J. Kent McAdoo

Jan 28, 1949 – Jan 10, 2018

Bachelor's: Forestry (Wildlife Management) University of Idaho.

Master's: Renewable Resources University of Nevada, Reno 1975

Married the love of his life and hometown sweetheart, Cathy 1972

Career: 19 years Natural Resources Specialist - University of Nevada Cooperative Extension - Elko, NV Also had been Consultant - JBR Environmental Consultants, Inc., Ecologist - Freeport McMoran, & Research Associate - UNR

Dedicated to the stewardship of natural resources in Nevada and beyond, Kent's affection for people was evident in the way he always made time to listen to a story or share his own. He was a teacher in every sense of the word, captivating his audience with his vast knowledge via presentations, journal articles, and life lessons. We will miss Kent's wit, his infectious laugh, his love for music, sagebrush, habitat, and collaboration, his friendship, and most of all, time spent in his presence.

Shrub Island Establishment Innovation: Sacrificing a Few Sagebrush to Plant Many

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Rationale

- Successfully planting sagebrush from seed is challenging, especially on lower precipitation sites (Shaw et al. 2005)
- Planting sagebrush seedlings can be successful (Davies et al. 2103; McAdoo et al. 2103a), and although limited in spatial extent, can provide sagebrush islands that will become seed sources and accelerate vegetation recovery (Longland and Bateman 2002)
- Wyoming big sagebrush established best in the snowy years (Perryman et al. 2001)
- Sagebrush seeds naturally disperse in late fall or early winter, and artificial seeding on snow has been successful in many areas (Jacobs et al. 2011)
- Because sagebrush seeds tend to germinate where snow accumulates, soon after snowmelt (Jacobs et al. 2011), we plan to use cut sagebrush plants both as the source of sagebrush seed and as a means of trapping snow for enhanced germination.
- Accumulating leaves will provide litter/mulch (Monsen & Stevens 2004)

- **Importance of litter (Monsen & Stevens 2004**
- **Importance of snow accumulation (Jacobs et al. 2011)**

Objective

Our primary objective was to evaluate the fall placement of sagebrush plants (harvested at near seed-ripe) in recently burned areas and grass-dominated plant communities, where the harvested sagebrush will serve both as snow catchments and seed source as the seeds dehisce.

Methods

- We established treatments within three newly burned sites in northern Nevada, 30 to 60 km apart and having variable elevation, topography, and soils
- We used a randomized block study design, with five blocks at each site
- Within each block, three 15-m^2 plots were randomly selected for either cut-shrub placement, broadcast seeding, or no treatment
- At each of the cut-shrub plots, we placed Wyoming big sagebrush stems (harvested just before seed-ripe in November 2016)
- Seeded plots were hand-broadcast with seed zone-adapted sagebrush seed to simulate conventional broadcast-seeding practice

November 2016

February 2017

Preliminary Results


May 2017


October 2017

Summary of First Year Results

- **Sagebrush seedling survival in cut-shrub plots, though quite variable, was significantly higher ($p < 0.05$) at each of the sites than in the broadcast-seeded plots.**
- **In May, some cut-shrub plots had a “carpet” of sagebrush within 0.5 m of the cut sagebrush, but by October, natural thinning had reduced survivors by approximately 50%.**
- **Although more natural thinning is anticipated, the October aggregate survival density mean for cut-shrub plots (5.7/m^2) was still two orders of magnitude higher than that for broadcast-seeded plots.**
- **Precipitation was higher than normal during this first year of study.**
- **It appears that it will be lower than normal this year.**

Future Research & Application

- **We will establish additional plots in at least three new wildfire sites during November 2017.**
- **Preliminary results indicate potential utility of this technique where establishing sagebrush islands could serve as a seed source for successional recovery of critical sites over time.**
- **It may be appropriate to also investigate plant community effects at the harvest sites.**

Most seeds within <1 – 2 m from parent plant

(Goodwin 1956, Welch 2005)

Literature Cited

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* Active vegetation management for restoration of sagebrush-perennial grass communities is necessary and some areas require seeding or planting of desirable vegetation (McAdoo et al. 2013b).
* Unfortunately, restoration of Wyoming big sagebrush on areas where it is critical, but absent, has also been limited by inadequate restoration techniques and technologies.
* **Data will be analyzed using mixed-model ANOVA (PROC MIXED, Littell et al. 1996) with repeated years.**

Squaw Valley, 2018

Four out of five cached plots had seedlings

Izzenhood fire site, 2018

Three out of four cached sites had seedlings

Maggie Creek, 2018

All five cached plots had seedlings

One site had 340 seedlings

Oil Well fire, 2018

First year of counting

All four Cached sites had seedlings

Coal fire

Two of five cached sites had seedlings

Delano fire

One out of five cached sites had seedlings

It is apparent from the results of this experiment that sagebrush can be readily and inexpensively established by placement of seed-laden sagebrush branches

In 2018, we found no evidence of sagebrush establishment in plots that were hand sown with seed or where there was no treatment, eg the natural sagebrush regeneration


Questions or Comments