

**The Moran effect and pollen coupling of forest trees:  
significant factors in fluctuating and synchronous seed reproduction**

by

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Many tree species in mature forests show masting -- their reproductive activity fluctuates between years and is often synchronized over individuals. Koenig and Knops (1998, 2000) demonstrated that synchronous seed reproduction of trees over long distance in north hemisphere is caused by the common environmental fluctuation such as rainfall and temperature. Satake and Iwasa (2000, 2001), however, concluded that synchronization of seed output of trees is realized without any common environmental fluctuation when pollen limitation occurs. In this seminar, we briefly report the results of the study that investigate the effect of common environmental fluctuation (Moran effect) as a synchronizing agent on the base of the model analysed by Satake and Iwasa (2000, 2001). We examined two models including environmental noise: the global pollen coupling model and the local pollen coupling model. As a result of calculation of correlation coefficient of seed crop size for different trees in a forest in both models, we assert that common environmental noise is not sufficient to synchronize seed reproduction of trees even if noise is completely the same for different trees.