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Woody Notes

MANHATTAN PLANT MATERIALS CENTER

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New Woody Plants

Four new woody acquisitions were added to the Manhattan Plant Materials Center's (PMC) woody observational plantings in 2010: littleleaf peashrub *Caragana microphylla* Lam., 'Mongolian Silver Spires'; smooth American sycamore, *Platanus occidentalis* L. var. *glabrata* (Fernald) Sarg.; maidenhair-tree, *Ginkgo biloba* L.; and bee-bee tree, *Tetradium* sp. Lour.

Littleleaf peashrub, *Caragana microphylla* is native to Asia. This drought-tolerant species is typically found growing at high elevations, with adaptations allowing it to withstand harsh winters. Species in the genus *Caragana* are usually not selected for use in urban landscape settings, but are generally available in the trade and often recommended for windbreak/wildlife plantings. Common in members of the Fabaceae Family, Caragana can fix their own nitrogen with the help of *Rhizobium,* a soil bacterium that multiplies in the roots creating nodules. In comparison to the more common Siberian peashrub, *C. arborescens,* this species of Caragana is finer textured, and tends to have fewer main branches arising from the base with less suckering. In common with many other *Caragana* species, small, spindly thorns are present. The specific epithet, "microphylla", means "with small leaves."

Finer textured leaves, fewer main branches, and bright red fruit capsules. *Photo courtesy Bob Henrickson, University of Nebraska – Lincoln Nebraska Statewide Arboretum*

The clonal selection, designated Ames 29229, of *C. microphylla* was grown from a seed lot originally obtained from a seed vendor in Xilinhot, Inner Mongolia. With a mature height of 8–9-ft, this upright, narrow selection is noted for its sparkling, silvery, ferny leaves. Relatively large (3/4–1-in), buttery, yellow flowers stand out just before leaves emerge in late April and are attractive to both bumblebees and hummingbirds. Following pollination, bright red fruit capsules are initially displayed in June, which persist into mid-July. Peashrubs exhibit an interesting seed dispersal mechanism, where seeds are abruptly sprung from the drying pods after reaching a point where cellular moisture levels are low enough. In winter, the coarse growth habitat is striking due to the lime-green color of both young and older stems. Mongolian Silver Spires was released for introduction in 2007 through the Great Plants for the Great Plains program. This shade-intolerant, xeriscape selection should perform well under the hottest and driest landscape conditions. Avoid planting this shrub in shade or in poorly drained soils. Probable hardiness is to USDA Zone 2. Five, two-year-old bare-root liners were planted on the PMC April 20, 2010, in Field F-1.

Smooth American sycamore, *Platanus occidentalis* var. *glabrata*, Ames 29977 is an accession that was collected along the Frio River, in Real County, Texas, on soils with extremely high pH values. It was suggested that plants collected from this soil type should be highly tolerant to alkaline soils. According to Steve Bieberich, (Sunshine Nursery, Clinton, Oklahoma), this variety could be more tolerant of, and possibly resistant to, anthracnose when compared to the typical variety of Sycamore. In general, sycamore is considered a relatively fast growing species. Since this accession was collected at approximately 30° North Latitude, considerable annual growth may result in response to extended photoperiods when grown at northern latitudes. However, early bud break and delayed hardening may be problematic. According to Pirone's Diseases and Pests of Ornamental Plants, anthracnose is severe when average temperatures

Manhattan Plant Materials Center: A Trial Site

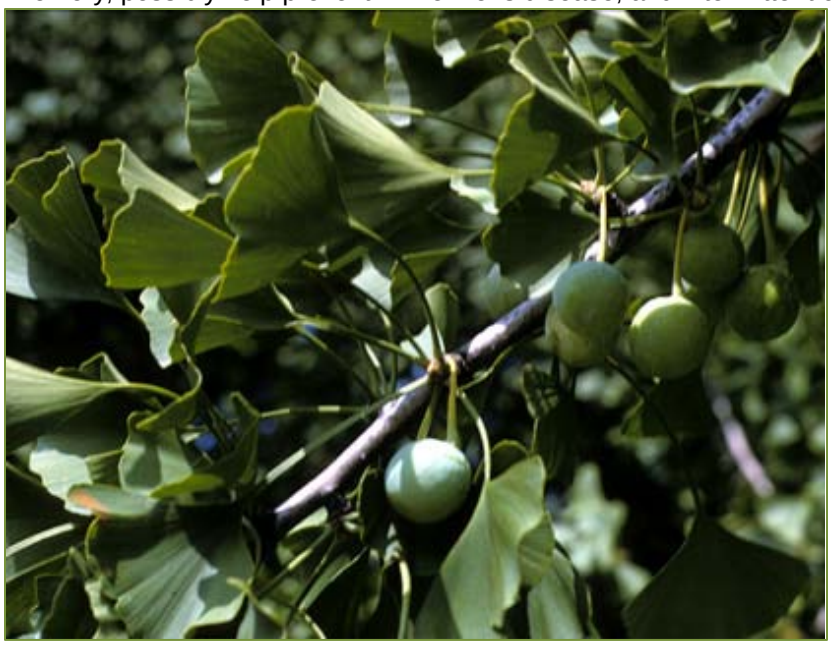
The purpose of this newsletter is to inform cooperators and others interested in woody plants about woody plant trials at the PMC. Many of the entries are part of the USDA Agricultural Research Service (ARS) Plant Introduction System, North Central Regional Plant Introduction Station's (NCRPIS) NC-7 Trials for which the PMC is a cooperating trial site. Additional entries are provided by cooperating PMC's, NRCS field offices, and university forestry programs desiring the testing of promising woody plant materials.

during the 14 days following leaf emergence are under 55°F, which may be more frequent in a population that breaks bud early. The native range of *P. occidentalis* var. *glabrata* stretches from central Iowa to western Texas. The variety *glabrata* is distinguished by the lack of leaf pubescence. Ornamental characteristics are essentially focused on creamy-white peeling bark. During an era of "becoming green," sycamore leaves reaching 9-in wide help make this species an excellent choice for shading urban and commercial buildings in order to conserve energy. Interest and curiosity is often generated in response to the production of "seed balls," which are typically noticed throughout the winter months. The downside to all *Platanus* generally comes from its strong tendency to drop leaves and twigs throughout the growing season and lose branches year round, making it a less than optimal tree for the home landscape.

Foliage and fruits of the American sycamore.
Photo Courtesy Allen Bridgman, South Carolina Department of Natural Resources, Bugwood.org

Seeds collected along the Frio River in Real County, Texas, by Steve Bieberich, Sunshine Nursery, located near Clinton, Oklahoma, in spring of 2009, were grown out to 1-gallon potted plants. Five of these approximately 1.5-ft tall were planted on the PMC in Field F-2 in 2010. Probable hardiness is to at least to USDA Zone 6.

Maidenhair-tree, *Ginkgo biloba* is one of the oldest living tree species. The ginkgo is considered a living fossil dating back to the Jurassic and Cretaceous periods. Its reputation has increased in recent decades not just as an attractive and durable landscape tree, but also as an herbal supplement. According to the National Institutes of Health National Center for Complementary and Alternative Medicine Web site, *G. biloba* extract has been used to try to treat a variety of conditions including asthma, bronchitis, and fatigue. In addition, it is thought that ginkgo leaf extracts may improve memory, possibly help prevent Alzheimer's disease, and intermittent claudication. However, large clinical studies are lacking in order to prove (or disprove) the benefits of ginkgo-leaf extract.



Fan shaped leaves of the ginkgo tree possess four veins per segment, fleshy fruit and ash-gray bark. *Photo from Richard A. Howard Image Collection, courtesy of Smithsonian Institution.*

As the only remaining species in the family Ginkgoaceae, it is not a real surprise for this species to be a long-lived survivor due to the lack of insect and disease problems. As a large (80–100-ft) tree, ginkgo performs best under full sun with lots of room to expand. Although this species may be too large for a small homeowner's landscape, it is valuable for use in commercial- and acreage-type settings. Ginkgo is prized for its striking yellow fall color and tendency to drop its leaves quickly shortly after temperatures fall below 25°F. Additional ornamental characteristics include ash-gray bark and a distinct, pyramidal growth habit making it easy to identify during the winter season. Ginkgo was likely native to eastern China, and its cooked seeds are commonly eaten by Chinese and Japanese. There are a fair number of cultivars on the market, the majority selected for unique growth habit and/or superb, yellow fall color. It is important to remember that ginkgo is technically a gymnosperm and although seeds resemble a

fleshy fruit and are commonly called “fruits,” they are technically considered a naked seed. In addition, ginkgo trees are dioecious and planting of only male specimens in urban settings is recommended, because the seeds are very messy and foul smelling. Five, two-year old bare-root liners of Ames 28316 were planted in Field F-3 on the PMC in 2010. The liners were grown from seed collected by Jeffrey D. Carstens in October 2007 from multiple, mature specimens located in Arbor Lodge State Park, Nebraska City, Nebraska. Since the plants were seed propagated, sex determination is unknown. It may take 20 years or more for a ginkgo to reach sexual maturity. Probable hardiness is to USDA Zone 4.

Bee-bee tree, *Tetradium* is essentially unknown to the nursery trade (also known in the trade as *Evodia*). A member of the Rutaceae Family, it is a medium-sized tree that could help diversification of our urban forests. This plant seems to have few significant pest or disease problems. Compound leaves are dark green and very glossy. Impressive white flowers are abundant in mid-summer, at a time when few trees are flowering. Inflorescences are flattish corymbs that can measure 4–6-in across. Fruit capsules display reddish colors that complement extremely clean foliage in August-September. Shiny, black seeds are showy in the fall and are comparable to the size of buck shot, which explains the common name, bee-bee tree, given in the USDA-NRCS Plants online database. Ames 28317 was collected by Jeffrey D. Carstens in October 2007 as seeds from two specimens of unknown provenance located in Arbor Lodge State Park, Nebraska City, Nebraska. Winter stem dieback may be observed on plants of this accession, as it has not been tested at sites colder than USDA hardiness zone 5. The identity of Ames 28317 has not yet been verified to the species level. The genus is native to northeastern Asia. Probable hardiness is to USDA Zone 5. Five, two-year old bare-root liners were planted in Field F-2 on the PMC in 2010.

Recent Acquisitions

Common Ninebark. *Physocarpus opulifolius* (L.) Maxim. The popularity of common ninebark has become evident over the last couple of years, largely due to the vibrant, purple-leafed cultivars available in the nursery trade. Common ninebark, a member of the Rosaceae family, is typically a minor component of dry, rocky, upland habitats in the North Central United States. However, this species can be found growing in lowland areas of standing water or along stream banks in the Eastern United States. This ability to grow in a variety of habitats makes it a potential landscape selection regardless of soil conditions. In addition, this species displays beautiful (but small) whitish 1/4-in flowers forming 2-in clustered corymbs during the first part of June. Long, flaky pieces of bark start developing on older stems creating a bit of winter interest. Occasionally, the small inflated follicles will show off splashes of red color. This trait seems to be quite variable across populations. Due to the extreme size (8-ft x 8-ft or more) of a typical *P. opulifolius*, this green leafed, compact selection (mature size unknown) may find a place in the landscape or prove to be quite valuable as breeding material.

NCRPIS Compact Selection, Ames 27797, a compact selection of common ninebark is a clone with compact internodes and slower growth selected out of a seedling population collected from the Manderville Preserve located in Bucks County, Pennsylvania. Plants 1.6-ft tall, were planted in Field F-1 in 2007 on the PMC. Probable hardiness is to USDA Zone 2.

‘Center Glow’ (Plant Patent No. 16, 894), Ames 27970, is a purple-leafed cultivar of common nine bark that was selected by Harold Pellett from the Landscape Plant Development Center (LDPC) located in Mound, Minnesota. It is a hybrid between ‘Diablo’ and ‘Dart’s Gold’. Ornamental attributes include newly-emerging leaves that are mostly rosy-red but display a bright yellow-green base. The foliage slowly matures to a deep burgundy color. Light pink flowers in June are followed by bright red corymbs of small, inflated seed capsules. Used as a border, landscape specimen, or foundation planting, this selection can reach 8–10-ft tall and 6–8-ft wide. Ames 27970 was provided as rooted cuttings by the LPDC in the fall of 2006. Probable hardiness is to USDA Zone 3. Well branched two-year liners approximately 2–2.6-ft tall were planted on the PMC in Field F-1.

Whitish ¼-in flowers forming 2-in clustered corymbs and flaky pieces of bark, common ninebark
Photo Courtesy Ted Bodner, Southern Weed Science Society, Bugwood.org

White Oak. *Quercus alba* L. This native, stately tree with the potential to reach 100-ft tall is becoming more popular as a landscape specimen. The distribution of *Q. alba* covers essentially the eastern half of the United States with the western limit creating a distinct line from Minnesota to Texas following a route similar to the Missouri River between Iowa and Nebraska. Noted for its popular wide-spreading crown (when open-grown), this species can be appreciated year round. Spring brings forth new foliage that briefly displays pink or reddish tones. Before long, the appearance of yellowish catkins extending 2–4-in creates an animated experience under

gentle winds. At the end of the growing season, autumn leads to varying shades of bronze and red foliage, which soon senesce and expose the grayish bark. Semi-sweet acorns provide sustenance to numerous birds and mammals and have been known to be used for baking bread.

Ripening acorns of white oak.
Photo courtesy Paul Wray, Iowa State University, Bugwood.org

Bob Henrickson from the Nebraska Statewide Arboretum, Lincoln, Nebraska, provided seedlings of Ames 27340, from acorns collected near Humboldt, Richardson County, Nebraska. The recent book, Flora of Nebraska, indicates this very rare population of white oak is potentially the largest in Nebraska in addition to being the westernmost population of its native range. This population was targeted to determine if it would tolerate a wide range of conditions in the Great Plains, particularly west of the 100th meridian in Kansas, Nebraska, South Dakota, and North Dakota. Evaluations of Ames 27340 will help determine if this source can adapt to a wide range of soil and climatic conditions and provide outstanding, consistent fall color, while maintaining vigor. Probable hardiness is to USDA Zone 3b. Five plants approximately 1-ft tall were planted on the PMC in Field F-2 in 2009.

Missing an Old Friend

The damaging storm made the national news. Winds in excess of 90 miles per hour were recorded at Manhattan's Regional Airport, just across the river from the PMC, causing major damage to the surrounding area on August 13, 2010, a Friday. This prompted retiree Erling Jacobson, former Regional Plant Materials Specialist for the Midwest and PMC Manager at Manhattan, to call inquiring about how the trees at the PMC faired the storm. Erling remembered the pine located just outside the old temporary seed storage building where the PMC's office now stands. We reminisced once again about an ice storm during Erling's tenure that damaged branches on the pine, which were still evident in more recent times. This left a hole in the tree's branches and foliage, which detracted somewhat from the tree's form. Ironically, that gap in the tree's branches is thought to have saved the PMC's mail box from being flattened. With a slight twist, the wind brought down the tree that snapped off about 2 feet below ground level. A woodsman could not have felled the tree anymore perfectly to lay it out between the mailbox and the power line. When I arrived at the PMC, the power company's tree trimmers had already cut the top out of the tree to clear the lane and restore access to power lines up the line. Based on clues on the ground, I estimated the tree's height to be 85 feet. The diameter at breast height was 27.4 inches. In counting the trees rings it is believed to have been about 65-70 years of age. Some rings were difficult to count marking years with scant precipitation.

It's kind of funny, this past spring in times of high winds the pine would sway to and fro, and I often wondered just what would happen if the wind were to bring it down. If you have ever been to the PMC you have driven under and walked under that magnificent ponderosa pine that graced the PMC's grounds. Not the most perfect specimen of a pine but at about 85 feet tall it stood out on the landscape. For 24 years I've listened to the wind whispering through the pine's needles, felt the tree's scaly bark, and smelled the pine's scent after a rain. I'll miss that old tree!

John Row stands by the old Ponderosa pine for the last time.
Photo by Diane Row

~John M. Row, Plant Materials Specialist

Plant descriptions appearing in this newsletter were a major contribution by Jeffery D. Carstens, Research Technician, and Dr. Mark P. Widerlechner, Horticulturist, NCRPIS, Ames, Iowa, with edits and additions by John M. Row, Plant Materials Specialist, NRCS, Manhattan, Kansas.