

31th FEFCO

Forest Ecosystem Function Colloquium (FEFCO) は、地域や地球全体のレベルで森林生態系の機能とその持続的活用法を統合的に理解することを目的とし、研究者間の学術交流を推進します。

第31回森林生態系機能コロキウムは、浙江大学のMingjian, Yu先生にご講演いただきます。どなたでも参加できますので、多くの皆様のご参加をお待ちしております。京都大学農学研究科環境デザイン学研究室がホストを務めます。

31th FEFCO
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Faculty of Agriculture Main Building, S174
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Forest biodiversity and its response to disturbance in East China

China alone possesses ~2.5 million km² in the subtropical zone. The subtropical broad-leaved forest (SBLF) developed under the monsoon climate is a major type of forests in the world, and the zonal vegetation is evergreen broad-leaved forest (EBLF). Natural and anthropogenic disturbances also drive community assembly and biodiversity maintenance of forests in this region.

In 2005, I and my collaborators established a 24-ha primary EBLF dynamics plot in Gutianshan National Nature Reserve, and conducted two recensus in 2010 and 2015. Based on analyses of the dataset of this plot, we found that dispersal limitation and habitat heterogeneity jointly explained the species-area relationships of woody plants, and we further found that species clustering spatial distribution patterns were shaped by both habitat heterogeneity and other clustering processes (e.g., dispersal limitation). The clustering level of phylogenetic community structure increased with tree life stages in the plot, while forest gap disturbance altered seedling phylogenetic community composition but not structure.

Habitat fragmentation is one of the main anthropogenic disturbances threatening biodiversity. We have been conducting habitat fragmentation effect research on land-bridge islands in the Thousand Island Lake — a man-made reservoir with over 1000 islands formed in 1959. We investigated plant richness on 156 islands during 2007-2008 and using forest dynamics plots to monitor plant community dynamics on 29 islands in 2009-2010 and 2014-2015. We found that island area but not isolation played the dominant role in forming species richness on TIL's islands, and habitat diversity were more important than area per se in shaping community composition. The factors driving community assembly processes differed between life stage transitions. The variation in α -diversity, not spatial turnover, drove the variation in β -diversity on the 29 islands, and environmental filtering and differing responses of plant functional types were the underlying driving mechanisms.