

# Rose Lake Plant Materials Center

## *Report of Activities*

*Fiscal Year 2012*



## **Propagation Techniques Evaluated for Plants from Apostle Islands National Lakeshore**

Apostle Islands National Lakeshore is part of the National Parks Service. They entered into an interagency agreement with the Natural Resources Conservation Service to propagate plants from materials collected in the Park and have those plants returned to the Park for restoration of eroded areas. In 2011 the PMC was asked to propagate several plant species including beachgrass and common juniper.

Beachgrass germination is usually low (less than 10%) so it is usually propagated vegetatively. The Rose Lake PMC initiated an experiment to determine if beachgrass germination can be enhanced by crossing plants propagated from seed compared to plants propagated vegetatively. Plants derived from their respective propagation methods



were transplanted into crossing blocks in 2010. **Beachgrass grown from seed, 2 months after planting**

Plants propagated vegetatively produced seed heads

in 2011, whereas plants propagated from seed did not. Seed collection from both crossing blocks continued in 2012 and viability between the propagation methods will be compared.

The PMC has tried many stratification and scarification treatments on common juniper seeds to reduce germination time and improve establishment. Combinations of cold stratification, warm stratification, acid treatments, and physical abrasion have not proven effective in improving germination time or establishment. The best propagation method has been to plant seeds in the spring of “Year 1,” allow the seeds to overwinter into “Year 2,” and germination will occur in the spring of “Year 2.”



**Overwintering of Juniper in outdoor plastic tub**

Overwintering of juniper plants in the PMC vegetative cold storage has been problematic, with plant mortality being observed over several years. A new method of overwintering was used in 2011/2012 that involved placing roots of container grown plants below the soil surface in an outdoor plastic tub. Potting soil was placed around each container to eliminate air pockets and prevent root freezing. Wire mesh was placed over the plants in the tub to protect against deer browse. Survival was about 95% using this overwintering technique.

In 2012 the PMC propagated and delivered 16,600 plants to the park. Beachgrass, wavy hairgrass, evening primrose, common milkweed, common juniper, and Canada mayflower were the species propagated for delivery this year.

Over the past 12 years the PMC has propagated 30 plant species and has provided technical assistance to stabilize eroding shorelines. The Plant Materials Center recently completed a technical document summarizing the propagation protocols for those species and provided it to the Park. That document is on the Plant Materials Program website.



**Volunteers unloading the plants from the boat onto the island**



**Plants being unloaded from the truck and loaded onto the boat for transport to the island**

# PMC evaluates cover crops for establishment of hardwood trees.

Observations of tree establishment plantings in Michigan have noted varying degrees of erosion in newly planted woodlands. The Rose Lake PMC, in coordination with NRCS State Forester Andy Henriksen, established an experiment to evaluate perennial grasses as cover crops to aid in the establishment of hardwood tree species. Two grass species, Canada wildrye and Virginia wildrye, were planted in September 2011. A non-cover crop treatment was also included in the experiment. In May 2012 bare root stock of northern red oak or hickory were planted in those cover crop treatments and tree shelters were placed around each tree. A herbicide treatment was applied around half of the trees in each cover crop area to determine the effects of weed control in the cover crops and non-cover plots.

Tree height was measured the day of planting. Survival, tree height, and vegetative cover estimates will be taken each year for the next 5 – 10 years.



**State forester Andy Henriksen and PMC Agronomist John Durling planting trees**



**Biological Science Technician Sergio Perez installing tree shelter and labeling plot**



**Field of hardwood trees planted in wild rye cover crop**

## PMC Cover Crops Project Highlighted at Conservation District Tour

The Rose Lake Plant Materials Center has been evaluating cover crops for three years, focusing on the growth attributes of oilseed radish and other brassicaceous cover crops. In August 2012 the PMC established a trial on the Larry Lee farm near Laingsburg, MI. The trial is intended to demonstrate the effect of annual ryegrass, oilseed radish, red clover, and combinations of these cover crops on corn yield the following year. Dr. Dale Mutch, Michigan State University cover crop researcher, provided the seed for this trial.

Plant growth measurements were taken at 15-day intervals throughout the growing season in 2012. Soil samples were also taken to determine the initial levels of nitrogen, phosphorus, and potassium as well as soil characteristics such as pH, organic matter, and textural components. The PMC staff was assisted by specialists at the National Technical Center in Fort Worth, TX and NRCS-IN soil health team members to develop sampling protocols.



**Group arriving at the Lee Farms**



**John Leif, PMC Manager, discussing the cover crop project to the group**



**Group viewing the poster designed by the PMC providing information on cover crops**

Work at Lee Farms was facilitated by NRCS-MI District Conservationist Tina Tuller. Tina, in partnership with the Shiawassee County Conservation District, conducts a field tour of innovative conservation projects in the county each year. The cover crop plot was one of the stops on the field tour in September. About 90 people attended the tour, including NRCS and District employees, District board members, farmers, other conservation partners and elected officials. John Durling, PMC Agronomist, developed a poster



**Brassicaceous cover crops starting to green up**

highlighting some of the cover crop work done at the PMC in previous years. Participants had many questions about cover crops, especially with regard to the economic return on the practice. The yield information to be collected in 2013 should help address those questions.

## Soil Health at the PMC

Soil health demonstrations are becoming an integral part of tours and field laboratory experiences provided for visitors to the Rose Lake Plant Materials Center (PMC). Sergio Pérez performed a water infiltration test for members of the Michigan NRCS Civil Rights Advisory Committee (MI CRAC) in August.

Mr. Pérez's demonstration showed that water infiltration took 10X longer in a highly trafficked lawn area than in an adjacent area that had not been trafficked. The ensuing discussion of how precipitation that does not readily infiltrate may move laterally, taking with it valuable topsoil, resonated with MI CRAC members who are passionate about their vocation of "Helping People Help the Land."

In addition to demonstrations, soil health is being integrated into plant material studies at the PMC. This soil health emphasis is being lead by PMC Agronomist John Durling.



**Sergio Perez, Biological science technician, demonstrates water infiltration as a measure of soil health**

## Dave Burgdorf, Plant Material Specialist Retired

After 38 years of service, Dave Burgdorf, Plant Materials Specialist, retired on June 2<sup>nd</sup>. He started his career as a summer intern mowing Bin Sites with ASCS and working with the Conservation Technician in the local SCS office. After that summer Dave worked as a manager for a Farm Service warehouse. He then became a SCS Conservation Technician working in one county and then two in Illinois. After a few years Dave became a soil Conservationist and while working in this position was selected for an Upward Mobility Position. After Dave completed his BS in Agronomy with a concentration in Conservation, he was placed as a Soil Conservationist Trainee. Dave then became



a District Conservationist and later an Area Agronomist serving 14 counties in Illinois. He then became an Area Resource Conservationist working in 23 counties. He also served as Acting Area Conservationist for a while.

In the fall of 1989, Dave and his family moved to Michigan when he accepted the position of the Plant Materials Specialist. He served in this position for 23 years, providing assistance to the primary states of MI, IN, OH

and WI, working through the State Plant Materials Committees. He has served on the National Plant Materials Technical Advisory Committee and as a Soil Bioengineering instructor for NEDC where he was a

**Dave Burgdorf receiving a Meritorious Service award from Michigan State Conservationist Garry Lee**

cadre member. He traveled several times to Europe, Mexico, and Puerto Rico and throughout the United States.



**Dave Burgdorf receiving a NRCS-Michigan Certificate of Appreciation for all his years of service from State Resource Conservationist Jim Scott**

The Plant Materials Center hosted a retirement luncheon on June 4. NRCS-MI State Conservationist Garry Lee presented Dave with the Meritorious Service Award in recognition of his dedication to the Plant Materials Program over the past 23 years. In addition to that award Dave received a certificate of appreciation from NRCS-MI for his years of dedication to conservation in Michigan. The award was presented by State Resource Conservationist Jim Scott.

Dave and his wife Debbie own Burgdorf Winery in Haslett, MI, which will keep him very busy in his retirement.

## State Plant Materials Committees – Focus on Wisconsin

The Rose Lake Plant Materials Center serves Michigan, Wisconsin, and portions of Indiana and Ohio. An integral part of the Plant Materials Program working in each State is the involvement of the State Plant Materials Committees. Committee membership varies by State, but usually consists of NRCS Field Office staff, Area staff, and Technical Discipline Specialists from the State Office. Non-NRCS representation is present on some committees as well.



The Wisconsin Plant Materials Committee has several on-going studies with the Rose Lake Plant Materials Center. Evaluation of prairie cordgrass and Canada bluejoint grass as buffers against reeds canarygrass encroachment in wetlands has been going for several years. The committee evaluates that planting as part of their annual meeting and will provide training for Field Office Staff and Technical Discipline Specialists. Another study is the evaluation of eastern gamagrass as a forage pasture plant. Observations to date indicate management practices are required to keep eastern gamagrass stands healthy and productive. Management practices are annually being evaluated.

The committee has identified several natural resource concerns to be addressed through the Plant Materials Program. Some of those include using ‘Hidden Valley’ Meadow Fescue as a possible replacement of tall fescue for grazing. One of the Areas in northern Wisconsin is mixing native and introduced cool season grasses and forbs to try and come up with something that will perform as pollinator habitat in the northern climate. The major native forb component is wild bergamot. The Area has a need for some mixes that will do well in the northern part of Wisconsin.

There is a need for a seed mix to be used on stream bank protection projects that will be acceptable to WDNR Endangered Resources section for compatibility with threatened and endangered species. There is a need to find/identify a grass that will match up well with alfalfa in growth stage characteristics so that grass/alfalfa mixes can be promoted. Tillage radish is getting popular with producers as a late summer/early fall planting to break up heavy soils with plow pans and to add organic matter. Next year’s committee meeting will include some discussion and a field tour to look at this relatively new cover crop.

The Committee, in conjunction with the Wisconsin NRCS Technical Discipline Specialists, will be working with the Plant Materials Center to develop study plans, as appropriate, using the NRCS Plant Materials Program.

## Rose Lake PMC works with Wild Rice

Wild rice is an aquatic grass that grows in the lakes and streams of Michigan, Wisconsin, Minnesota and many other states. It is considered a culturally significant plant for many Native American Tribes and it has good nutritional value. The Gun Lake Band of Potawatomi Indians in western Michigan contacted NRCS with an interest in propagating wild rice for their tribal areas.

Plant Materials Specialist Dave Burgdorf (now retired) worked with the Elsberry PMC in Elsberry, MO to get several plants of wild rice (*Zizania aquatica*) from Ken Dalrymple with the US Fish and Wildlife Service in Missouri.

Ken agreed to provide plants and seeds to allow the PMC to gain experience growing the plant in Michigan in preparation for the project with the Tribe. The PMC will work with the Gun Lake Band in 2013 to help them propagate wild rice on their tribal lands.



Wild rice arrived from Missouri in tubs.



Ken Dalrymple from the US Fish & Wildlife Service showing the wild rice growing in Missouri.



Wild Rice growing at Rose Lake PMC

## Rose Lake PMC Hosts Trainings and Tours in 2012

The Rose Lake PMC hosted a number of tours, MSU (Michigan State University) classes, and training sessions in 2012. The PMC served as the host location for the NRCS-MI Civil Rights Advisory Committee in June. Committee members participated in a tour of the PMC and were given a soil health characteristics demonstration. Technical specialists from the NRCS-MI Ecological Sciences staff also conducted training at the Center. Grazing lands specialist Betsy Dierberger conducted training on pasture health and forage plant ID, and State Forester Andy Henriksen conducted forest stand improvement training. The classes utilized the conference room at the PMC for the classroom component of the training and used the PMC grounds for hands-on activities.

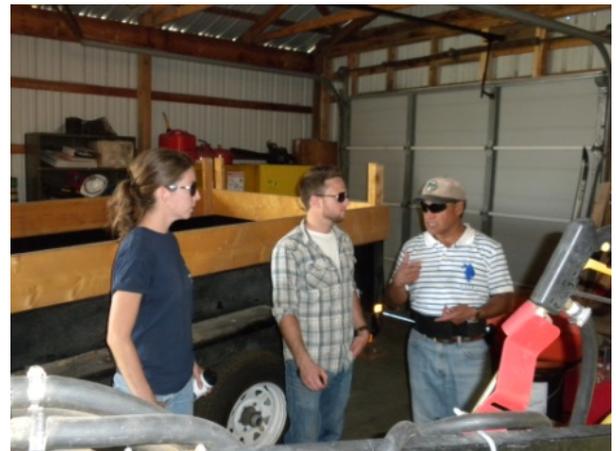
Dr. Rich Leep, MSU Forage specialist, brought the Forage Management class to the PMC for a tour and plant collection exercise. About 25 students toured the facility and collected plants for their forage plant collection assignment. This has been an annual tour event since 2002.



**The Michigan State University Forage Management class with professor, Dr. Rich Leep, (third from right) and John Leif, PMC Manager, (second from right).**



**Student trainee Caitlain Wagner from the Owosso field office spent the day at the PMC learning about our program and also helping out with some seed cleaning.**



**Dayna Schoenmaker from the Shelby field office and Bryan Zabel from the Tawas field office spent the day at the center learning more about the PMC and its programs. They are shown here looking at some equipment with Sergio Perez, Biological Technician at the PMC.**



**L-R John Durling (Rose Lake PMC Agronomist), John Leif (PMC Manager) and Alasdair Guide, a visitor from Cumbria, England, who spent the day at the Rose Lake PMC. Alasdair works for England's government agency comparable to USDA.**



**Group viewing the observation boxes at the Rose Lake PMC.**

Staff from the Mt. Pleasant and Midland NRCS offices spent the day at the Rose Lake PMC learning more about our program. In the afternoon they helped the PMC staff take down the shade house for the season. Guests included Tim LeQuier, District Conservationist; Will Sears, District Conservationist; Conrad Hayes, Soil Conservation Technician; and Brent Wolschlager, CTAI technician.



**After taking down the shade cloth, they rolled it up and got it ready to put in storage for the winter. Their help was greatly appreciated.**

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