-link theory

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Source-sink theory is a more effective new method for controlling non-point source pollution in the regulation and optimization of landscape pattern, and plays an important role on controlling non-point source pollution in watershed. It is of important reference value to quantitatively study the landscape pattern of "source" and "sink" of wetlands and the function of interception on the control of agricultural non-point source pollution in Hani rice terraces.

The paper takes Honghe Hani Rice Terraces National Wetland Park as an example, collecting 70 water samples in Hani rice terraces area in June and December 2017. The spatial distribution pattern of "source" and "sink" landscapes was analyzed by Lorentz curve. Different landscape wetlands of the retention rate. The results show:

- 1) The retention rates of nitrogen and phosphorus in water bodies of different wetlands are between 73.4% -100% and 59.5% -100%, and they have a good interception effect on nitrogen and phosphorus nutrients. The descending order is: ditch-pond system > ditch - pond - field system> terraced wetland> vertical ditch, we can see that the retention rate of composite wetland system is better than single wetland;
- 2) In terms of the spatial distribution of landscape types, the paddy fields are located at a relatively close distance from the outlet in terms of distance distribution and height distribution. The forestland is located far away from the water outlet of the river basin and other landscapes are irregularly distributed. The pattern of forests, terraces, with village in the middle, and the water runs through them, which is conducive to interception of pollutants;
- 3) and optimize the pattern of "source" and "sink" landscapes with irrational distribution of landscapes. It is of great significance to seek a landscape pattern that is conducive to the retention of non-point source pollutants and to control non-point source pollution in agricultural watersheds.