

Species Diversity and Ecological Niche Characteristics Analysis of Artificial Vegetation in the Peripheral Regions of oasis

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Abstract: The main purpose of this study was to further learn the stability of artificial plant community in the lower reaches of the Tarim River, both the species diversity of different types desert artificial plant communities and ecological niche characteristics of main dominant species were analyzed by using the qualitative and quantitative methods along the gradient of communities in the periphery of oasis. And also zthe ecological significance was analyzed by the niche relationship of various dominant species.



Results:

- 1 In 9 communities, Halogeton glomeratus + Karelinia caspica community (C2) has the higher diversity indices and evenness indices, and lower ecological dominance while Calligonum caput-medusae+ Populus euphratica community (C7) is on the contrary.
- 2 The variety range of Shannon-Wiener index (H') is 2.08~3.99, and its variety range in the communities are the same as the trend of richness changes.
- 3 There were 7 dominant species selected out of the 26 species appearing in the 20 sampling plots. Several native plant species became dominant species, such as Phragmites communis, Karelinia caspica and Halogeton glomeratus. And the planting species of Lycium barbarum disappeared gradually in these three years.
- 4 In general, niche breadths of dominant species were decreased in order of Phragmites communis>Karelinia caspica>Calligonum caput-medusae>Elaeagnus angustifolia>Populus euphratica>Haloxylon ammodendron>Halogeton glomeratus in artificial-natural plant communities. And Glycyrrhiza uralensis has the largest niche overlaps value (0.8560) with Apocynum venetum among dominant species. The study showed that artificial forest communities are in the stage quickly developing and stay in the fluctuation variety between instability and relative stability during the process of vegetation restoration. Halogeton +Karelinia caspica community was mature and not at the most stable state. And Calligonum caput-medusae + Populus euphratica community wasimmature and in unstable phase of community.

