

**Project Number COPMC-S-0107-CR**  
**Annual Report 2004**  
**By: Steve Parr**

**LASSEN VOLCANIC NATIONAL PARK**  
**COOPERATIVE AGREEMENT**

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**INTRODUCTION** - This report covers the activities of the Upper Colorado Environmental Plant Center (UCEPC) as they relate to Interagency Project Number IA9000-01-004 for the production of seed materials for Lassen Volcanic National Park. The original agreement called for the establishment and production of a single material, blue wildrye, through fiscal year 2003. This agreement was signed into effect in June of 2001. A second material, California brome, was later added to the agreement through an amendment signed into effect in September of 2001. This amendment added the production of California brome through fiscal year 2003 for Lassen. A second amendment, signed in November of 2002, allowed for the transfer of funds for the cleaning of wild collections of seed from Lassen Volcanic National Park in 2002. In 2003, a third amendment was signed that calls for the production of established materials through 2004. Finally, a fourth amendment was signed in August 2004 that extends the production of both materials through 2005.

**ACTIVITIES** - The two collections that were established for seed increase fields were given the following accession numbers for identification and tracking purposes:

Blue wildrye	<i>Elymus glaucus</i>	9070984
California brome	<i>Bromus carinatus</i>	9070985

Blue wildrye was collected during the 2000 growing season by Bitterroot Restoration and was shipped to UCEPC for planting during 2001. A message following the shipment from Bitterroot indicated the seed had been cleaned and treated with a 5% bleach solution for 5 minutes to help reduce the mold, which was detected on the seed after collection and prior to shipment. Upon receipt, UCEPC prepared to plant the seed, but on the date of planting, discovered the seed to be too “fluffy” for proper distribution. As a result, UCEPC further cleaned the seed and sent a sample to the Colorado State Seed Laboratory for analysis of purity, germination, off type seeds and to see if they could determine damage by the worms (larvae), that Bitterroot had detected prior to UCEPC planting. The seed test results were completed on July 27, 2001 and no worms were noted.

On September 4, 2001, 1 acre of Lassen Volcanic National Park blue wildrye was planted. A very good stand was noted in October.

The California brome was collected during the 2000 and 2001 growing seasons and samples of each collection were sent to the Colorado Seed Laboratory in the fall of 2001. The reports were completed on October 19, 2001. The collection from 2000, while having the best germination, had a very high percent of other crop seed, at nearly 3%. Since the collections occurred in Lassen, conversations with Russ Haas indicated it would be all right to plant the brome with the blue wildrye seed in it without concern of crop contamination from that species. The other two lots, LAV02 and LAV03, had a high amount of visible head smut. As a result, only a small amount of LAV03 seed was planted, along with the entire LAV01 seed lot. Each material was treated with “Vitavax” for head smut control.

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On November 16, 2001, 4.8 rows of LAV01 California brome were planted. An additional 65 feet of LAV03 seed was planted in the southeast portion of row 5. Both materials were treated for head smut control at 2 grams per pound of seed treated. A planting rate of 36 PLS seeds per foot of row was achieved with the Planet Junior seeding of the 4.8 rows. A hoe was used to plant the last 65 feet.

Because of the limited amount of California brome which was available for planting, it was determined that seed collected from Lassen Volcanic National Park be used to supplement the 2001 planting if possible. An e-mail from Russ Haas on June 4, 2002, to Sara Koenig, Plant Ecologist for Lassen, asked for her input. It was suggested that if collection opportunities looked grim within the park, that seed harvested from the established stand at UCEPC could be used to boost the planting. Sara indicated that Lassen personnel or Bitterroot Growers would try to collect California brome seed from within the park to add to the planting. Irrigation and hand weeding were conducted as necessary during the season. An application of herbicide was also applied for broadleaf weed control as a post-harvest treatment. No other field activities were conducted in 2002.

We received a request from Sara on September 23, 2002 for a shipment of seed for a project they were working on. On September 27, 2002, seed of two species, both UCEPC produced materials and wild collected seed, were shipped to Sara at the park. Included with this shipment was a Distribution and Delivery Record and an explanation of the materials shipped. This shipment also included the 2002 UCEPC production of blue wildrye and California brome, which is customarily shipped the following year. Because of the need for seed, however, it was determined that a tetrazolium test would have to suffice for planting purposes as time would not allow a full germination test to be useful for planning seed distribution. Tetrazolium tests were conducted for both produced materials and results were completed by October 2, 2002 (seed test results included).

Bitterroot Growers had collected approximately 5 pounds of California brome, which they sent to UCEPC for field increase. This seed was tested by the Colorado Seed Laboratory for purity and germination and was completed on November 27, 2002. As indicated, this seed was to be used to increase the production field size to one acre as per the agreement. From a conservative position, it was felt that no seed from this lot should be shipped without first establishing the remainder of the field at UCEPC.

May 29, 2003, an additional 0.7 acres of California brome was planted in field 2, next to the existing planting. The total planted acreage is 0.88, or 26 480 foot rows. Seed collected from the park the previous year was used for the field addition, and all but the four southern most rows were treated with 'Vitavax' for head smut control.

During the growing season in 2004, no smut was noted in the section of the brome field that was planted in 2001, even the portion that was planted with smutted seed. However, the portion of the field not treated with "Vitavax" was completely smutted, and as a result, was not harvested. The remaining portion of the field that was treated did have some incidence of smut, but was estimated to have less than 20% smut infection.

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On July 27, 2004, four rows or 0.13 acres of California brome was planted with seed produced in 2003. The 2003 did not have noticeable head smut, but was also treated with Vitavax prior to planting.

On October 8, 2004, a small shipment of seed was made to Lassen. This shipment consisted of 4.6 pounds of blue wildrye and 2.2 pounds of California brome.

**RESULTS**

<b>Species</b>	Blue wildrye	<i>Elymus glaucus</i>
<b>Seeded</b>	1 acre with Planet Junior	September 4, 2001
<b>Harvested</b>	10.4 lb	July 18, 2002
<b>Shipped</b>	10.4 lb	September 27, 2002
<b>Harvested</b>	205 lb	July 21, 2003
<b>Shipped</b>	40 lb	September 11, 2003
<b>Harvested</b>	285 lb	July 15, 2004
<b>Shipped</b>	4.6 lb	October 8, 2004
<b>Species</b>	California brome	<i>Bromus carinatus</i>
<b>Seeded</b>	0.18 acre with Planet Junior and 65 feet of southeast part of row 5 with a hoe.	November 16, 2001
<b>Harvested</b>	1.4 lb	July 11, 2002
<b>Shipped</b>	1.4 lb	September 27, 2002
<b>Seeded</b>	0.69 acre (but 0.13 acre not treated with Vitavax)	May 29, 2003
<b>Harvested</b>	64 lb	June 30, 2003
<b>Shipped</b>	30 lb	September 11, 2003
<b>Harvested</b>	200 lb	July 2, 2004
<b>Seeded</b>	0.13 acre making total California brome field 1 acre	July 27, 2004
<b>Shipped</b>	2.2 lb	October 8, 2004

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**SUMMARY** - During the first year of Interagency Agreement number 9000-01-004, two species were tested by the Colorado Seed Laboratory, and identified for purity, germination, off type seeds, and dormancy. This information provided a basis for the selection of seed lots for the establishment of seed production fields at UCEPC. Seed lot selections were made and successfully planted in 2001 for seed increase for future revegetation uses at Lassen Volcanic National Park. Seed planted in 2001 was harvested, cleaned, tested via tetrazolium methods and returned to the park for use on a project in 2002.

In 2003, seed harvested in June and July was cleaned on September 8th and 9th and shipped September 11, 2003. This rapid turnaround was possible because of a speedy seed test conducted by the Colorado State Seed Laboratory. The Seed Lab tested for purity and live seed from a tetrazolium test and reported the results a day after receiving the seed. These products were received by the Lab on September 10th and reported out on September 11th! The seed was then prepared and shipped on September 11th for park uses. In 2004, only a small amount of seed was requested, and this was supplied from the 2003 seed lot.

The incidence of head smut in California brome from Lassen Volcanic continues to be puzzling. To date three different planting dates and five different plantings have been conducted with the Lassen California brome. A November planting with treated seed, even when used on visually smutted seed, has produced no infected seed heads. A May planting produced severely smutted heads in untreated seed and some incidence in treated seed (<20%). A planting done in late July with treated seed will be monitored for smut.

This agreement will terminate this fiscal year unless modified or extended.