



YELLOWSTONE NATIONAL PARK
2004 Summary Report
prepared by
Natural Resources Conservation Service
Bridger Montana Plant Materials Center

INTRODUCTION: The Bridger PMC has maintained a cooperative agreement with Yellowstone National Park (YNP) since FY 1986. This agreement facilitates the collection, increase, and reestablishment of indigenous plant material for restoration of disturbances resulting from road construction and other improvement projects within Park boundaries.

In 2004, 13 allocations of 348 seed lots from 83 species were distributed to YNP, YNP-contracted growers, seed testing labs, or the PMC totaling 928 pounds (421 kg). This included 184 grass lots (29 species) weighing 881 pounds (400 kg); 155 forb lots (48 species) weighing 38 pounds (17 kg); and 9 woody lots (6 species) weighing 7 pounds (3 kg). This includes the distribution of 8 grass lots (6 species) to the PMC for planting seed increase fields.

ACCOMPLISHMENTS: Yellowstone National Park has identified future road projects allowing collection and production efforts to begin at least 3 years in advance of each project.

Wildland seed collections are made by Yellowstone National Park crews, dried, and either delivered to the Bridger PMC, or picked up by PMC personnel. In 2004, 112 collections were made from 50 species: 51 grasses (20 species) at 43.1 pounds (19.55 kg); 55 forbs (24 species) at 12.6 pounds (5.714 kg); and 6 woodies at 0.26 pound (0.118 kg). The wildland seed collections totaled 56 pounds (25.38 kg).

Records are maintained by the PMC of person-hours to collect each seed lot, from which the approximate cost of collecting native seed can be estimated. In 2004, YNP personnel spent more than 381 person hours in the activity of seed collection on 25 different sites. There were 187 hours (approximately 4 hours per collection) dedicated to collecting grass seed on 21 sites, 186 hours (approximately 3 hours per collection) for forbs on 19 sites, and 8 hours for woody species on 3 sites.

There were 9 grass increase blocks of 7 species planted on 2 acres in 2004. Seed increase blocks of 12 grasses (2.3 acres) and 3 forbs (0.48 acres) were removed due to natural decline in production or poor establishment. Currently there are 4.1 acres planted with 18 accessions of 9 grass species, and 0.43 acres with 4 accessions of 3 forb species in seed increase blocks at the Bridger PMC.

During the past growing season, 14 different grass accessions (9 species) and 1 forb species were harvested on 3 acres, producing 58 pounds (26.3 kilograms) of clean seed. Seed production averaged approximately 20 pounds-per-acre (18 kilograms-per-hectare).

Purity analysis and tetrazolium viability tests were conducted on PMC seed increase production for 7 grass accessions. All samples exceeded purity standards set forth for foundation seed class as established by the Association of Official Seed Certifying Agencies. The percentage viability ranged from 78 to 99 and averaged 92.

The wildland collection and seed increase inventory contains 587 lots (107 species) totaling 1,728 pounds (784 kg). This is comprised of 284 grass lots (25 species) at 1,643 pounds (745 kg), 287 forb lots (69 species) at 60 pounds (27 kg), and 16 woody lots (13 species) weighing 25 pounds (11 kg).

TECHNOLOGY DEVELOPMENT: All plant material collections are assigned accession numbers and inventoried in a database. The lot identification numbers have been upgraded to include identification by individual construction projects.

The Park expressed interest in having a basic set of protocols developed in order to implement a monitoring program that will evaluate the ecological condition of seeded sites. The PMC drafted and sent for review a "Yellowstone National Park Vegetation Monitoring Site Data Sheet", accompanied by a sampling form to calculate percentage plant frequency. The site data sheet is designed to record location, physical attributes, original seeding mix composition, existing seeded plant occupancy, and relative degree of non-native or invasive plant occupancy.

A comprehensive inventory assessment project was initiated to determine the potential affect of natural seed aging on the YNP material stored at the PMC. Tetrazolium and selected germination tests were conducted on 85 seed lots at the Montana State Seed Testing Laboratory in Bozeman. Test results on the 14 grass and 12 forb species tentatively indicate an apparent decline in viability over time. Future efforts are planned to develop species-specific timetables to optimize the use of seed.