



Asst. Prof.
KATSUHARA Koki



Coexistence mechanisms among native, congenetic plant species

Plant species is the most important part of biodiversity and it provides various ecosystem functions. To clarify the coexistence mechanism of closely related plant species is a challenging subject because they often share a very similar resource demand and reproductive biology. We have examined the coexistence mechanism between native *Commelina* species under pollinator-mediated competition (Fig. 1). Our studies are basically based on field observations and combined with experiments of population genetics and theoretical models. Now, we are working on elucidating the mechanisms that the evolution of plant mating systems promote the coexistence among related species.



Fig. 1. *Commelina communis* (left) and *C. communis* f. *ciliata* (right).

Population persistences of native plant species in the urban environment.



Fig. 2. Rural (left) and urban (right) populations of *Commelina communis*.

From now and probably in the future, land-use change has been thought to be the most severe driver of changes in biodiversity. Urbanization, which is intensifying human impacts, is a major driver of habitat loss for plants and pollinators. Our study species, *Commelina communis*, is largely distributed from rural to urban areas (Fig. 2) although many habitats of native plant species are lost related to urbanization. We are now examining what determines the robustness or vulnerability for human impact via focusing on plant mating systems and plant-pollinator interaction.