Oral presentation

Harvest Induced Compensatory Recruitment

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Introduction. Prairie turnip, *Pediomelum esculentum* (Pursh) Rydberg (Fabaceae), an edible plant native to North American prairies, has a long history of wild harvest. Harvest increases adult plant mortality, but *P. esculentum* harvesters paradoxically report that harvest helps populations.

Objectives. To determine 1) if harvest affects seedling recruitment in *Pediomelum esculentum*, 2) if timing and method of harvest affect post-harvest seedling recruitment and 3) how changes in seedling recruitment affect overall models of population stability.

Methods. Seedling recruitment was tracked following mimicked harvest in a 60 plot field experiment. The results of this experiment, along with changes in survival and fecundity rates under different harvest regimes were added to population growth simulations based on observed data from three unharvested populations.

Results. Traditional methods of harvest (digging when the seeds are ripe and scattering or burying the seeds) led to a dramatic increase in seedling recruitment when compared to plots without disturbance or seed scattering. In model projections, this increase in recruitment did not fully compensate for loss of harvested adults, but it did double the mathematically calculated sustainable yield.

Conclusion. This form of compensation, in which the act of harvest (rather than the removal of con-specific competitors) leads to an increase in a vital rate, is newly named, harvest induced compensatory recruitment, but is likely found in many other species and habitats.

Keywords: *Pediomelum eculentum*, prairie turnip, wild edible plants

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