

the

LOCKEFORD PLANT MATERIALS CENTER

2008 Progress Report of Activities

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PMC Staff

Derek Tilley

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The mission of the Lockeford Plant Materials Center (PMC) is to develop and transfer effective state of the art plant science technology and to meet customer and resource needs. There are 27 PMCs nationwide, each serving a particular geographic area. The Lockeford PMC serves the Mediterranean climate portions of California encompassing over 60,000 acres including 11 Major Land Resource Areas (MLRAs).

The Lockeford PMC was established in 1973 to select promising plants and test their performance under a variety of soil, climatic and use conditions. Since its inception the California PMC has released over 30 plants for commercial seed production to address soil and water conservation concerns. The PMC is actively engaged in developing technologies to support rangeland restoration, riparian and streambank bioengineering, and other native species issues.



Introducing new staff



The PMC brought on a new manager this year! Derek Tilley started work at the center just before Christmas and has jumped in with both feet. Derek comes to CA NRCS from the Plant Materials Center in Aberdeen, Idaho where he worked for five years as a plant scientist. Derek is no stranger to California however; he originally grew up in Citrus Heights and spent his first 19 years in the Golden State. Derek went on to receive a BS and MS from Brigham Young University in Botany with an emphasis in plant taxonomy. He has a broad background in field research having worked for BYU, the University of Florida, National Park Service and the University of Idaho Extension. Stop in and meet Derek or give him a call with any plant materials questions.



'Sierra' sulphurflower buckwheat in Foundation seed field at the PMC

Foundation seed production

One of the duties of the PMC is to produce Foundation seed to distribute to commercial seed growers. In 2008 the PMC produced Foundation seed of 'Rio' beardless wildrye, 'Berber' orchardgrass, Marana fourwing saltbush, 'Casa' quailbush, 'Sierra' sulphur flower buckwheat and 'Mariposa' blue wildrye. This year we will be producing seed for the above mentioned releases plus 'Duro' California buckwheat, purple needlegrass and the five new California brome releases.

Pollinator Hedgerows

In January the PMC installed a series of pollinator hedgerows in cooperation with the Xerces Society. The hedgerow plantings act as demonstrations for farmers, ranchers and planners wanting to learn a step-by-step approach to installing and managing hedgerows where the land use is in row crops, orchards, vineyards, pasture, or non-irrigated rangelands.

The hedgerows provide two basic habitat needs of native bees. The first is a diversity of locally appropriate flowering plants, which provide year round flowers for bees to visit and feed upon. Second, the planting provides nesting sites consisting of bee blocks, appropriate plants, and undisturbed soils that exist within the area of the hedgerows. Four different hedgerows were installed, each utilizing one of four irrigation techniques: furrow, drip, micro-spray or non-irrigated. The goal is to promote the use of hedgerows that can be tied in to existing irrigation systems. For information, contact state biologist Tom Moore.



PMC gardener, Daniel Meyer, state biologist, Tom Moore and PMC farm manager, Dennis Frommelt planting shrubs for the hedgerow demonstration

New California Brome Releases



Seedlings of California brome awaiting planting in breeder blocks at PMC

The PMC recently announced the release of 5 new Selected Class Germplasms of California brome (*Bromus carinatus*). These were developed from 26 accessions tested in four common garden study plots at 3 central California sites and also at the PMC. The plots were evaluated for plant vigor, size and stand establishment. From the original 26 collections, five accessions were chosen for Selected Class release based on performance and adaptability for use in different ecoregions in the state. The five accessions were given names based on recommended use areas and the elevation of the original collection: Coastal 500, Central Coast 2600, Central Sierra 3200, Southern California 1000, and Northern California 40. In 2009 the PMC planted the first breeder blocks for large scale seed production. Germplasm seed should be available for seed growers in 2010 or 2011.



United States Department of Agriculture
Natural Resources Conservation Service

Southern California 1000 Germplasm California Brome

*A native grass for soil
stabilization and range
improvement*



California Plant
Materials Center
Lockeford, CA

Brochures for the five new California brome releases are currently under development and will be available for distribution later this year.



Sierra lupine in seed production plots

Native Species Evaluations

In 2008 the PMC made over 40 collections of California melic (*Melica californica*) with plans to install an initial evaluation planting (IEP) in the fall of 2009. The PMC also has plans to make collections this season of Sierra Lupine (*Lupinus grayi*) and giant wildrye (*Leymus condensatus*) for planting in 2010. To get the most out of these studies the PMC needs as many seed collections as we can get from throughout the native range of the species. You can help by making collections or by providing population locations to the PMC. Contact Derek Tilley or Christina Smith for more information on how you can be involved.

Seed production for National Park Service

Yosemite NP

In 2006 the PMC entered into an agreement with Yosemite National Park to produce seed of two grasses, Sandberg bluegrass (*Poa secunda*) and California brome (*Bromus carinatus*), and two forbs Sierra lupine (*Lupinus grayi*) and big deer vetch (*Lotus crassifolius*).

The PMC direct seeded 0.25 acre of bluegrass and 0.75 acre of brome in 2007. The first harvests took place in 2008 and will continue in 2009. In 2007 the PMC also produced approximately 500 plugs of Sierra lupine for transplanting into weed barrier fabric. An additional area of fabric was also direct seeded to augment seed production. In January 2009 Lotus seed was also direct seeded into fabric. These species should produce seed for harvest this year.

Golden Gate NP

In August 2006, an agreement was made between Golden Gate National Park and the PMC to produce 150 lbs of resident native purple needlegrass (*Nassella pulchra*). In 2006 seed from the original germplasm was planted in a 0.6 acre field at the PMC. The planting established well, but seed production for years one and two, though typical for the species, was well below yields anticipated for fulfillment of the agreement. In late summer 2008, the PMC and GGNP reached an agreement to amend the original contract. The amendment allows for the continuation of the original 0.60 acre field through 2009, and the addition of another 0.70 acres, through the 2011 growing season.



Purple needlegrass (*Nassella pulchra*) swathed for seed harvest

Tall wheatgrass biofuel study

The Lockeford PMC is evaluating 4 varieties of tall wheatgrass (*Thinopyrum ponticum*) in replicated plots in cooperation with PMCs in 8 western and 2 northeastern states. Biomass yield and accession adaptation potential for possible use as a biofuel feedstock are being studied.

Preliminary seeding year data for 2008 indicates that tall wheatgrass, a perennial introduced species, could be a viable option for low input fallow farmlands in California from a biomass production standpoint. More information will become available as the study progresses.



Tall wheatgrass plots in replicated biomass production study