

Stand Establishment From Seeded Native Grasses

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INTRODUCTION

Interest in reseeding of degraded rangelands with native species has increased dramatically in recent years. The availability and cost of native seed can limit the acreage considered for native reseeding. In addition, limited knowledge of seeding rates, dormancy characteristics and population patterns for native species can make management decisions difficult. Seeding rates are often based on experience with introduced species with similar seed characteristics, and stands have traditionally been evaluated the first year after seeding. If a species had high germination rates, then the first year evaluation was appropriate. However, if seed dormancy is part of a specie's adaptation to a fluctuating climate, then several years or more may be necessary to fully evaluate the success of seeding. The goal of this study was to evaluate the effect of seeding rate with four species of native grasses over a two-year period.

METHODS

The study site was located near Horse Mountain and BRIM well in Lake County about ten miles southwest of Wagontire, Oregon. The site was dominated by Wyoming big sagebrush (*Artemisia tridentata* spp. *wyomingensis* (Beetle & A. Young) Welsh) that had been burned in the fall of 1990. Four species common to the area were chosen; Basin wildrye (*Elymus cinereus* Scribn. & Merr.), bluebunch wheatgrass (*Agropyron spicatum* (Pursh) Scribn. & Smith), bottlebrush squirreltail (*Sitanion hystrix* (Nutt.) Smith), and Indian ricegrass (*Oryzopsis hymenoides* (R. & S.) Ricker). Each species was seeded with a rangeland drill in replicate five acre plots at a high and low seeding rate (Figure 1). A total of twenty plots or eighty acres was seeded and fenced to exclude livestock and rabbits in the fall of 1991. The high seeding rate for Basin wildrye, bluebunch wheatgrass, and bottlebrush squirreltail was 10 pounds of seed per acre, the low rate was 5 lbs/acre. Indian ricegrass seeding rates were 6 lbs/acre and 3 lbs/acre, respectively. Within each five acre block we established four permanent 1.2 yard² (1m²) plots. Within each we counted seedlings in two drill rows. Sampling was conducted three times in 1992 and 1993. Precipitation and temperature were triangulated from weather stations at Squaw Butte, Alkali Lake, and The Poplars (Figure 2).

RESULTS AND DISCUSSION

The highest seeding rate resulted in higher seedling numbers for Basin wildrye, bluebunch wheatgrass, and squirreltail in April 1992 (Figure 3). We also measured the highest number of Indian ricegrass seedlings in April 1992, but at the low seedling rate. The winter following the seeding was very dry for most of eastern Oregon. However, the study

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BRIM NATIVE SEEDLING PROJECT

<p align="center">Indian Ricegrass</p> <p align="center">6 lb/ac Nezpar Seeded 11/22/91</p>	<p align="center">Bluebunch Wheatgrass</p> <p align="center">10 lb/as Secar Seeded 11/26/91</p>	<p align="center">Indian Ricegrass</p> <p align="center">3 lb/ac Nezpar Seeded 11/20/91</p>	<p align="center">Basin Wildrye</p> <p align="center">10 lb/ac Magnar Seeded 12/4/91</p>
<p align="center">Bottlebrush Squirreltail</p> <p align="center">5 lb/ac Seeded 12/10 91</p>	<p align="center">Basin Wilddrye</p> <p align="center">5 lb/ac Magnar 12/4/91</p>	<p align="center">Bluebunch Wheatgrass</p> <p align="center">10 lb/ac Secar 11/26/91</p>	<p align="center">Basin Wildrye</p> <p align="center">5 lb/ac Magnar 12/3/91</p>
<p align="center">Bluebunch Wheatgrass</p> <p align="center">5 lb/ac Secar Seeded 11/25/91</p>	<p align="center">Indian Ricegrass</p> <p align="center">3 lb/ac Nezpar Seeded 11/19/91</p>	<p align="center">Indian Ricegrass</p> <p align="center">6 lb/ac Nezpar Seeded 11/20/91</p>	<p align="center">Bottlebrush Squirreltail</p> <p align="center">10 lb/ac Seeded 12/11/91</p>
<p align="center">Basin Wildrye</p> <p align="center">10 lb/ac Magnar Seeded 12/5/91</p>	<p align="center">Bottlebrush Squirreltail</p> <p align="center">10 lb/ac Seeded 12/12/91</p>	<p align="center">Bluebunch Wheatgrass</p> <p align="center">5 lb/ac Secar Seeded 11/25/91</p>	<p align="center">Bottlebrush Squirreltail</p> <p align="center">5 lb/ac Seeded 11/10/91</p>

Figure 1. Plot layout from the BRIM native seeding project. Each plot is five acres in size with a total project acreage of 80 acres. Within each plot the grass species seeded, pounds of seed per acre, variety name, and date seeded are listed.

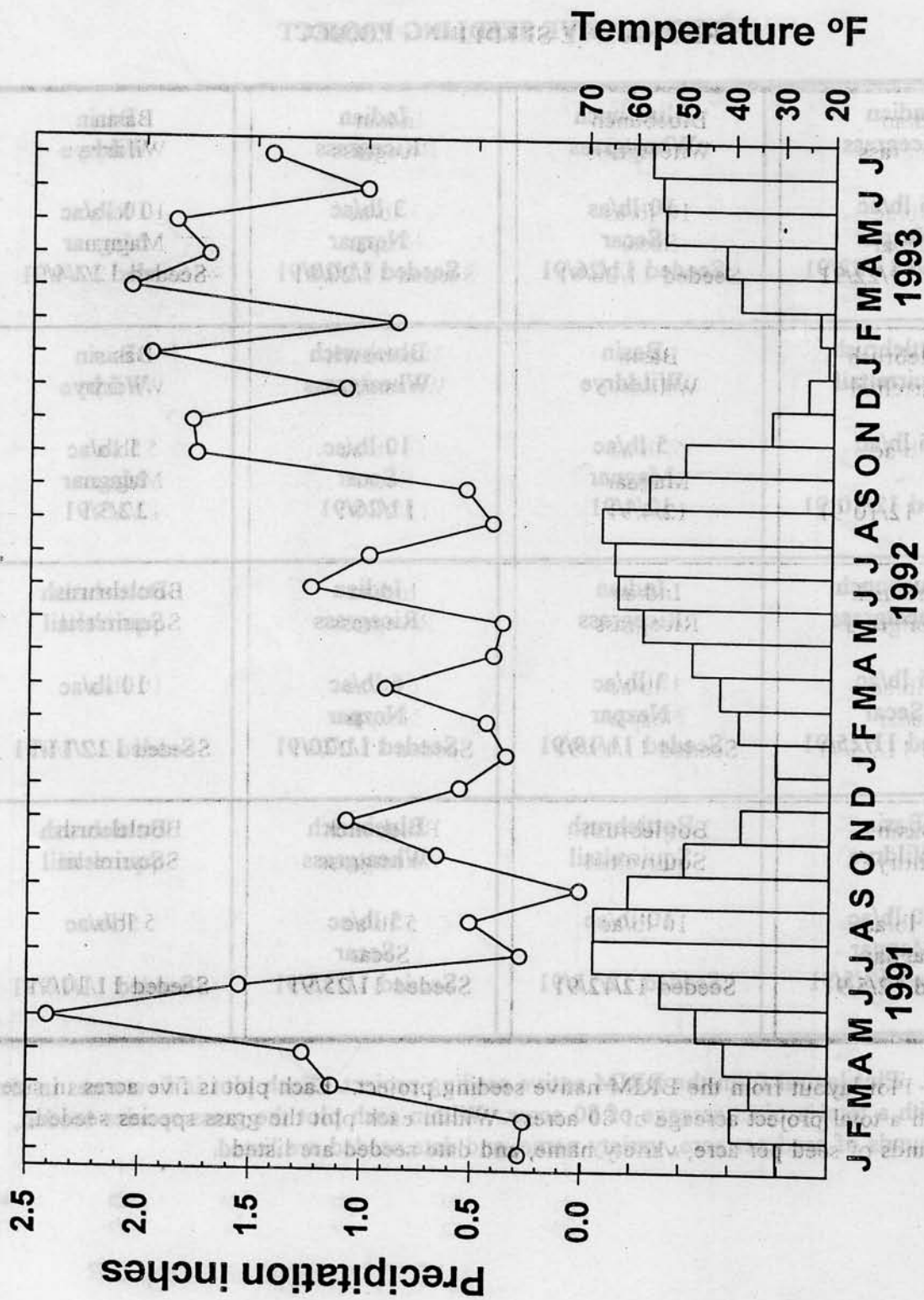


Figure 2. Average precipitation and temperature by month triangulated from Squaw Butte, Alkali Lake, and The Poplars for 1991-1993.

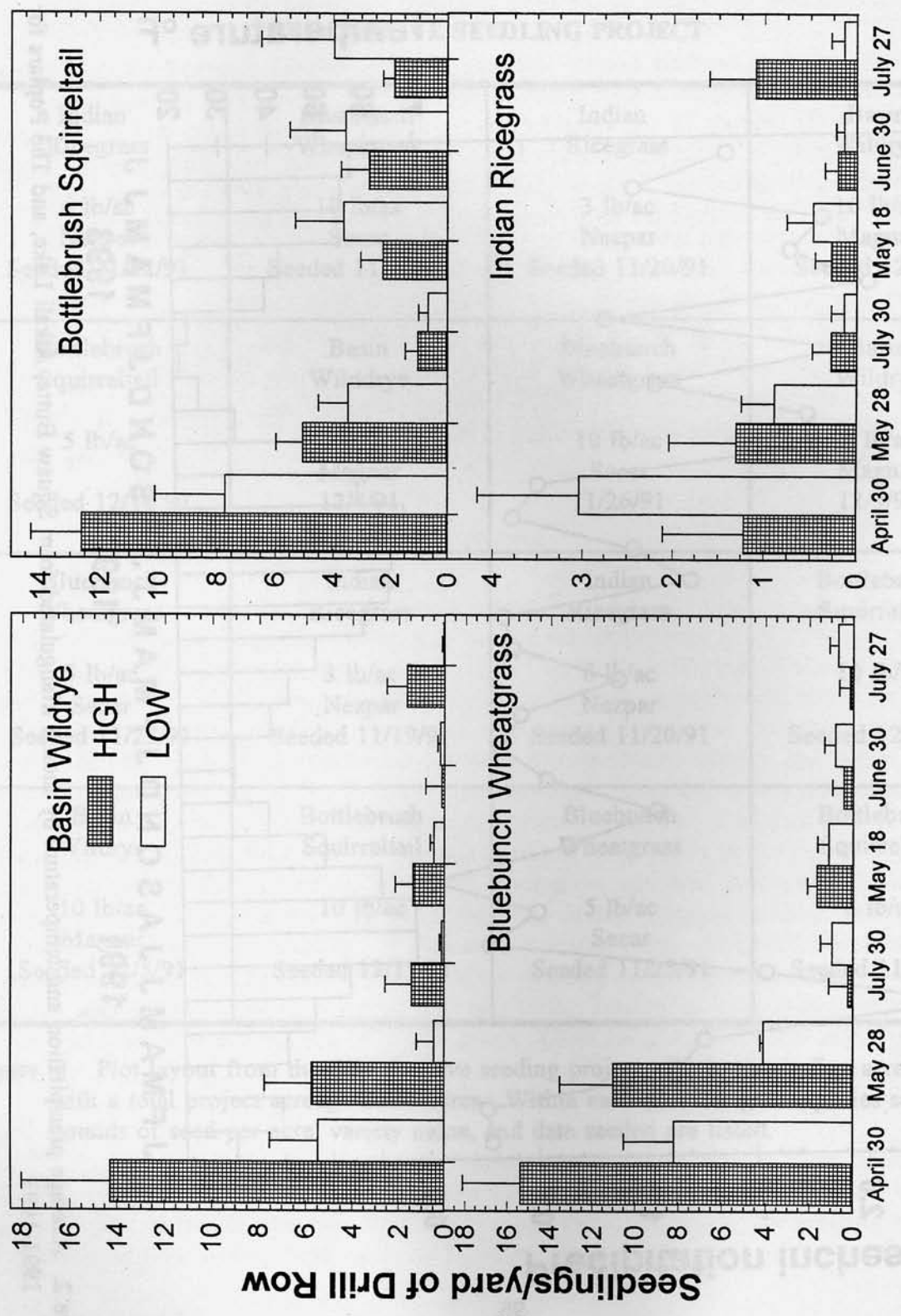


Figure 3. The average number of seedlings per yard of drill row at high and low seeding rates for Basin wildrye, bluebunch wheatgrass, bottlebrush squirreltail, and Indian ricegrass in 1992 and 1993 at the BRIM seedling site.

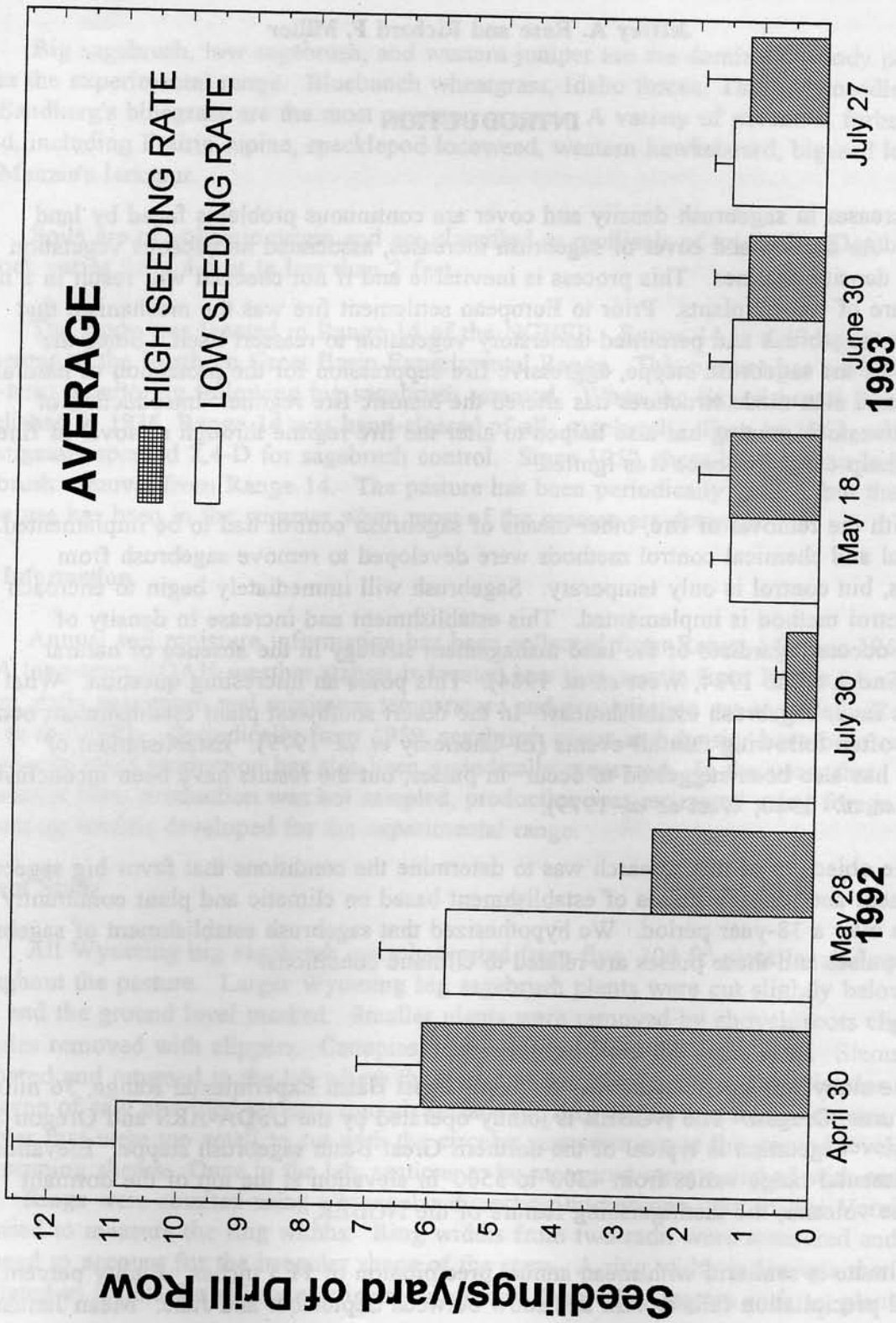


Figure 4. The average total number across species of seedlings per yard of drill row at high and low seeding rates for in 1992 and 1993 at the BRIM seedling site.