

Project Number 08S239
Annual Report – December 2003
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BRYCE CANYON NATIONAL PARK
COOPERATIVE AGREEMENT

Project Number 08S239
Bryce Canyon Agreement - Continued

INTRODUCTION - Upper Colorado Environmental Plant Center (UCEPC) Project No. 08S239 was initiated on June 3, 1998 by Bryce Canyon National Park, the USDA Natural Resources Conservation Service, and the UCEPC. Changes in Park priorities increased the scope of the project by nearly two times and construction was delayed by one year. Because of the necessary changes in the project, an amendment to the original Interagency Agreement 2071-8-0001 was initiated in August of 1999. The fully signed amendment was executed in its entirety on February 2, 2000, and directed operations in lieu of the original agreement through fiscal year 2002. A second amendment was signed in December of 2002 to extend production through 2003. Two species, nodding brome, *Bromus anomalus*, and slender wheatgrass, *Elymus trachycaulus*, continue to be the only species targeted for seed increase.

OBJECTIVE - The intent of the agreement is for the UCEPC to provide approximately 1500 pounds of seed of these two species for revegetation purposes on disturbances associated with Rainbow Point Road reconstruction within Bryce Canyon National Park. The present contract expired on October 1, 2003. A new agreement has been executed for seed increase through 2006.

ACTIVITIES - The nodding brome field, which was planted in July 1998, was intra-seeded on May 12, 1999. This was done to improve stand establishment for the field and increase seed production during subsequent years. Both fields were cultivated twice, irrigated twice with hand set overhead sprinklers and hand rouged twice prior to seed harvest. Three hundred pounds per acre of 30-10-0 fertilizer was applied in November. On September 5, 2000, an additional 0.8 acre of slender wheatgrass was planted to bolster seed production quantity in an effort to meet targets. Initial targets were approximately 50% nodding brome and 50% slender wheatgrass. Bryce slender is about twice as productive as the nodding brome, so an increase in slender was done to accomplish total seed targets. Concern was expressed about the vigor of the nodding brome field in the 2000 report. The field simply looked to be in poor condition in the fall of 2000, and inspections by staff and Russ Haas in the spring of 2001 indicated a new planting would be more beneficial for Bryce Canyon seed production than by working to produce seed from a decadent field. Contacts were made by Russ to Bryce Canyon to determine if production should be extended. Bryce indicated that additional production would be conducive to their long-range revegetation needs. As a result, the nodding brome field was plowed and a new 0.5 acre field was planted on August 29, 2001 with Planet Junior planters. The planting utilized seed produced in 1995, which was estimated to have a germination of 20%. Vitavax was used to treat 8.2 pounds of seed for the planting. A very good stand was noted two weeks later.

Construction work was conducted in the park during the early fall of 2002. On September 11, 2002, a distribution of 599 pounds of seed of the two species was shipped to Bryce Canyon for planting. On August 29, 2003, 149 pounds of slender wheatgrass were shipped to Bryce Canyon for revegetation, (Distribution and Delivery Record included).

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SEED PRODUCTION

The following quantities of seed have been produced for Bryce Canyon:

Species	Seed Production		Fiscal Year
Bromus anomalus	185 lb	49 PLS	1999
Elymus trachycaulus	30.5 lb	28 PLS	1999
Bromus anomalus	34 lb	9 PLS	2000
Elymus trachycaulus	103 lb	78 PLS	2000
Bromus anomalus	Field plowed		2001
Elymus trachycaulus	246 lb	211 PLS	2001
Bromus anomalus	2.4 lb	1 PLS	2002
Elymus trachycaulus	149 lb	120 PLS	2002
Bromus anomalus	50 lb	33 PLS	2003
Elymus trachycaulus	240 lb	213 PLS	2003

Total Inventory in Clean Pounds of Seed 290 (246 PLS)

DISCUSSION - For the fourth year in a row, precipitation was below average. In 2003, the total precipitation was 77.5% of average. The summer of 2001 had been the hottest and driest on record at UCEPC since records were started in 1977. However, 2002 proved to be drier yet, with total annual precipitation of 11.01 inches. This is 5.19 inches below the 50 year average. In addition, only 1.31 inches were received during our most critical period, the months of April, May and June. This amount of precipitation for this period accounts for 32% of our long time average. The previous year was extremely dry as well. These four consecutive drought years have caused stress on plants in general, and the production of seed in particular. Seed fill was quite poor on many materials, including the Bryce nodding brome.

One of the most unfortunate things to have occurred with this agreement was the inability to use previously produced Bryce seed for road or park revegetation projects. Besides the seed, which was shipped in September of 2002, there were two other seed lots, both slender wheatgrass, which were tested to determine if there was adequate viability to include with the other shipped products. Seed tests from the Colorado Seed Laboratory for the 1992 and 1993 seed lots of Bryce Canyon slender wheatgrass indicated no germination, (seed test results included), so the seed was not sent at the request of Fletcher Linton. The 1992 seed lot totaled 317 pounds while the 1993 seed lot accounted for 135 pounds of seed toward the target. Over 1,200 pounds of seed has been produced by UCEPC for road revegetation within Bryce Canyon National Park. Unfortunately, over 450 pounds of previously produced material will not be utilized as intended.

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The following information recaps the accomplishments of the UCEPC relative to seed increase production for Bryce Canyon through 2003.

Species	Nodding Brome	<i>Bromus anomalus</i>
Establishment	1.0 acre	July 20, 1998
Activities	Intra-seeded	May 12, 1999
Harvest	185 clean lb	1999
	34 clean lb	2000
	Field plowed	2001
Establishment (New field)	0.5 acre	August 29, 2001
Harvest	2.4 lb	2002
	50 lb	2003*
Species	Slender Wheatgrass	<i>Elymus trachycaulus</i>
Establishment	0.5 acre	August 12, 1998
	0.8 acre	September 5, 2000
Harvest	30.5 clean lb	1999
	103 clean lb	2000
	246 clean lb	2001
	149 clean lb	2002
	240 clean lb	2003*

* Denotes materials in current inventory

The total amount of clean seed produced by UCEPC and identified for use with this project as initiated under the original agreement in 1998 is 1,489.9 pounds, 10.1 pounds shy of the targeted 1,500 pounds. Significantly dry production years have undoubtedly had an adverse affect on PLS amounts, particularly with nodding brome.