Highlighted Articles for June 2024

African miombo woodlands may date back to the Plio-Pleistocene

Arthur F. Boom et al. 2024. Phylogenomics of Brachystegia: Insights into the origin of African miombo woodlands. American Journal of Botany https://doi.org/10.1002/ajb2.16352

Miombo woodlands span approximately 2 million square kilometers in southern and eastern Africa. These landscapes are dominated by a limited number of legume tree genera, and the timing of when such landscapes arose remains elusive. To investigate this, **Boom et al. applied a targeted-enrichment sequencing approach on a representative set of 60 specimens from *Brachystegia*, the most species-rich and dominant genus of the Miombo woodlands.** This approach allowed the reconstruction of a dated phylogeny that spotlights a Pliocene origin for current lineages, with most of the diversification events occurring during the Pliocene-Pleistocene. **The results support a recent origin for most woodland species, and a possible recent origin for the current vegetation type.** When combined with previous observations, the results are compatible with *Brachystegia* species behaving potentially as a syngameon, a group of interfertile but still relatively well-delineated species, an aspect that deserves further research.

Plant diversity reduces insect herbivory on subtropical forest seedlings

Insect herbivory significantly impacts the survival and growth of forest seedlings, thereby influencing forest regeneration and species composition. Hypotheses such as plant apparency, resource concentration, and resource availability have been proposed to explain variability in leaf herbivory, but none of these consider seasonal differences in the intensity of herbivory. **Wang et al. investigated woody broadleaf seedlings and leaf herbivory along an elevational gradient in a subtropical forest in spring and autumn.** Their study revealed a unimodal pattern of herbivory with the highest levels of herbivory at mid-elevation, and the results supported the resource concentration hypothesis, indicating low herbivory in the elevations with high plant diversity. **This research underscores the importance of seasonal differences in biotic and abiotic variables for explaining the role of insect herbivory in the maintenance of subtropical seedling communities.**

Xiaoran Wang et al. 2024. Insect herbivory on woody broadleaf seedlings along a subtropical elevational gradient supports the resource concentration hypothesis. https://doi.org/10.1002/ajb2.16355

Selfing ability confers demographic advantage in colonization

D**iscussions of plant mating system evolution include the hypothesis, colloquially known as "Baker's law," that the ability to self-fertilize confers an advantage in the colonization of new habitats.** Models and geographic patterns of mating system variation support this idea, so Makowski et al. added to this rich history with novel experimental tests. **The authors used known mating system variation in the American bellflower (*Campanula americana*) to explore how a plant's ability to self-fertilize can mitigate density-dependent reproduction and impact colonization success.** They compared the reproductive output of high and low selfing ability plants in single- and multiple-plant arrays and found that high selfing ability plants were not sensitive to the density of potential mates, but low selfing ability plants were, suggesting that there is selection for self-fertilization ability during colonization. **As range shifts are expected in many taxa as a response to global climate change, this work suggests that mate limitation during colonization will likely select for increased self-fertilization, which has implications for future genetic diversity and adaptation.**

Hanna Makowski et al. 2024. Support for Baker's law: Facultative self-fertilization ability decreases pollen limitation in experimental colonization. *American Journal of Botany* https://doi.org/10.1002/ajb2.16351