

**GREAT SMOKY MOUNTAINS NATIONAL PARK**

**F.Y. 2008 Annual Report**

**Prepared by**

**NATURAL RESOURCES CONSERVATION SERVICE**

**NATIONAL PLANT MATERIALS CENTER**

**BELTSVILLE, MARYLAND**

**INTRODUCTION**

The current cooperative agreement between Great Smoky Mountains National Park (GRSM) and the National Plant Materials Center (NPMC) was signed in September 2006, for the fiscal years 2006-2010. The Great Smoky Mountains National Park and Foothills Parkway, has a need to preserve the native plant resources and revegetate parklands. The NPS requires that restoration of native plants will be accomplished using germplasm from populations as closely related genetically and ecologically as possible to park populations. The Great Smoky Mountains National Park has harvested seed from indigenous populations, but does not have the personnel, expertise, facilities or equipment needed to clean process, test and store the seed. The NRCS, National Plant Materials Center (NPMC) does have the personnel and is equipped to clean, process and store quantities of seed sufficient to meet the NPS needs within the required time frame. Technical expertise as necessary to achieve this goal will be provided by the NPMC under this agreement.

**ACCOMPLISHMENTS**

2008 was a lower than average year for rainfall in the Cades Cove increase fields. The amount of seed harvested from the increase fields directly correlates to the amount of rainfall. The low rainfall resulted in only 239 lbs. (bulk) of grass and wildflower seed harvested. In 2006, 500 lbs. of seed was harvested and in 2007 over 400 lbs. (bulk) was harvested. The trend of lower seed harvest amounts runs opposite to the fact that every year more plugs are being planted in the increase fields and existing plants will produce increasing seed yields.

The following table lists the 9 different lots of seed which was harvested. The seed was cleaned (de-bearded and then run through a clipper) by NPMC staff to yield 99 lbs of cleaned seed. Also included in the table are the species, amounts of seed harvested, and the resulting cleaned seed weights.

**SEED PRODUCED IN THE GRSM CADES COVE INCREASE FIELDS FY 2008**

<b>Botanical Name</b>	<b>Common Name</b>	<b>Lot #</b>	<b>Bulk Weight (lbs)</b>	<b>Cleaned wt.(lbs)</b>
1. <i>Andropogon gerardii</i>	Big bluestem	SWC-08 - GRSMINCRS	68.3	25.4
2. <i>Andropogon glomeratus</i>	Bushy Bluestem	SWC- 08- GRSMINCRS	3.5	.8
3. <i>Lespedeza capitata</i>	Roundheaded lespedeza	SWC-08 - GRSMINCRS	3	0.6
4. <i>Monarda fistulosa</i>	Bee balm	SWC-08 - GRSMINCRS	10.4	1.1
5. <i>Parthenium integrifolium</i>	Wild quinine	SWC-08 - GRSMINCRS	7.4	0.9
6. <i>Saccharum giganteum</i>	Beard Grass	SWC-08 - GRSMINCRS	16.2	2.3
7. <i>Schizachyrium scoparium</i>	Little bluestem	SWC-08 - GRSMINCRS	18.9	0.7
8. <i>Sorghastrum nutans</i>	Indiangrass	SWC-08 - GRSMINCRS	71.4	38.5
9. <i>Tridens flavus</i>	Purple top	SWC-08 - GRSMINCRS	40.7	29.8
total			<b>239.8</b>	<b>99.3</b>

2008 Re-vegetation projects

While 2008 was lower in seed production, it was a very productive year for re-vegetation projects. A total of approximately 1000 lbs. of seed was delivered to the park for:

- Foot Hills Parkway - 115 pounds Gatlinburg Spur and FHP Bridge #8
- Cades Cove - 154 pounds
- Crisp and Crisp - Tennessee Valley Authority (electricity transmission lines) - 727 pounds

The increased amount of seed distributed to the park resulted in greatly decreasing the amount of seed in storage at the PMC from over 1400 lbs. (bulk) in 2007 to a current amount of 800 lbs. Using this seed was badly needed as many of the lots were old and losing viability.

Over 300 plants were distributed to the GRSM for stabilization of the piers of Foothills Parkway Bridge #8. The construction of these piers caused areas around the piers to be denuded of all vegetation. To stop soil erosion Black Locust, Redbud and Aromatic Sumac, all pioneer species of plants which can grow in dry, hot growing conditions, were chosen to be planted.

Seed Re-Cleaning and Consolidation

In January 2008 a total of 547 lbs. (bulk weight) of Aster, Virginia Wildrye, Path rush, Panic Grass, Goldenrod, and Indian Grass seed was re-cleaned and consolidated. The age, purity and viability were determining factors in deciding which lots were re-cleaned and consolidated. The cleaning resulted in 304 lbs (bulk weight); a total of 242.5 lbs of unviable seed, weed seed, and chaff was cleaned from those seed lots. This will diminish distribution costs, seed testing costs and save the amount of effort needed in all re-vegetation projects by using more viable, cleaner seed.

# Images of the Foothills Parkway Bridge #8 Re-vegetation Project



Over View of the construction site showing the cut slope and support pier



A mixture of annual and perennial grasses, wildflower, and tree seed being hydro seeded on the cut slope. The 1 acre site received a total of 230 lbs. of seed due to the harsh growing conditions.



Close up of the bridge support pier where Sumac and Redbud plants were planted which will stabilize the soil.



Spring image showing that the annual grasses have germinated well and are effectively stabilizing the slope. The native grasses, wildflowers, trees and shrubs take longer to germinate; however these plants will provide long term stabilization to the slope.



Summer image showing the cool-season grasses have gone dormant and the warm-season wildflowers and grasses are now beginning their growth.



GRSM staff is shown here planting 1 year old Redbud, Black Locust and Aromatic Sumac.



This image shows stakes marking where the woody trees and shrubs were planted so that future evaluations can be determined as to their survival.