



Webinar Brief for Resource Managers

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Pollinator-friendly forbs to seed for the sagebrush-steppe

Presented on 17 March 2016 by Jim Cane, Research Entomologist, USDA-ARS Pollinating Insect Research Unit Utah State University, Logan, UT

Project Summary:

This webinar summarizes research conducted by Jim Cane about pollinators and sagebrush restoration.

Abstract:

Healthy plant communities of the American sagebrush-steppe and adjacent higher-elevation plant communities consist of mostly wind-pollinated shrubs and grasses interspersed with a diverse mix of mostly spring-blooming, herbaceous perennial wildflowers. Native, non-social bees are the common floral visitors, but their floral associations and abundances are poorly known. Most of the species will be ground-nesters and have a single adult generation per year. Extrapolating from the few pollination studies, bees are the primary pollinators needed for seed production. Bees therefore will underpin success of ambitious seeding efforts to restore native forbs to impoverished plant communities following vast wildfires. We have quantitatively characterized the floral guilds of 17 prevalent wildflower species of the Great Basin that are, or could be, available for restoration seed mixes. More than 3800 bees representing >170 species were sampled from >35,000 plants. Species of *Osmia*, *Andrena*, *Bombus*, *Eucera*, *Halictus* and *Lasioglossum* bees prevailed. The most thoroughly collected floral guilds, at *Balsamorhiza sagittata* and *Astragalus filipes*, attracted 76 and 85 native bee species, respectively. Pollen-specialists dominated guilds at *Lomatium dissectum*, *Penstemon speciosus* and several congeners. In contrast, the two native wildflowers used most often in sagebrush-steppe seeding mixes – *A. millefolium* and *L. lewisii* – attracted the fewest bees, most of them unimportant in the other guilds. Success seeding more of the other wildflowers studied here would greatly improve degraded sagebrush-steppe for its diverse native bee communities.

Management Implications

- Native bees do not consider flax and yarrow to be “pollinator-friendly”
- Even seeding limited patches of the array of common native forbs would be beneficial, drawn from the array of commercially available seed
- Many of these forbs share some of their pollinators, so if one grows on site (e.g. lupine), it will be supporting bees that will pollinate a new seeding (e.g. locoweed).

Most Relevant References:

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- Cane, J.H., Weber, M., Miller, S. 2012. Breeding biologies, pollinators and seed beetles of two prairie-clovers, *Dalea ornata* and *D. searlsiae* (Fabaceae: Amorphaeae), from the Intermountain West USA. *West. North Amer. Natur.* 72 (1):16-20. (and related titles for other genera)
- Cane, J.H. 2011. Meeting wild bees' needs on rangelands. *Rangelands* 33(3):27-32
- Ogle, D., J. Cane, F. Fink, L. St. John, M. Stannard, and T. Dring. 2011. Plants for pollinators in the Intermountain West. Tech. Note. Plant Materials no. 2. 22pp.
- Tilley, D., Cane, J., St. John, L., Ogle, D. and N. Shaw. 2012. Plant guide for yellow beeplant (*Cleome lutea*). USDA Natural Resources Conservation Service. Aberdeen, ID. (and the many other fine plant guides being issued by this and other Plant Material Centers)