Title: Priority Species Lists to Restore Desert Tortoise and Pollinator Habitats in Mojave Desert Shrublands

Presentation Abstract: Mojave Desert shrublands are home to unique plants and wildlife and are experiencing rapid habitat change due to unprecedented large-scale disturbances; yet, established practices to effectively restore disturbed landscapes are not well developed. A priority species list of native plant taxa was developed to guide seed collectors, commercial growers, resource managers, and restoration practitioners in support of the Bureau of Land Management's Mojave Desert Native Plant Program. We identify focal plant taxa that are important for habitats of the threatened Mojave desert tortoise (*Gopherus agassizii*), a widely distributed herbivore in low and middle elevations, and pollinator taxa, including mostly Lepidopterans and Apoidean bees, some of whose populations are in decline. We identified 201 unique plant taxa in the diets of tortoises, and 49 taxa that provide thermal cover for tortoises with some overlapping taxa that provide both diet and cover. We discuss 134 native pollinators associated with plants used for nectaring, larval hosts, or cover and nesting materials. Detailed plant species accounts describing the status-of-knowledge for 57 plant taxonomic groups including detailed information on life history, ecology, and pollinator syndrome relevant to restoration success, methods of seed harvesting, propagation, and historical use in restoration. Our approach for developing a priority plant species list for the Mojave Desert provides a data-guided listing of species for restoration practitioners and identifies knowledge gaps for future investigation.

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Esque acquired his education at Prescott College, Colorado State University, and University of Nevada - Reno. As an aridlands research ecologist, he conducts field and laboratory experiments responding to natural resource issues and assist managers in accordance with USGS' Wildlife, Invasive Species, and Energy & Wildlife programs. His study areas include the southwestern United States, and northern Mexico. His multi-scale research program (i.e., genetics through ecosystems) focuses in a variety of specialty areas (e.g., biogeochemistry, physiology, epidemiology, demographics, landscape genetics, predator and prey relationships, habitat quality, fire and other disturbances, habitat restoration) in plant and animal ecology. He collaborates with government, private, and public science organizations. He supports graduate student research and serve on several student committees.

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