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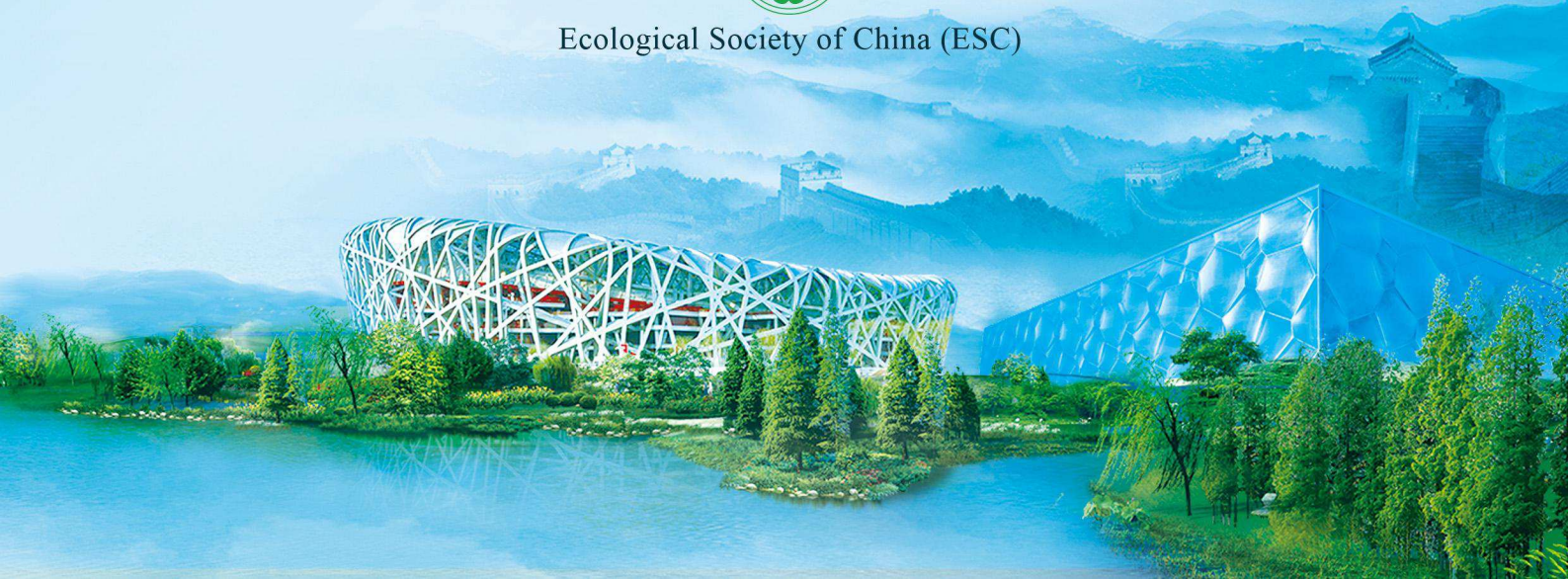

oxidizable organic C content. This change may be in favor of the long-term C storage in the soil because chemical recalcitrance has been frequently considered an important pathway to prevent the SOC from decomposition. Moreover, the invasion induced SOC increment turned greater with further invasion and decreased with soil depth, implying that SOC accumulation derived from plant invasion is a slow and asymptotic process. These results suggest that P. clematidea invasion could facilitate C sequestration in the tropical savannas in a long term.

Key words: Global Change, Biological Invasion, SOC Fractions, C Sequestration

Selection Effect and the Maintenance of Community Productivity and Exotic Resistance

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Abstract: Diverse plant communities are hypothesized to possess stronger stability than species-poor communities. In other words, when facing with environmental changes, such as climate changes, anthropologic disturbances and exotic invasion, the ecological functions of a diverse plant community are less affected. Stronger stability of diverse communities can sometimes be attributed to the occurrence of some specific species or some specific groups of species (i.e. selection effect), which maintains the strong ecological functions even with the loss of other species. Here I present some preliminary evidence for how a specific species or a specific group of species may play important roles in maintaining two important community ecological functions, productivity and invasion resistance. A previous study conducted in grassland ecosystem in north-western USA showed that native grasses were the major contributors to the high productivity and strong resistance to invasion by Bromus tectorum, while the growth performance of native grasses were less affected by environmental changes and Bromus invasion comparing to native forbs. However, as species diversity increased, forbs performed better, which made the advantage of grasses over forbs less prominent. This result indicates that while native grasses can help maintain strong ecological functions alone or through facilitating the performance of native forbs. Another study conducted in the subtropical forest in southern China suggested that there was also a specific group of species that played an important role in impeding exotic invasions in forest. We found that those species with strong allelopathic potential against exotic invaders can greatly enhance community resistance to invasion. Even though increased species diversity also facilitated stronger resistance, the presence of these allelopathic plants played stronger roles. Both the above evidence indicate that there are some key species in a plant community which could