Shared Knowledge Conference

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Climatic Niches of Desert Plant Phenology

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Plant phenology, the timing of important life events such as leaf growth or reproduction, can be cued by many abiotic factors. In aridlands, plant growth and reproduction may be controlled by photoperiod, stochastic rain events, or temperature. Variation in these environmental variables may lead some species to “boom” in good years or fail to grow or reproduce in extreme seasons or years, especially in aridlands. Here, we leverage plant phenology and biomass datasets to study the intra- and interannual variation in flowering communities at three semi-arid biomes. We relate indices such as diversity, abundance, and synchronicity to site-specific meteorology spanning two decades in order to answer the following questions: (1) Is community structure of all plants directly comparable to flowering community structure? (2) Do flowering communities vary in response to climatic factors? (3) For each species, do flowering dates change over time, with increasing aridity, or according to seasonal precipitation? (4) Does the phenological niche of plants match those of the animals that rely on them?