

is presently cosponsored by fourteen government agencies and non-government organizations. It initially targeted African American youth from an eight county area in extreme southeastern Missouri. Later it expanded to include a diverse population of minorities throughout Missouri.

The camp exposes high school students to the outdoors through natural resource related activities and ultimately encouraged interaction and mentoring relationships with professionals in natural resources. Since its inception, 101 young people have attended NRCC. For seven of the past ten years, Pepper has served as chair of the steering committee in control of the program.

For many years, I have watched Pepper accompanying NRCC students to the MNRC. His interaction with these young people was simply amazing. He would always go out of his way to introduce them to everyone that he encountered. As for the students, you could sense the pride and confidence that he had instilled into them.

Pepper's outstanding service goes much further than his role with the NRCC and the Forest Service. He has been an ardent supporter of the National Wild Turkey Federation, the Rocky Mountain Elk Foundation, Trout Unlimited, and Ducks Unlimited. His community activities include service through the Rotary Club, his church, the Boy Scouts, and as a past little league wrestling coach with the Poplar Bluff Parks Department.

Forest Science

Establishing oaks in Big River floodplains

Dan Dey, John Kabrick and Michael Gold

Successful tree establishment is fundamental to implementing agroforestry practices, reforesting bottomland croplands or regenerating green-tree reservoirs. Planting trees can be problematic in floodplains and riparian areas because of intense competition from herbaceous and woody plants, animal herbivory and browsing, and flooding and saturated soils.

In the Lower Missouri River basin and elsewhere throughout the Mississippi River Valley, landowners are interested in planting trees in bottomland agricultural lands, and they have a preference for planting oaks (*Quercus*), black walnut (*Juglans nigra* L.), and pecans and hickories (*Carya*). Regeneration of these species in bottomland agricultural fields is further complicated by their relatively slow juvenile growth, which is particularly a problem in regenerating the oaks.

We initiated a study to evaluate different methods for establishing bottomland oaks in floodplains for a variety of reforestation purposes. We compared pin oak and swamp white oak stock types on

Missouri SAF Spring Technical Meeting

May 22, 2003 ♦ 10 a.m. - 4 p.m.

Sinkin Experimental Forest, Salem

Field trip of long-term research on even- and uneven-aged systems and pine management

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(More details to follow)

mounded and un-mounded soils, with and without a cover crop of redtop grass (*Agrostis gigantea* Roth). The study included two sites in the Missouri River floodplain, one protected by a levee and the other was not protected. At each site, we planted oak seedlings with and without a cover crop of redtop grass in 40-acre fields. Within each field seedlings were planted in mounded or un-mounded rows at a density of 48 trees per acre.

Soils were mounded with a rice plow and mounds were generally 2 feet tall and 7 feet wide at the base. The two stock types were 1-0 bareroot and 3- and 5-gallon container seedlings grown by the RPM™ method. Annually, we monitored survival, diameter and height growth, and animal damage on the planted oaks. We also compared soil bulk density and water content of mounded soils to un-mounded soils and related this to seedling performance.

First-year survival was high for both RPM™ and bareroot seedlings regardless of species, cover crop or mounding treatments. Survival of RPM™

was nearly 100% while that of bareroot seedlings varied from 81% for pin oak to 93% for swamp white oak. Second-year survival for RPM™ seedlings remained high but declined for bareroot stock regardless of species. Swamp white oak bareroot seedling survival was similar between cover crop treatments, ranging from 76 to 79%.

However, the survival of pin oak bareroot seedlings was only 48% in the no-redtop cover crop treatment and 71% in the redtop treatment. Each year the basal diameter increment was significantly greater for RPM™ seedlings than bareroot stock. By the second year height increment was significantly greater for RPM™ than bareroot seedlings. Soil mounding decreased bulk density and improved soil drainage but did not significantly affect oak seedlings performance. The cover crop did not affect seedling diameter growth but there was a significant reduction in height of seedlings in the no-redtop fields, where RPM trees lost significant amounts of height due to shoot dieback and resprouting after being girdled by rabbits.



Arbor Day proclamation signed

During a recent ceremony in his office, Gov. Bob Holden proclaimed April 4 as Arbor Day in Missouri. Many communities and schools will be observing the holiday with ceremonies and tree plantings. As in past years, the Conservation Department provided trees and teaching materials to every fourth grade class in the state. More than 4,000 teachers received an Arbor Day Activity Guide to help teach about trees and forestry. About 120,000 red pine seedlings were distributed to students.

Taking part in the proclamation signing were fourth graders Kaitlyn Kell, Raymondville, and Justice Downing, California; Alex Rinas, Raytown, winner of the Arbor Day poster contest; Bob Krepps, State Forester; and Mike Hoffmann, Missouri Society of American Foresters.

Herbivory on planted oaks was substantially greater in the no-redtop fields and this was due largely to rabbit girdling and shoot clipping of the planted oaks. For example, 96% of planted oaks in the natural vegetation field were girdled whereas only 17% of planted oaks were girdled in the redtop grass field. Most herbivory in the redtop grass field occurred near the field edges, whereas herbivory occurred throughout the natural vegetation field. We hypothesized that either rabbit densities differed between cover types or that rabbits used these fields differently.

To estimate rabbit densities in each cover type we initiated a mark-recapture study in the winter of 2001-02. Live-traps were set at a rate of 1 per acre for 8 continuous days in each cover type. Captured rabbits were individually marked with metal ear tags and released. Based on conventional mark-recapture analyses, we estimated population density in the redtop grass field at 1 rabbit per acre. In contrast, natural vegetation fields contained about 3 rabbits per acre. We attribute these differences to composition and structure of the ground flora, which may influence food availability and predation risk to rabbits. Methods that create favorable understory conditions for rabbits may hamper regeneration efforts. Using radiotelemetry, our future work will evaluate fine scale rabbit use of planted fields.

Overall, we found RPM seedlings had greater survival and growth than bareroot seedlings. We suspect that this is because the RPM seedlings are larger, have bigger root systems and, thus are more competitive when out-planted. This finding is consistent with other oak plantings in uplands, where larger seedlings with bigger root systems had greater survival and growth than smaller seedlings.

We also found that soil mounding did not increase seedling survival and growth. However, we attribute this to the better drainage of the soils in our study sites. Other studies conducted elsewhere have shown that mounding does increase seedling survival and growth where soils are poorly drained. Although we found that the redtop cover crop did not increase seedling growth, it had an unexpected benefit of decreasing herbivory from rabbits by decreasing vegetative cover. We will continue to monitor the success of the oak regeneration as affected by competition, rabbit herbivory, flooding and silvicultural treatment. In the next year we will be summarizing the results and making final assessments of the silvicultural treatments.

Special Funds sets record *Tom Ronk*

I would like to thank the MOSAF Special Fund Committee members (Laval, Cunningham, Parker, Buck, Altman, Keyser and Rhoades) and the entire membership for the generous donated items you provided, and the help you gave assisting at the SAF booth during the recent Natural Resources Conference.

We set a record this year when we took in \$1,614.14 from the raffle, silent auction and Blackjack Award contest. The breakdown of funds is as follows: \$1,157.38 from raffled items, \$426.50 from the silent auction and \$30.26 from the Blackjack Award contest. The Blackjack Award winner is Lynn Barnickol, so give him a great big MOSAF congratulation the next time you see him!!!

I would also like to solicit additional members interested in joining the Special Events Committee, especially younger members that would like the experience of making money for MOSAF. If anyone is interested in joining our committee please email me and I will include you on the team.

Again, thanks to everyone that donated items for this year's event. Next year my goal is raising \$2,000.00 for MOSAF.



Lynn Barnickol was the big winner in the Blackjack Forester raffle this year. The Special Funds Committee raised more than \$1,600 at the Natural Resources Conference.