Heat wave and mowing effects on grassland ecosystem

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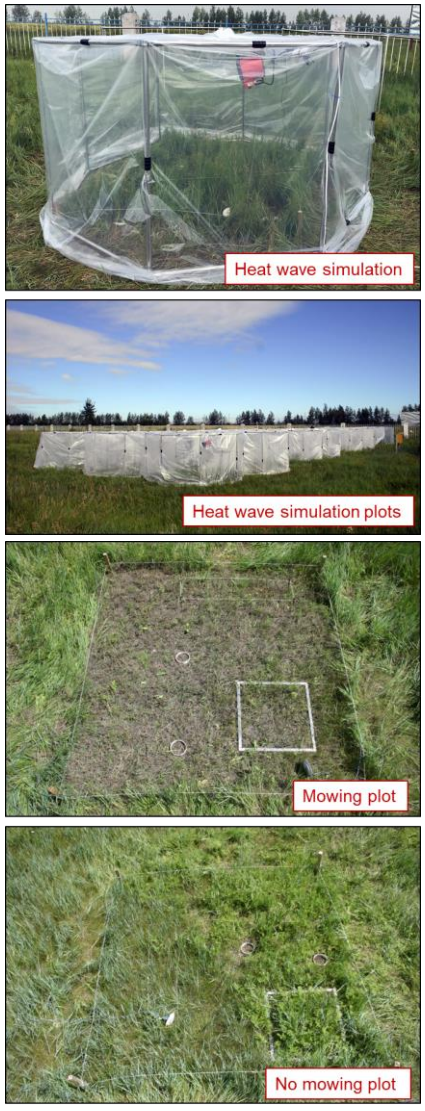
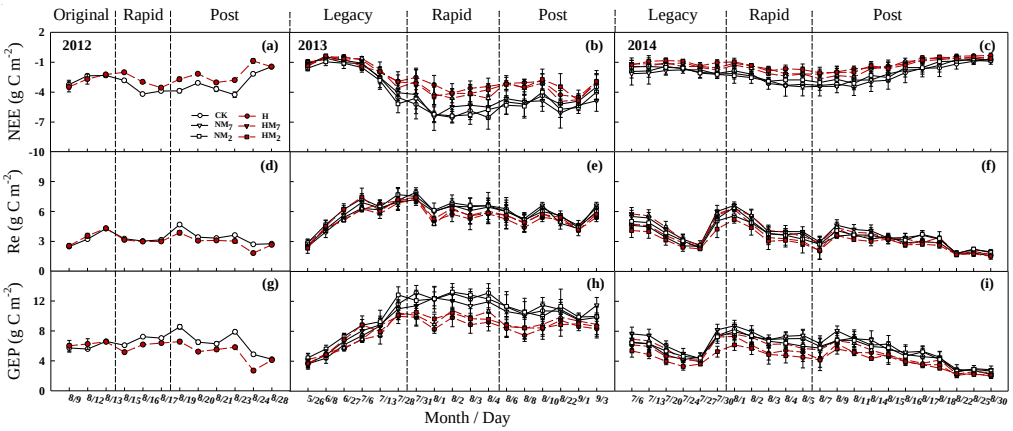
Heat waves are naturally occurring hazards characterized by sudden anomalously high (absolute or relative) temperatures that can cause functions to shift dramatically and rapidly. Measuring the ecosystem responses to the interaction of human activities (such as mowing) and heat waves become crucial. Fully understand the short-term and long-term of heat wave and mowing on the key processes of ecosystem carbon and water cycle (photosynthesis, respiration, evaporation), reveal the mechanism of plant response to the interference, will helpful in animal husbandry management and beneficial to the studies of global climate change ecology.

Heat wave and mowing treatment

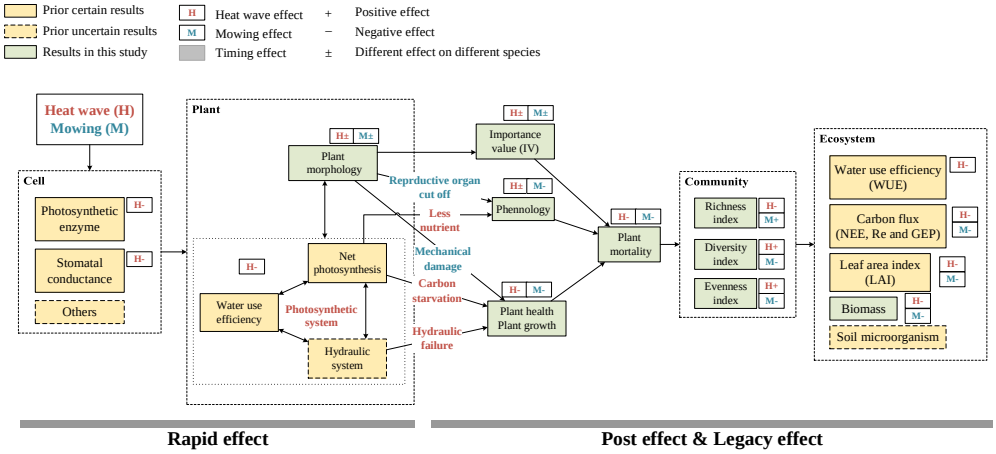


Heat wave and mowing effects on grassland ecosystem carbon exchange (NEE, Re, and GEP)

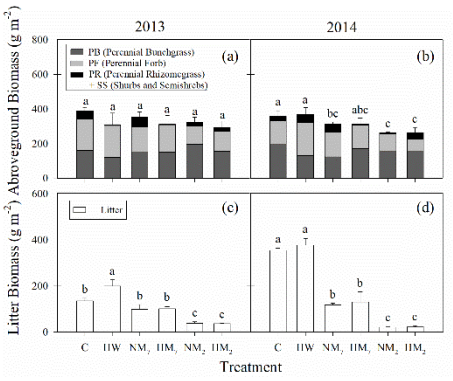


Results showed that heat waves will significantly decrease the carbon sink ability of grassland, and have long-term effect. Meanwhile, mowing will enhance the negative effect of heat wave and threaten the safety of the ecosystem.

Conceptual framework of the cell-plant-community-ecosystem feedback to heat waves (H) and mowing (M) on the grassland ecosystem



Explain the reason of why heat wave and mowing exist rapid effect, post effect, and legacy on grassland ecosystem.



Heat and mowing effect on grassland biomass

Heat wave and mowing change the biomass of different functional groups, and heat wave increase the litter biomass while mowing decrease the litter biomass.