# PLANT MATERIALS TODAY

A Quarterly Newsletter of the Montana-Wyoming Plant Materials Program

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This is a quarterly field office newsletter to transfer plant materials technology, services, and needs. The plant materials personnel will be featuring short articles on project results, new cultivar releases and establishment techniques, seed collection, and field planting needs, etc. All offices are encouraged to submit articles about plant material-related activities relative to plant performance, adaptation, cultural and management techniques, etc.

## TIME TO SUBMIT 2000 FIELD PLANTING PLANS

All field planting plans should be submitted to Larry Holzworth, Plant Materials Specialist, by **February 1, 2000**. Prepare a field planting request (SCS-ECS-009 for Montana and WY-ECS-50-E for Wyoming) for plant materials committee review and recommendation. Look for cooperators that are interested in trying something new and who will provide the site preparation and management required for a "fair test".

The plants that need additional field testing include 9005438 and 9005439 **switchgrass** (late summer pasture), 9078408 **Sandberg bluegrass, '**Goldar' **bluebunch wheatgrass**, 'Bannock' **thickspike wheatgrass,** and 9005308 **mountain brome** (reclamation), 'Newhy' **hybrid wheatgrass** (saline sites), and 'Rush' **intermediate wheatgrass** (early summer pasture).

## UPCOMING PLANT MATERIAL ACTIVITIES

January 4-7, January Thaw @ Billings
January 24-26, MSU Planning Conference @ Bozeman
January 27, Northern Great Plains Plant Materials Teleconference
February 7-8, Association of Montana Turf & Ornamental Professionals (AMTOP) @ Bozeman
February 8, Forages Workshop @ Stanford
February 9, Forages Workshop @ Lewistown
February 13-18, Society for Range Management @ Boise
February 21, Montana Native Plant Society @ Bozeman
February 24, Forages Workshop @ Torrington
February 29-March 1, WY Plant Materials Committee @ Casper
March 8-9, MT Plant Materials Committee @ Bozeman
March 8-10, Reclamation Symposium @ Billings

## ACID PROJECT UPDATE

The Development of Acid/Heavy Metal-Tolerant Cultivars (DATC) Project re-emerges in the news after a period of reclusion. Work continues on the selection of superior ecotypes for the revegetation of acid/heavy metal contaminated lands in western Montana.

In 1995, two initial evaluation plantings (IEPs) were established at the Anaconda Smelter National Priority List Site. The plantings collectively compared 100 species assembled from collections made at abandoned mine sites in western Montana and from commercial seed sources. The entries were evaluated for percent survival, vigor, height and seedhead production. The best performing entries were identified after three growing seasons.

In 1998, large-scale collections were made of many of the superior performing entries indigenous to western Montana. The collected plant materials included 13 grass, six forb, and seven shrub species. These promising accessions are currently being tested in a comparative evaluation planting (CEP) near Anaconda.

The CEP is located on soil contaminated by smelter emission fallout. The average soil pH after tilling to six inches is 4.8. Heavy metal analysis of the soil shows high levels of arsenic, copper and zinc. The promising accessions are being compared to other accessions and releases of the same species to determine the entries with superior acid/heavy metal tolerance. The entries will be evaluated for vigor and percent stand.

Concurrently, the 26 accessions are being grown at the Bridger Plant Materials Center (BPMC) for seed increase and to determine best cultural methods. Results of the CEP and the success of plant production will aid in the final determination of species selected for release. This winter a greenhouse study will be conducted. Plant material will be grown in the contaminated soil from the CEP site to document heavy metal accumulation in plant tissues and to further test their tolerances.

Efforts are being made to secure future funding for the project. Current funding by the Department of Natural Resources – Reclamation and Development Grants Program - ends July 2000. ARCO has generously provided supplemental funding. The Deer Lodge Conservation District administers the grant and works cooperatively with

the BPMC to implement the project. We welcome input and would be glad to show off our work at the BPMC or Anaconda.

**PROMISING PLANTS IN SEED INCREASE AT THE BPMC**

Forbs:

| | |
|---|---|
| *Aster chilensis* | creeping aster |
| *Heuchera parviflora* | littleflower alumroot |
| *Penstemon eriantherus* | fuzzytongue penstemon |
| *Phacelia hastata* | silverleaf phacelia |
| *Potentilla hippiana* | woolly cinquefoil |
| *Sphaeralcea coccinea* | scarlet globemallow |

Grasses:

| | |
|---|---|
| *Agrostis gigantea* | redtop |
| *Carex paysonis* | Payson's sedge |
| *Deschampsia cespitosa* | tufted hairgrass |
| *Elymus trachycaulus* | slender wheatgrass |
| *Juncus balticus* | Baltic rush |
| *Leymus cinereus* | basin wildrye |
| *Oryzopsis hymenoides* | Indian ricegrass |
| *Pascopyrum smithii* | western wheatgrass |
| *Poa alpina* | alpine bluegrass |
| *Poa ampla* | big bluegrass |
| *Poa compressa* | Canada bluegrass |
| *Poa* species | bluegrass species |
| *Pseudoroegneria spicata* | bluebunch wheatgrass |

Shrubs:

| | |
|---|---|
| *Juniperus horizontalis* | creeping juniper |
| *Purshia tridentata* | antelope bitterbrush |
| *Rosa woodsii* | Wood's rose |
| *Shepherdia argentea* | silver buffaloberry |
| *Symphoricarpos albus* | common snowberry |
| *Symphoricarpos occidentalis* | western snowberry |
| *Ribes* species | currant species |

Leslie Marty

## PLANT PROFILE: creeping aster

*Aster chilensis* Nees, commonly known as creeping aster, is a native, long-lived perennial forb. It is a widespread species distributed in many of the mountain ranges in the western United States. Three subspecies: ssp. *hallii*; ssp. *adscendens;* and ssp. *chilensis* are described. The subspecies occurring in west, central, and northeast Montana is *adscendens*. The species is highly variable and many ecological variants have been observed. *Aster chilensis* generally grows from 12 to 24 inches tall and has 0.5 to 1-inch wide lavender to white ray flowers and yellow disc flowers. The stem is pubescent at least above. The leaves are usually entire to ciliate, glabrous or commonly sparsely pubescent and often deciduous except in smaller plants. The middle stem leaves are sessile, linear to obovate or oval, and approximately seven times as long as wide with somewhat reticulate or parallel venation. The lower leaves usually oblanceolate and more or less petiolate. The bracts that subtend each flower are well imbricate, green-tipped and the outer bracts mostly obtuse. The achenes are oblanceoloid, hairy, with soft white bristles at the tip. Birds eat the achenes.

*Aster chilensis* has a fibrous root from a rhizome or elongated-branched caudex. The plant's rhizomatous nature, ability to mature quickly, and produce abundant seed, enables it to establish well on disturbed sites. The subspecies *adscendens* Lindl. Cronquist prefers dry places: plains, hills, slopes, and woods. It can be found at a wide range of elevations from valleys to mountains. *Aster chilensis* prefers sun to partial sun and tolerates drought well. It has been observed growing on acidic and heavy metal contaminated soils.

Seed of *Aster chilensis* is fairly easy to produce. Loam to clay-loam textured soil is preferred. Seed can be spring or fall planted to a depth of 1/16 to 1/8 inch. The suggested seeding rate is 20 to 40 pure live seed per foot in 36 to 42 inch row spacing. Precipitation or irrigation of 12 to 16 inches per year is required. *Aster chilensis* blooms continuously June-September and seed ripening is indeterminate. Optimal harvest time is generally late August to September and multiple harvests are recommended to maximize seed yields. Estimated seed production is 50 to 100 pounds per acre pure live seed. Seed produced at the BPMC in 1997and 1998 averaged 78 and 86 percent germination, respectively.

There are no released varieties on the market at present. A pioneering species that is able to colonize disturbed lands, *Aster chilensis* is valuable for adding species diversity to reclamation applications. The DATC Project, in cooperation with the BPMC, is working towards releasing an ecotype collected near Anaconda, Montana, that exhibits tolerance to acidic/heavy metal contaminated soils. *Aster chilensis* has potential to be significant in initiating the early processes of succession on severe disturbances.

Leslie Marty

## *Cruising the Web*

Montana Natural Heritage Program (homepage access for 'Optimolocus' newsletter)
*http://nris.state.mt.us/mtnhp*

Native Plant Conservation Initiative
*http://www.nps.gov/plants/index.htm*

Native Plant Journal
*http://www.uidaho.edu/nativeplants*

USDA-NRCS National Plant Database
*http://plants.usda.gov*

USDA-NRCS Plant Materials Program
*http://Plant-Materials.nrcs.usda.gov*