



Nursery News August 2015



CHANGE AT THE WISCONSIN STATE NURSERIES

As has been previously reported, the Wisconsin Nursery system has undergone a series of changes over the past 7 years. The longtime manager at the Griffith Nursery, Jim Storandt, has retired and is spending his time hunting, fishing, traveling, and enjoying his family. In addition to Jim's departure, another member of our nursery staff, Pat Murphy, decided to hang up her planting bar this past winter. Pat has held a number of positions over her 38+ years with the Wisconsin DNR, but for the past 7 years filled the role of nursery coordinator. Pat had an unquenchable thirst for knowledge, an insatiable curiosity and, most importantly, a zeal for the nursery and its vision. She is enjoying her retirement by traveling and keeping up with her many foreign exchange student friends.

Good luck Jim and Pat. You will not be forgotten.

Earlier this year, the Division of Forestry leadership decided to consolidate seedling production to one nursery. This reflected a significant decline in the sale of nursery stock and our need to meet our statutory obligation to ensure the revenues we receive cover the costs of production. This decision regarding which nursery to keep in production was not an easy one. Both Wilson State Nursery in Boscobel and Griffith State Nursery in Wisconsin Rapids produce quality seedlings with dedicated, hardworking staff.

In late 2014, the decision was made to cease production at Griffith State Nursery and consolidate seedling production at Wilson State Nursery. In many ways, these two facilities are very similar, but ultimately the decision came down to considerations regarding age of infrastructure, maintenance costs, facility design, and growing conditions. The production capacity at Wilson is sufficient to meet projected seedling demand for public and private landowners.

The Griffith Nursery will continue to provide seedlings until the inventory is exhausted. It will then transition into another role, not quite yet determined. Ideas including seed orchards, prairie plant production for state properties and forest research are all viable and worth exploring. Staff will transition into new opportunities as well. Overall, the nurseries under the reforestation program will continue to provide a consistent supply of high quality seedlings, of desirable species at an economical price to encourage reforestation in Wisconsin.



SPECIES FOCUS: Quaking and Big-Tooth Aspen

(*Populus tremuloides* and *Populus grandidentata*)

Native to Wisconsin, these important aspen species can be found across the entire state. Quaking aspen is very wide spread throughout most of North America, while big tooth aspen is mainly in the northeastern part of the US, from Minnesota to Maine. Both species are similar in grow characteristics and habitat. Although aspen regenerates exceptionally well from root sprouts following a

harvest, there has been an increase demand for seedlings in the past decade, mainly for habitat restoration work. Aspen has an extremely small seed, similar to a grain of sand and needs to germinate on the soil surface. It also requires the soil surface to stay moist during the germination process. Once germinated, the seedling remains very tiny and will work on establishing a root system before investing in top growth. This time period can last 3 to 4 weeks and requires the soil surface to continue to remain moist at all times. Sandy soils are typically the ideal soils for establishing a nursery because of the many benefits they provide for cultural practices as well as ease of harvesting. This does cause a problem with germinating aspen though because it can be very difficult to keep the soil surface moist for an extended period of time in order to germinate and establish a seedling stand of aspen in a nursery bed. To meet the demand for aspen, the staff at the Wilson State Nursery in Boscobel began to investigate other methods to propagate aspen. Cottonwood, another *Populus*, species propagates very well from shoot cutting. Aspen does not. However, aspen does propagate well from root sprouts. In 2013, the nursery staff began a trial. First we gathered volunteer aspen seedlings from our oak seedling beds during the spring harvest season. The roots were



Figure 1: Rows of 1-0 *Aspen spp.* Sprouts at Wilson State Nursery
Photo: J. Vande Hey, 2015

bunched together and cut into 4" length using a paper cutter. It was unknown at the time which roots would produce the best tree, if any, so all roots were kept. In mid-May nursery staff prepared a bed for aspen roots similar to a seeded bed. The roots were placed by hand into 1" deep furrows and cover with a 1/4" to 1/2" soil. Everyone waited anxiously to see if this would be a successful

way to propagate aspen. About 3 weeks later small sprouts began to poke out of the ground. It did not take long for them to get established and grow vigorously. By the end of the growing season the nursery had about 5,000 well-established aspen propagated from roots. Success once doesn't mean success on regular basis so plans were made for the 2014 spring to double production at the Wilson State Nursery and expand to the Griffith State Nursery in Wisconsin Rapids. Both nurseries successfully established beds of aspen that yielded about 20,000 aspen from root cuttings. These were offered for sale in the spring of 2015. In this second year staff also experimented with root lengths ranging down to 1" as well as root caliper. Root length appeared to be more critical than caliper and we found 2- 4 inch roots produced the best stand of aspen seedlings.

Although this method of propagating aspen is much more labor



Figure 2: Single *Aspen spp* seedling and root
Photo: J. Vande Hey 2015

intensive than producing a seedling from seed, it has proven to be much more reliable. Acquiring enough roots is one of the limiting factors. To address this challenge, we decided to root prune all graded aspen seedlings. This larger quantity of roots is then used to establish the next season's crop. In the spring of 2015 a third crop has been established from roots and is progressing well. We did learn that depth is critical as some of the roots covered with more than 1" of soil did not

reach the surface. Nursery staff continues to search for ways to produce more roots efficiently and tweak our seed grown stands to be productive. The Reforestation Program expects to have about 15,000 aspen to offer for sale for the spring of 2016. Currently demand is approximately 80,000 seedlings per year. Hopefully this new approach to aspen propagation, coupled with a steadfast desire to fill our customers' requests will translate into vigorous aspen forest development on the Wisconsin landscape.



UPDATES

Seed Sales

The 2015-2016 Seed Sales form is available to any landowners that wish to attempt a direct seeding project on their property. This past year the reforestation program provided jack pine, white pine, red oak, bur oak, white birch, black cherry and a host of other seeds for reforestation efforts across the state. Contact your local DNR forester or reforestation staff for more information

2016 Spring Tree and Shrub Application

The Reforestation program is gearing up for our 2016 seedling sales starting the first Monday in October (October 5th). The past spring and summer have proven very good growing conditions for nursery seedlings. The pine, spruce oak, birch, dogwoods and many other assorted trees and shrubs look terrific and are waiting to be planted across the state; providing forest products, erosion control, wildlife habitat and aesthetic beauty to the Wisconsin landscape. Seedlings can be ordered online at the Reforestation Program's website or sending in a 2016 Spring Tree and Shrub order form, available from local foresters or at any one of the nurseries.

Reforestation Monitoring

For the past 8 years, staff from the reforestation program has visited landowners across the state, collecting data on new tree and shrub plantings. They gathered information pertaining to site preparation, seedling care, stocking levels, seedling growth and more. All of this data was collected and stored, for the purpose of determining current practices and successes on the greater Wisconsin landscape. We measured over 40,000 seedlings on 1200 individual sites and determined that overall, success is very good (>88%). However, the data was not giving us exactly what we needed to answer some of the questions we were most interested in: advantages/disadvantages of certain site preparation techniques, the success of certain herbicides on different tree species, stock care at and after it leaves the nursery and the impacts on survival, etc. With this in mind, we partnered with the Bureau of Science Services and decided to provide a greater focus to our measurements. We will still be out in the fields and woods of Wisconsin during the summer and fall, but now with more pointed direction and focus. We will also be partnering closer with local foresters, silviculturalists and other forestry professionals to answer specific questions about tree planting, growth and ultimate success. While the past 9 years have been interesting, the future looks just as fascinating.

THE VISION of the state nursery program is to insure a consistent supply of high quality seedlings, of desirable forest species, at an economical price, to encourage reforestation in Wisconsin.

Nursery News is published in January and July with the intent to keep individuals abreast of regeneration topics.

State Nurseries

Griffith State Nursery (Wisconsin Rapids)
715-424-3700

Wilson State Nursery (Boscobel)
608-574-4904

Hayward State Nursery (Hayward)
715-492-1204

www.dnr.wi.gov, search "tree planting"