

Saltcedar Establishment

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Saltcedar was introduced for ornamental and flood control purposes in the Northern Great Plains between 1930 and 1950 and spread rapidly along waterways in the following decades (Pearce and Smith 2007; R. Moehring, personal communication). To date, northern saltcedar infestations occur primarily in riparian habitats on regulated (Bighorn, Cheyenne, Missouri, and Yellowstone) and unregulated (James, Powder, and White) rivers of eastern Wyoming and Montana, and the western Dakotas (Pearce and Smith 2007; Ron Moehring, personal communication).

Habitat suitability models predict that croplands and grasslands may be 1.5 to 2 times more likely to support saltcedar than water areas (Morissette et al. 2006). This information is counterintuitive to previous reports linking saltcedar invasion to disturbed waterways. The Northern Great Plains contains millions of acres of croplands and grasslands that provide economic and ecological sustenance for this region. Agriculture provides more than 20 billion dollars each year for South Dakota (>35% of the state's economic activity) (Western Farmer Stockman 2009). The Prairie Pothole Region of North Dakota, South Dakota, and Montana, characterized by high surface soil moisture for days to months during the growing season, is a productive area for agriculture and wildlife (Euliss et al. 1999). Current saltcedar location maps report presence, albeit in low numbers at few sites, in eastern South Dakota's Prairie Pothole Region (South Dakota Department of Agriculture 2012 Distribution http://sdda.sd.gov/legacydocs/Ag_Services/Plant-Protection/PDF/2012%20SALTCEDAR.pdf). These data provide evidence that saltcedar is establishing in moist-soil northern grassland habitats.

Saltcedar seeds are able to germinate in cold temperatures associated with northern regions. Between 20 to 50% of saltcedar seeds germinated when exposed to fluctuating temperatures between 0 C (32 F) and 5 and 10 C, respectively (Young et al. 2004). Saltcedar seeds (southern and northern ecotypes) have also been observed to have some longevity (viability up to 6 months) under dry-cold storage (Merkel and Hopkins 1957, Lehnhoff et al. 2011; Figure 1). These data suggest that saltcedar seeds have the potential to remain viable over winter and germinate with spring thaw in northern rangelands. Seedling establishment for South Dakota saltcedar populations has been shown to be most successful in moist clay soils with minimal competing vegetation (Burnette 2012; Ohrtman et al. 2011).

Citations:

Burnette, S. 2012. Saltcedar (*Tamarix* spp.) in the Northern Great Plains: Seed Ecology and Cultural Considerations. South Dakota State University. Masters Thesis. 99 pp.

<http://pubstorage.sdstate.edu/wfs/thesis/Burnette-Sarah-M-2012-MS.pdf>

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- Lehnhoff, E. A., F. D. Menalled, and L. J. Rew. 2011. Tamarisk (*Tamarix* spp.) establishment in its most northern range. *Invasive Plant Sci. and Manag.* 4:58-65.
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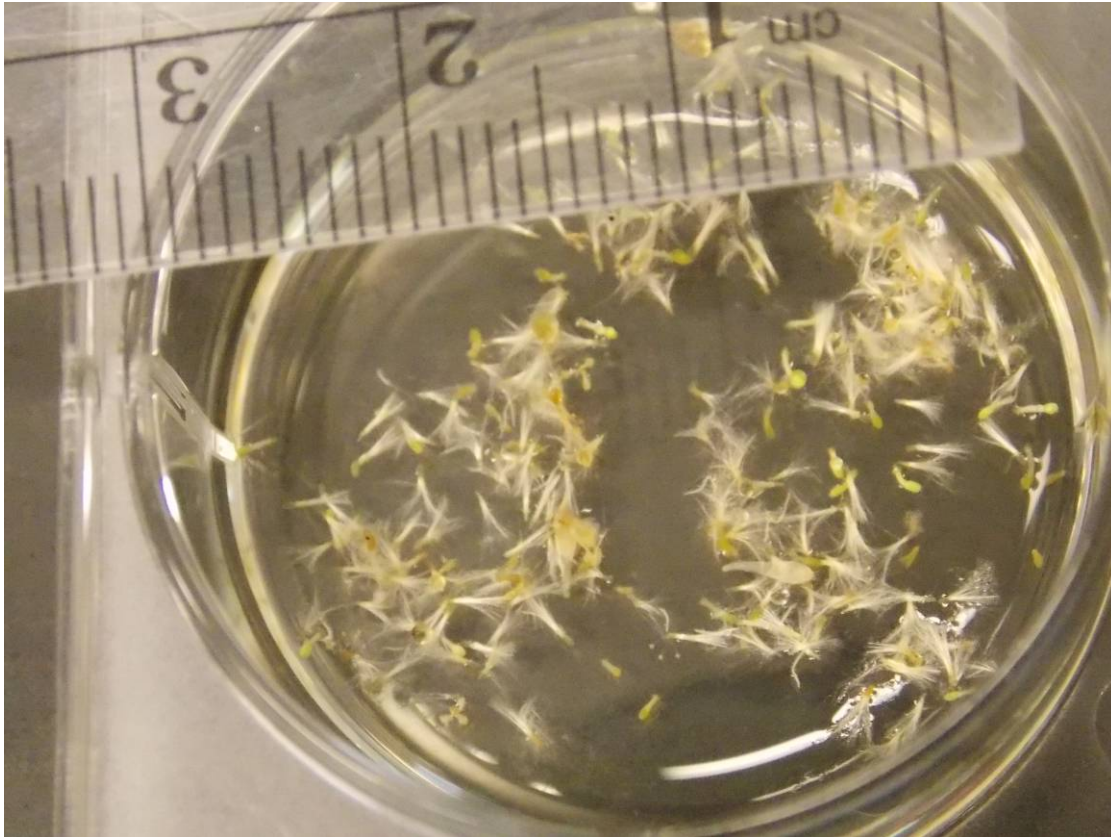


Figure 1. Saltcedar seeds collected from Pennington County, South Dakota germinating after 5 months of storage at 3 C.